CRITICAL MEDICAL AND SURGICAL NURSING JOURNAL
Vol. 10, No. 2, October 2021
Journal Homepage: https://e-journal.unair.ac.id/CMSNJ

Patient Adherence to Tuberculosis Treatment: A Relation between Family Support and Patient Behavior

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ARTICLE HISTORY
Received: April 23, 2021
Accepted: November 2, 2021
Published: December 10, 2021

KEYWORDS
compliance, family support, patient behavior, tuberculosis

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ABSTRACT

Introduction: Knowledge, family support, and behavior have a significant impact on an individual's and community's health. They play a critical part in deciding disease control programs and transmission prevention of tuberculosis. The purpose of the study was to determine the association between family support, patient behavior, and tuberculosis treatment compliance in the Baing Primary Health Care of Wulla-Waijilu District

Methods: The study design was cross-sectional using the Spearman Rho test. The sample was 123 respondents with purposive sampling technique. The data collection was using sociodemographic questionnaires, family support, behavior, TB treatment adherence and MMAS-8. The dependent variable in this study was family support. The independent variables in this study were patient behavior and TB treatment adherence.

Result: There was a relationship between family support and patient behavior (p=0.025), a relationship between family support and compliance with TB treatment (p=0.042)

Conclusion: It can be concluded that there was a relationship between family support and TB patient behavior and there was a strong and significant relationship between family support and the level of TB treatment adherence.

Cite this as:

Soleman, R. P. H. S., Sukartini, T., & Qona'ah, A. (2021). Patient Adherence to Tuberculosis Treatment: A Relation between Family Support and Patient Behavior. *Crit. Méd. Surgical. Nurs. J,* 10(2), 42-46.

1. INTRODUCTION

Baing Public Health Center (PHC), Wulla-Waijilu District, has increased in patient Tuberculosis (TB) number. In 2016 there were 3 people affected by TB, in 2017 there were 22 people affected by TB, while in 2018 and 2019 there were 7 and 11 people who were positive for TB. Five people who have positive for TB, did not get support from their families when undergoing TB treatment and did not know about how TB was transmitted and how to prevent TB infection. Until the end of the day, Tuberculosis is still a global health problem.

One third of the world's population has been infected with TB where the majority of TB sufferers are of productive age (15-55 years). It causes poor health among millions of people every year and is the second leading cause of death from infectious diseases worldwide, after Human Immunodeficiency Virus (HIV)/AIDS (Acquired Immune Deficiency Syndrome). In 2018 there were 9 million new cases and 1.4 million deaths due to TB and HIV (Ministry of Health, 2019). The World Health Organization (WHO) declared tuberculosis a global public health emergency in 2017 (WHO, 2018). The obstacle in TB treatment is the lack of adherence of TB patients to take anti-tuberculosis drugs, the cause is the motivation of the sufferers who are still lacking (Prasetya, 2017).

In order to achieve the goal of adherence to taking TB drugs, it is necessary to get used to it as a norm of life and culture of TB patients so that they are aware and independent to live healthy. However, to raise awareness of adherence to taking TB drugs, an action is needed that can motivate correctly and consistently. National TB control with Anti Tuberculosis Drugs (OAT) is given to patients free of charge and their availability is guaranteed. The time used for therapy is 6-8 months. This often results in

patients being less compliant and taking medication irregularly.

Irregular treatment and incomplete combination are thought to have, in double immunity of TB germs to Anti Tuberculosis Drugs. Therefore, it is very important for patients to complete the therapy program well, in other words, patient compliance for TB disease cure. (Wulandari 2015).

