

Original Article

The Relationship Between Family Support and Family Stress in Pulmonary Tuberculosis Patients

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ABSTRACT

Pulmonary tuberculosis is the third most prevalent disease worldwide. It is a contagious disease caused by Mycobacterium tuberculosis, a bacterium characterized by dimensions of 0,5-4 μ x 0,3-0,6 μ and an outer thick layer composed of lipids that are resistant to chemical penetration. Family support is one of the factors influencing the treatment of pulmonary tuberculosis, where both main and extended family serve as a support system for their affected members. The primary function of a family is to provide healthcare. The objective of this study is to investigate the relationship between family support and family stress among pulmonary tuberculosis patients at Tamalanrea Primary Health Center. This study employed a quantitative cross-sectional research design and utilized a total sampling approach with a sample size of 32 patients. Data were collected through questionnaires and analyzed using Fisher's Exact test. The results of the study revealed a significant relationship between family support and family stress in tuberculosis patients, with a p-value of 0,018. In conclusion, this study established a correlation between family support and family stress among pulmonary tuberculosis patients at Tamalanrea Primary Health Center. It is suggested that future researchers use larger sample sizes to explore additional factors that impact family support and family stress among tuberculosis patients.

Keywords: Tuberculosis, Family Support, Family Stress

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INTRODUCTION

Pulmonary tuberculosis is an infectious disease caused by mycobacterium tuberculosis, which commonly affects the lungs but can also affect other organs¹. Pulmonary TB is particularly contagious in densely populated areas with poor ventilation and limited exposure to sunlight. However, in well-ventilated spaces with adequate air circulation, TB bacteria can only remain viable for 1-2 hours².

This global endeavour to combat tuberculosis, which has saved approximately 66 million lives since the year 2000. In 2018, a total of 1,5 million individuals, including 251,000 individuals with HIV, succumbed to

pulmonary tuberculosis. An estimated 10 million people (ranging from 9 to 11,1 million), comprising 5,7 million men, 3,2 million women, and 1,1 million children, are believed to have become infected due to pulmonary TB in 2018. This places Pulmonary Tuberculosis as the third leading cause of death worldwide, following coronary artery disease (ischemic heart disease) and stroke. Therefore, eradicating the TB pandemic is one of the key objectives of the 2030 Sustainable Development Goals (SDGs) that every nation must strive to achieve. Meanwhile, Indonesia stands out globally for its high tuberculosis incidence, as evidenced by its classification as one of the top five countries in the world for TB prevalence³.

Tuberculosis continues to pose a significant global health challenge, persisting as one of the top 10 leading causes of mortality worldwide. According to the World Health Organization's Global TB Report for 2021, Indonesia holds the unenviable distinction of being the third-highest burdened nation for tuberculosis on the planet. It is estimated that in the year 2020, there were a staggering 824,000 new tuberculosis cases in Indonesia, resulting in a grim tally of 93,000 deaths, equivalent to an alarming 11 deaths per⁴.

Specifically focusing on South Sulawesi, the year 2020 saw a total of 18,863 reported cases of pulmonary tuberculosis, comprising 11,095 males and 7,768 females. Among these cases, 11,476 individuals (accounting for 60,83% of the total) were registered and underwent treatment, with a noteworthy 8,686 individuals (representing 70,65% of the treated cases) attaining recovery during the same year⁵.

From the initial data at Tamalanrea Health Center, the escalation of tuberculosis cases has not exhibited a significant increase compared to the previous years. In the current year, the health center has recorded approximately 10 patients suffering from pulmonary tuberculosis. When compared to the preceding years, the prevalence of pulmonary tuberculosis patients at the Tamalanrea Primary Health Center has notably higher.

Family Support plays a pivotal role in influencing the management of pulmonary tuberculosis, with both main and extended family members serving as a robust support system for their effected relatives. As its core, the family function lies in healthcare provision, encompassing the family's ability to offer emotional understanding and encouragement, there by motivating patients to diligently adhere to their treatment^{6,7}.

Family support is significantly a cornerstone of success in the treatment of pulmonary TB by consistently providing understanding and motivation, ensuring patients remain committed to their treatment regimen⁸. This support entails emotional concern, practical assistance, and reinforcement, effectively preventing patients

from feeling isolated and helpless in the face of their condition. Moreover continuous family support empowers pulmonary tuberculosis patients throughout their treatment journey, promoting an enduring sensitivity to potential medication side effects⁹.

The influence of family support holds immense significance for individuals facing health challenges, serving as a vital strategy to mitigate stress¹⁰. This support is particularly crucial in the context of adherence to medication regimens, including Anti-Tuberculosis Drugs (ATDs). The family's role in providing this support cannot be understated, as it significantly contributes to individuals' commitment to adhering to prescribed treatments¹¹.

The role of family support significantly influences a patient's decision to complete their medication regimen. Some patients, experiencing adverse effects from anti-tuberculosis medications, opt to discontinue their treatment. Family support, serving as a Patient Management Officer (PMO), empowers tuberculosis patients throughout their treatment by offering continuous assistance, such as reminders for medication adherence. Beyond their role as PMOs, families are crucial in providing support to tuberculosis patients by demonstrating care, empathy, and tending to their needs¹².

Family Stress refers to the mechanisms employed by pulmonary tuberculosis patients to cope with stress, involving both adaptive (effective) and maladaptive (ineffective) coping strategies. Coping mechanisms represent an individual's efforts to address their challenges. It can be elucidated that coping mechanisms are the strategies employed by an individual confronting their issues, adapting to all threatening situations, thereby enabling pulmonary tuberculosis patients to undergo their treatment without fear¹³.

In family stress theory, it is elucidated that a crisis arises when sources and adaptive strategies are ineffective in addressing stressor threats, rendering the family incapable of proficiently problem-solving, and consequently, less functional. Furthermore, according to Cox and Ferguson, family crises or

stress often originate from family instability and disarray. When stress occurs, families typically experience discomfort and become more receptive to advice and information¹⁴.

This objective of this research is to investigate the correlation between Family Support and Family Stress in Pulmonary Tuberculosis patients within the operational area of the Tamalanrea Primary Health Center.

METHOD

The research design employed in this study is cross-sectional, focusing on examining relationships and associations. It was conducted at the Tamalanrea Primary Health Center in Makassar during the month of July. The study population comprises pulmonary tuberculosis patients receiving treatment within the jurisdiction of the Tamalanrea Primary Health Center in Makassar, with a sample size of 32 patients chosen via total sampling.

The measurement tools utilized in this study consist of self-efficacy questionnaires and behavioral factor questionnaires. Data processing techniques encompass editing, coding, data entry, and tabulation. Univariate analysis was used to examine respondent characteristics' frequency distribution and treatment adherence. Bivariate analysis was conducted to assess the relationship between the dependent and independent variables, using Fisher's Exact test. The research has received ethical clearance with reference number 400/STIKES-NH/KEPK/VI/2022, issued on June 16, 2022.

RESULTS

Table 1. Frequency Distribution Based on Respondent Characteristics (n=32)

General Characteristics	n	%
Age		
Aged 2-10 years	3	9,4
Aged 11-19 years	1	3,1
Aged 20-60 years	27	84,4
Aged >60 years	1	3,1
Gender		
Male	18	56,2

General Characteristics	n	%
Female	15	43,8
Education Level		
Elementary School	9	28,1
Junior High School	9	28,1
Senior High School	10	31,2
Undergraduate	4	12,5

Table 1 illustrates that out of the 32 respondents, the age characteristics of the respondents indicate that the majority fall within the 20-60 age bracket, comprising 27 respondents (84,4%), while the represented age group is over 60 years, comprising only 1 respondent (3,1%). As for the gender characteristics, the majority are male, totaling 18 respondents (56,2%), with 15 respondents (43,8%) being female. In terms of educational background, the majority of the respondents have completed high school education (SMA), accounting for 10 respondents (31,2%).

Table 2. Frequency Distribution Based on Family Support at Tamalanrea Primary Health Care

Medication Adherence	Frequency (f)	Percentage (%)
Adherent	27	84,4
Non-adherent	5	15,6
Total	32	100,0

Table 2 indicates that among Pulmonary TB patients at Tamalanrea Primary Health Care in Makassar, 27 respondents (84,4%) exhibit adherence to their medication regimen, while 5 respondents (15,6%) do not adhere to the prescribed treatment.