Based on data from the World Health Organization (WHO), TB cases in Indonesia reached 842 thousand. A total of 442,000 people with tuberculosis reported and around 400,000 others did not report or were not diagnosed. The TB patients consisted of 492,000 men, 349,000 women, and 49,000 children. The number of TB cases in Indonesia is the third largest in the world after India which reached 2.4 million cases and China with 889 thousand cases (WHO, 2018). The number of new TB cases in Indonesia was 420.994 cases in 2017 (data as of May 17, 2018). Based on gender, the number of new TB cases in 2017 in males was 1.4 times greater than in females. Even based on the Tuberculosis Prevalence Survey, the prevalence in men is 3 times higher than in women. The same is happening in other countries. This may be because men are more exposed to TB risk factors, such as smoking and lack of medication adherence. This survey found that of all male participants who smoked as much as 68.5% and only 3.7% of female participants who smoked (Ministry of Health RI 2018).

The number of Tuberculosis sufferers (TB NTT as of May 11, 2020 was 150 cases. TB cases were spread in several districts including Alor Regency with 12 cases, Ende Regency with 28 cases, East Flores Regency with 4 cases, Kupang City with 22 cases , Lembata Regency with 20 cases, West Manggarai 1 case, East Manggarai Regency 9 cases, Nagekeo Regency 1 case, Ngada Regency 19 cases, Sikka Regency 10 cases and TTS Regency 24 cases (Kupang Health Office, 2020).

Lack of adherence to medication in tuberculosis patients is a problem that hinders the healing of pulmonary tuberculosis. This is supported by the fact in the community that the cause of Pulmonary Tuberculosis sufferers is not fast in the process of recovering from illness and the illness they suffer is getting longer because the patient does not take medication regularly, is lazy to seek treatment, and because of the lack of support obtained from the family. (Media, 2018).

Based on the data and description of the problem above, researchers are interested in conducting research on the relationship between family support and patient behavior and the level of TB treatment adherence by using Lawrence W Green's theory (Nursalam, 2016). Lawrence Green who explained that studying human behavior problems and the factors that influence them, as well as how to follow up with trying to change, maintain or improve these behaviors in a more positive direction.

The review process or the precedence stage and the follow-up process at the procedure stage. Thus, a program to improve health behavior is the application of the four processes in general into the assessment and follow-up model. So, there is a relationship between the behavior of patients who are open with family support and the level of adherence to TB treatment.

2. METHOD

The design of this research is descriptive correlational with cross sectional approach. The population in this study were all TB patients in the working area of the Baing PHC, Wulla-Waijilu District from October to November 2020 with a total of 180 patients. The sample size obtained from the calculation of the Slovin formula is 123 TB patients with purposive sampling technique. The criteria for patients who become respondents include: (1) Respondents aged 18-65 years; (2) TB patients with a continuation phase of treatment program; (3) TB patients with treatment categories I and II. Patients who met the criteria were given an explanation and informed consent as a sign that they were willing to be involved in the study. The independent variables in this study were patient behavior and TB treatment adherence. The dependent variable in this study is family support.

This study used a demographic data questionnaire to determine the characteristics of respondents, family support questionnaires, patient behavior questionnaires, TB treatment adherence questionnaires. Data analysis was carried out through descriptive and inferential analysis. Inferential analysis using Spearman's Rho analysis with a confidence interval of 95% CI, alpha (α) = 5%.

The research protocol has been reviewed and obtained ethical feasibility from the Health Research Ethics Committee, Faculty of Nursing, Airlangga University, Surabaya with certificate number 2161-KEPK.

3. RESULT

In table 1 most of the respondents were male, 54.5%, 67 people, and 56 respondents were female (45.5%). Respondents are mostly in the age range of 20-40 years by 39.0% or a total of 48 people, some others are in the age range of 41-60 years and 61-80 years. Based on the level of education, most of the respondents were elementary school graduates with a total of 41.5% or 51 people, 22.8% junior high school graduates (28 people), and others graduated from high school, college and did not go to school. The work status of the majority of respondents worked at 81.3% (100 people). Most of the TB patients underwent advanced treatment, 59.3% (73 people). From the table 2, most of the family support for TB patients is in the good category as many as 71.5% (88 respondents), while in the sufficient category there are 28.5% (35 respondents) and for the less category there are 0 respondents.

Table 1. Demographic Characteristics of TB patient Families at Baing Health Center in January 2021

Family Characteristics of TB Patients	Categories	n	%
Gender	man	67	54.5
	woman	56	45.5
Age	20-40 yrs	48	39.0
	41-60 yrs	45	35.0
	61-80 yrs	40	26.0
Last education	no school	18	14.6
	elementary school	51	41.5
	junior high school	28	22.8
	senior high school	24	19.5
	university	2	1.6
Job status	work	100	81.3
	does not work	23	18.7
Type of Treatment	early stage (first 2 months)	50	40.6
	advanced stage (4 months and over)	73	59.3

Table 2. Distribution of family support in Baing Health Center in January 2021

Variable	Category	Amount	%
Family support	Good	88	71.5
	Enough	35	28.5
	Not enough	0	0

Table 3. Behavior distribution of TB patients at Baing Health Center in January 2021

Variable Aspects of TB Behavior	Category		Total	%
	Well	Not enough		
Open Behavior	20	70	90	73.1
Closed Behavior	15	18	33	26.9

Table 3 mention that the majority of patient behavior in the open behavioral aspect in the less category is 70 respondents while in the closed behavior aspect the less category is 18 respondents.

Table 4 mention that the majority of TB patients are in the non-adherent in undergoing TB treatment with the amount of 55.3% (68 respondents) while the compliant category is 44.7% (55 respondents).

Based on statistical analysis using the Spearman rho correlation test with a significance level of <0.05, the results were p = 0.025. A p value less than 0.05 indicates H1 is accepted and H0 is rejected, meaning that there is a relationship between family support and the behavior of TB patients. The value of the correlation coefficient (r) = -0.134 which means it shows a low relationship. The value of r is negative, which means that the higher the family support provided by the family, the smaller the behavior of TB patients.

Based on statistical analysis using the Spearman rho correlation test with a significance level of <0.05, the results were p = 0.042. It means that there is a relationship between family support and the level of TB treatment adherence. The value of the correlation coefficient (r) = 0.024, which means it shows a low relationship. The value of r is positive, which means that the higher the family support provided by the family, the higher the level of adherence to TB treatment in TB patients.

Table 8 shows that as many as 51 respondents (53.1%) had low medication adherence with non-target blood pressure. Based on the results of the analysis using the Spearman Rank Test Correlation statistical test, it was found that the value of p = 0.000 and r = 0.726. P value <0.05 (p = 0.000) means H1 is accepted and indicates a relationship between medication adherence and blood pressure in hypertensive patients at Pandanwangi Health Center, Malang City. The correlation coefficient value is positive (r = 0.726), which means that the strength of the relationship between medication adherence and blood pressure is strong and unidirectional. The existence of a strong and unidirectional relationship indicates that the better the level of diet, the better blood pressure in patients with hypertension at Pandanwangi City Health Center Poor.

4. DISCUSSION

The results of the study stated that most of the family support for TB patients was in the good category in carrying out TB treatment at the PHC. This is because the family has always been loyal to provide support in the form of informative, instrumental, emotional and appreciation to TB patients. This is in line with research Trilianto et al (2020) which states that the family support provided to TB clients is essential (Trilianto, Hartini, Pasidi Shidiq, et al. 2020). As it is known that the family, both nuclear and extended family functions as a support system for its members.

Family support is critical in the successful treatment of pulmonary tuberculosis patients, as it reminds them to take their medicine on a regular basis. Good understanding of sick individuals and encouragement to continue taking medication on a regular basis. Patients with pulmonary tuberculosis need family support, which includes exhibiting worry and sympathy, as well as caring for them. Family support, which includes emotional concern, assistance, and affirmation, will ensure that patients with pulmonary tuberculosis do not feel alone when confronted with tough conditions. Providing continual support to pulmonary tuberculosis patients during treatment can empower them. Such as reminding patients to take medicines and developing a sensitive attitude towards pulmonary TB patients if they experience side effects from TB drugs.

The results of study stated that the majority of the behavior of patients in the good category, poor category and good category. This is in line with research conducted by Moh. Akbar et al (2017) that respondents who behaved well had a greater percentage of 55.60%.