Table 3. The Association Between Family Support and Pulmonary TB Patients' Medication Adherence at Tamalanrea Primary Health Care in Makassar

Family Support	Medication Adherence				Total	P-Value
	Adherent		Non-adherent			
	n	%	n	%	n	%
Positive	24	92,3	2	7,7	26	100,0
Negative	3	50,0	3	50,0	6	100,0
Total	27	84,4	5	15,6	32	100,0

Table 3, concerning the relationship between family support and treatment adherence among pulmonary tuberculosis patients at Tamalanrea Primary Health Center in Makassar, which reveals that patients with positive family support exhibited a high adherence rate, with 24 patients (92,3%) adhering to the prescribed medication regimen. In contrast, there are 2 patients with positive family support but did not adhere to the medication. Among patients with negative family support, there are 3 patients are adhere to their prescribed medication, on the contrary, patients with negative family support who did not adhere to the medication consist of 3 patients (50%).

Table 4. The Association between Family Stress and Pulmonary Tuberculosis Patients' Medication Adherence at Tamalanrea Primary Health Center in Makassar

Family Stress	Medication Adherence				Total		P-Value
	Adherent		Non-adherent		n	%	
	n	%	n	%			
Not Stressed	25	92,6	2	7,7	26	100,0	0,018
Stressed	2	40,0	3	50,0	6	100,0	
Total	27	84,4	5	15,6	32	100,0	

Table 4, which investigates the association between family stress toward Pulmonary Tuberculosis patients' medication adherence at Tamalanrea Primary Health Center in Makassar indicates that patients who experience low family stress or not stressed demonstrated a quite high adherence rate, comprising 25 patients (92,6%) diligently adhering to their medication, while there are 2 patients (7,4%) with low family stress did not adhere to their prescribed medication. On contrary, among patients experiencing high family stress, 2 patients (40%) adhered to the medication regimen, while the other 5 patients (15,6%) did not adhere to the prescribed treatment.

DISCUSSION

According to the research findings regarding family support and medication

adherence, it was investigated that patients who received good support and exhibited adherence accounted for 92,3% of the respondents, totaling in 24 individuals. This strong correlation can be attributed to the support provided by their families, including encouragement to be recovered, informative discussion regarding benefits and risks of non-compliant medication, and logical assistance, such as escorting patients to their medical appointments. Furthermore, family members were readily available to offer guidance in resolving any issues, ensuring that patients did not feel isolated. Whereas, those who has a high family support but did not compliant to their medication numbered 2 individuals (7,7%), this non-compliance or non-adherence can be linked to the stress experienced by the patients due to their environment, including their neighbors and friends, as well as their negligence to take their medications routines and failed to adhere to prescribed schedule at the health center. While for the patients with negative family support but adherence, amounted 3 individuals (50%), these patients possessed a level of self-confidence that motivated them to recover from their ailments. Those who do not experience family support and not compliance to their medication amounted 3 individuals (50%), arised by the absence of family attention and support, since family support is one of the pivotal factors in affecting the treatment progress.

Family Support constitute as one of the factors that affect Pulmonary TB medication, where main family or extended family serving as support system for their families. The fundamental role of the family lies in healthcare provision which represents the family's capability. Family support significantly encourage the success of pulmonary tuberculosis patients treatment by continuously reminding the patients to adhere to their prescribed medication and providing motivation to ensure consistent medical adherence¹⁵⁻¹⁸.

Correspondingly to a study conducted by (Wulandari, Jeanny Rantung, & Malianti, 2020), it is affirmed that positive family support enhances the motivation of the TB patients to adhere to their medication, and through the

improved medication adherence, the recurrence rate of tuberculosis among patients can be reduced, effectively mitigating the rise in cases of Multi-Drug Resistant Tuberculosis (MDR-TB)¹⁹.

This aligns with the research conducted by Mando, (2018) regarding association between family support and medical professionals encouragement in Pulmonary Tuberculosis Patients at the Likupang Primary Health Center in North Minahasa regency⁶. This study was undertaken due to crucial role of family support for tuberculosis patients, wherefore it is the family's responsibility to encourage patients to consistently adhere to their medication and remind them to undergo sputum re-examination at the specified intervals. With a positive family support, pulmonary tuberculosis patients are prone to be more motivated to diligently attend their medication regimen⁶.

Research finding conducted by (Akbar, Fauzan, Langingi, & Darmin, 2021) also suggests that patients adherence depend on the family attitudes as a form of family support so as motivating the patient to take an action towards achieving recovery¹⁸.

The result of this study also indicates that the majority of the respondents (72,3%) experience positive family support and the remains as much 26,8% patients experience a low family support. Family plays a crucial role in encouraging pulmonary TB patients to consistently attend and take their medication¹⁸.