Table 4. Distribution of TB Treatment Adherence Levels at the Baing Health Center in January 2021

Variable	Category	Amount	%
TB Treatment Compliance Rate	Obey	55	44.7
	Not obey	68	55.3

Table 5. The Relationship between Family Support and the Behavior of TB Patients in the Working Area of the Baing Health Center, Wulla-Waijilu District

Family support	Patient Behavior						Total
	Good		Enough		Not Enough		
	n	%	n	%	n	%	
Good	51	41.4	17	13.8	0	0	68
Not enough	17	13.8	13	10.5	25	20.3	55
Spearman Rho r=-0.134 p=0.025							123

Table 6. The Relationship between Family Support and the Level of TB Treatment Adherence in the Working Area of the Baing Health Center, Wulla-Waijilu District.

Endorsement Family	Treatment Compliance Rate		
	Obey	Not Obey	Total
Good	40 (32.5%)	48 (39.1%)	88 (71.6%)
Enough	15 (12.1%)	20 (17.3%)	35 (28.4%)
Not enough	0 (0%)	0 (0%)	0 (0%)
Total	55 (43.6%)	68 (56.4%)	123 (100%)

Spearman Rho r= 0.024 p=0.042

The behavior of TB patients is a response to treatment for pulmonary TB disease, for example: routinely in carrying out control to the hospital then how to swallow OAT completely and regularly until it heals; cover the mouth when coughing and sneezing; wash hands with soap after using hands to cover mouth when coughing and sneezing; seek adequate ventilation, so that fresh air and sunlight enter the house; trying to get sunlight into the bedroom, drying bedding as often as possible because TB germs are killed by sunlight; not spitting in any place, but spitting in certain places such as spittoons or closed cans that have been filled with soapy water.

The results of the above study stated that the majority of TB patients were in the non-adherent category in undergoing TB treatment. Disobedience here is because TB patients are often disobedient in taking medication and in controlling TB treatment for a long time. This is not in line with research conducted (Trilianto, Hartini, Shidiq, et al. 2020) which states that medication adherence in tuberculosis patients in Bondowoso district is included in the good category, because from the distribution of data obtained more than 50% or more than half of the population included in the category of compliance. In line with data from the Indonesian Public Health Student Scientific Periodic journal (2016), Indonesia's achievement rate in medicine is 91%, and decreased in 2012 the rate of treatment achievement decreased.

The data above shows that the relationship between family support and the behavior of TB patients at the Baing Health Center shows a strong relationship, meaning that the higher the family support provided by the family, the smaller the behavior of TB patients. Where the behavior of TB patients in the sufficient category is influenced by how family support is provided in the form of informative support, instrumental support, emotional support.

This is in accordance with research (Subhakti, Arneliwati, and Erwin 2017) which states that there is a significant relationship between family support and the behavior of pulmonary TB patients doing re-control at the Sidomulyo Health Center. Family support is one of the factors that affect compliance in carrying out routine re-control for pulmonary TB treatment, where the nuclear family and extended family function as a support system for family members.

The data above shows that the relationship between family support and the behavior of TB patients at the Baing Health Center shows a strong relationship which means that the higher the family support provided by the family, the higher the level of adherence to TB treatment in TB patients.

This is in line with research (Widyaningrum, Retnaningsih, and Tamrin 2019) which states that there is a relationship between family support and adherence to medication for pulmonary TB patients at the Arifin Achmad Regional General Hospital. Based on the results of the odds ratio (OR) patients who received negative family support also had the opportunity to be disobedient compared to respondents who received positive family support.

CONCLUSION

The family support felt by TB patients mostly shows in the good category which describes TB patients who feel good family support in carrying out TB treatment. The behavior of TB patients in following TB treatment is mostly in the sufficient category which shows sufficient behavior in undergoing TB treatment. The level of adherence to TB treatment by TB patients is mostly in the non-adherent category which indicates that TB patients are not compliant in following TB treatment. There is a strong and significant relationship between family support and the behavior of TB patients, where the higher the family support for TB patients, the lower the behavior of TB patients

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