The success of pulmonary tuberculosis patients treatment is significantly aided by the families who consistently remind them to take their medications as its prescribed and encourage them to do so regularly. Family support is essential for motivating pulmonary tuberculosis patients by demonstrating care, sympathy, and willingness to provide care. Patients with tuberculosis often feel less isolated when facing crisis scenarios resulting from their condition through emotional support, assistance, and inspiration.

In line with the study conducted by Pitters et al., 2019, titled "Family Support and Its Relationship with Medication Adherence in Pulmonary Tuberculosis Patients at the Ronatan

Weru Primary Health Center, Sam Ratulangi in 2018", which claimed that measures to ensure medication adherence in pulmonary tuberculosis patients involve family support²⁰. Based on that study, it is imperative for the family to play an active role and participate in the research conducted at Ranotana Weru Primary Health Center. The finding revealed that among 66 pulmonary tuberculosis patients who were adhere to their medication, 17 of them received a positive family support, it is indicate a strong significant correlation between family support and medication adherence, with a p-value of 0,000.

Based on the research on family stress and treatment adherence among pulmonary tuberculosis patients at the Tamalanrea Primary Health Center in Makassar, the following observations were made as patients who were not experiencing stress and were adherent to their treatment regimen numbered 25 individuals, representing 92.6%. This is attributed to the positive and supportive treatment environment, which encourages patients to diligently adhere to their treatment without feeling stressed or pressured. Among patients who were not experiencing stress but were not adherent to their treatment, 2 individuals were identified, comprising 7.4%. This non-adherence primarily resulted from patients frequently forgetting to take their prescribed medication provided by the health center for daily consumption. Patients who experienced stress but remained adherent to their treatment totaled 2 individuals, accounting for 40.0%. Their persistence in adhering to treatment despite stress was influenced by their determination to overcome the illness they were facing. In contrast, there were 3 patients who experienced stress and were non-adherent, representing 60.0%. The stress led these patients to constantly dwell on their illness, making them feel worthless and sad. This emotional burden was a significant factor contributing to their non-adherence to the treatment provided or facilitated by the health center.

Family stress in the context of pulmonary tuberculosis patients can serve as a coping mechanism to address stress-related

issues, whether adaptively (effectively) or maladaptively (ineffectively). Coping strategies represent individuals' efforts to manage these issues. The theoretical concept of an individual's coping strategy relates to how they deal with problems and adapt to potentially hazardous situations, enabling pulmonary tuberculosis patients to accept treatment without fear. According to the notion of family stress, crises emerge when resources and adaptive tactics fail to adequately counter stressor threats. Consequently, families lose their capacity to resolve problems effectively and become less valuable. As per the ideas put forth by Cox and Ferguson, family instability and turmoil are at the root of family stress. Families typically feel uncomfortable and are receptive to advice and ideas when they are experiencing stress¹⁷.

This indicates that the majority of Pulmonary Tuberculosis patients chose positive as their answers on family support, not stressed on family stress, and adherent on medication adherence category at Tamalanrea Primary Health Center.

After the Fisher's Exact test has been utilized to investigate the impact between family support and family stress toward pulmonary tuberculosis pulmonary patients, where family support affects pulmonary tuberculosis patients on medication adherence. With a p-value=0,034 ($p < 0,05$) which indicates a strong relationship between family support and pulmonary tuberculosis patients medication adherence at Tamalanrea Primary Health Center in Makassar.

The result of this study is in line with a study conducted by (Septia, et al., 2019), it implies that bivariate analysis using Chi-square showed that there is a significant relationship between family support and pulmonary tuberculosis patients medication adherence at Arifin Achmad Region Hospital¹. According to the odds ratio (OR) of patients who experience negative family support have the possibility to be non-compliant compared to the patients who experience positive family support¹.

According to the result of the study, the researcher assumed that there is an association between family support and family stress

towards pulmonary tuberculosis patients medication adherence at Tamalanrea Primary Health Center in Makassar. It is established that during the medication regimen the majority of the patients are adhere to their prescribed medication.

CONCLUSION

According to the result and discussion of the study, it can be conclude that there is a significant relationship between family support and family stress among the Pulmonary Tuberculosis patients at Tamalanrea within the operational area of the Tamalanrea Primary Health Center with a p-value of 0,018. It is suggested for medical professionals to continuously support for pulmonary tuberculosis patients at home by actively monitoring their medication adherence, the recovery progress of the patients, and by consistently enhancing their knowledge, skills, and positive attitudes in providing care to pulmonary tuberculosis patients to lessen the risk of a decreased quality of life in patients.

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