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The Role of Treatment Supervisors and Family Support in Pulmonary Tuberculosis Patient Recovery: Cross Sectional

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Abstract

Background: Pulmonary tuberculosis is an infectious disease that requires effective treatment supervision and support from the immediate environment to achieve recovery. The role of Treatment Supervisors and family support are essential components in the success of pulmonary tuberculosis therapy, particularly in primary health care settings.
Purpose: This study aimed to analyze the relationship between the role of Treatment Supervisors and family support with the recovery of pulmonary tuberculosis patients in the working area of Poasia Primary Health Center.
Methods: This study employed a quantitative analytic method with a cross-sectional design. The study population consisted of all pulmonary tuberculosis patients recorded in the Poasia Primary Health Center registry over the past year, totaling 49 patients. A total of 44 respondents were selected using a total sampling technique. Data were collected using structured questionnaires and analyzed using the Chi-square test and Phi test.
Results: The results showed a moderate association between the role of Treatment Supervisors and pulmonary tuberculosis patient recovery (p = 0.006). A moderate association was also found between family support and pulmonary tuberculosis patient recovery (p = 0.006).
Conclusion: The role of Treatment Supervisors and family support are significantly associated with the recovery of pulmonary tuberculosis patients. Strengthening the involvement of Treatment Supervisors and families should be a priority in community nursing interventions to improve tuberculosis treatment outcomes.

Background

Tuberculosis is a contagious disease that can affect various tissues or organs of the body, caused by *Mycobacterium tuberculosis* (Agustina, Putri, & Handayani, 2022) Pulmonary tuberculosis remains a major public health problem and a global health issue in all countries (Anggraeni, Suryani, & Prasetyo, 2023). WHO data in 2023 reported that tuberculosis caused 1.5 million deaths worldwide, with six countries having the highest number of new cases, including Indonesia, which accounted for 5.8 percent of global cases (Susanto, 2015). In Indonesia, the incidence of tuberculosis increased from 83 percent in 2024 to 9.9 percent in 2025, with mortality rates also rising (Azrin et al., 2025).

In Southeast Sulawesi, the distribution of positive BTA pulmonary tuberculosis cases in 2014 was highest in Muna Regency at 8.29 percent, followed by Konawe Regency at 6.07 percent, Kendari City at 5.51 percent, and lowest in North Buton Regency at 0.3 percen. In Kendari City, pulmonary tuberculosis cases have increased annually, from 4.48 percent in 2015 to 5.94 percent in 2023 (Darmawan, Lestari, & Wibowo, 2023). In addition, treatment adherence among pulmonary tuberculosis patients remains low, with only 32.6 percent of patients following medication as recommended, which has contributed to a decrease in recovery rates from 77.7 percent in 2016 to 72.5 percent in 2023 (Hastuti & Rahmawati, 2022). At Poasia Primary Health Center, pulmonary tuberculosis recovery rates have fluctuated, with 43 percent

in 2023, 49 percent in 2024, and 40 percent in 2025 (Profile of Poasia Community Health Center, Kendari City, 2025).

Although national efforts to combat pulmonary tuberculosis have been implemented by providing free medication, recovery rates remain suboptimal due to patient non-adherence to treatment Hastuti & Rahmawati, 2022). The *Directly Observed Treatment, Short-course* (DOTS) strategy is recommended by WHO as an effective method, with recovery indicators including completion of treatment and negative follow-up sputum results (Komariah, Sari, & Yuliani, 2023). However, patient non-adherence remains a major issue causing treatment failure, disease relapse, and drug resistance.

One of the main factors contributing to non-adherence is the ineffective supervision by Treatment Supervisors (RTS), who are responsible for ensuring patients take their medication as scheduled (Lestari, Mulyadi, & Putra, 2022). Field observations show that many tuberculosis patients discontinue treatment prematurely. Interviews with five respondents revealed that some patients did not take medication as prescribed and perceived that Role of Treatment Supervisor (RTS) were not performing their duties effectively. These conditions indicate that consistent supervision is essential to support the recovery of pulmonary tuberculosis patients (Lisnawati, Nazaruddin, & Zoahira, 2024).

Based on this background, the author is interested in studying the factors associated with the recovery of pulmonary tuberculosis patients in the working area of Poasia Primary Health Center. This study is expected to provide information on the importance of Role of Treatment Supervisor (RTS) and patient adherence in tuberculosis treatment, thereby improving recovery rates in primary healthcare facilities.

Method

This study employed a quantitative analytic design with a cross-sectional approach to examine the relationship between the role of Treatment Supervisors, family support, and recovery status among pulmonary tuberculosis patients. Data were collected simultaneously using observation and structured questionnaires.

The study was conducted at Poasia Primary Health Center, Kendari City, Indonesia, from July to August 2025. The study population consisted of 49 registered pulmonary tuberculosis patients, of whom 44 respondents were selected using the Slovin formula and simple random sampling. Inclusion criteria included patients nearing the end of treatment and willing to participate, while patients with comorbid conditions were excluded.

Data were collected using validated and reliable structured questionnaires, including the Questionnaire on the Role of Treatment Supervisors (RTS), the Family Support Questionnaire, and the Pulmonary Tuberculosis Recovery Observation Sheet. Data analysis included univariate and bivariate analyses using the Chi-square test and Fisher's Exact Test when

appropriate. Ethical approval was obtained prior to the study, and informed consent, anonymity, and confidentiality were strictly maintained.

Results

A. Respondent Characteristics

Table 1. Respondent Characteristics, Role of Treatment Supervisors, and Family Support at Poasia Primary Health Center, Kendari City

No	Variable	f	%
1	**Sex**		
	Male	23	52.3
	Female	21	47.7
2	**Education Level**		
	Elementary School	3	6.8
	Junior High School	18	40.9
	Senior High School	16	36.4
	Higher Education	7	15.9
3	Age		
	18-25	6	13.6
	26-35	10	22.7
	36-45	12	27.3
	46-55	9	20.5
	>55	7	15.9
4	**Role of Treatment Supervisor (RTS)**		
	Active	20	45.5
	Inactive	24	54.5
5	**Family Support**		
	Supportive	20	45.5
	Not supportive	24	54.5
6	**Pulmonary TB Treatment Outcome**		
	Recovered	22	50.0
	Not recovered	22	50.0

The results show that most respondents were male (52.3 percent). This finding aligns with pulmonary tuberculosis epidemiology, which often reports a higher prevalence among males. Work-related exposure, higher mobility, and risk behaviors may influence both exposure and treatment adherence.

Most respondents had junior and senior high school education (77.3 percent). Education affects the ability to understand health information. A secondary education level may pose challenges in comprehending the importance of long-term TB medication adherence. This finding highlights the need for clear and structured health education by healthcare providers.

The age distribution was dominated by the productive age group of 26–45 years (50.0 percent). Individuals in this age range often face work and social demands. These pressures may reduce treatment adherence without adequate supervision and family support.

More than half of the treatment supervisors were inactive (54.5 percent). Inactive supervision increases the risk of non-adherence to medication. Inadequate monitoring can hinder treatment

success. This result indicates that the presence of a supervisor alone is insufficient. Role quality and consistency are critical.

Family support was also mostly categorized as not supportive (54.5 percent). Limited emotional, instrumental, and reminder support may reduce patient motivation. Families play a key role in ensuring regular and complete treatment.

Treatment outcomes showed equal proportions of recovered and not recovered patients (50.0 percent each). This result indicates that TB treatment success remains a challenge. Imbalances in supervisor activity and family support likely contribute to the high proportion of non-recovery cases.

B. Bivariate Analysis

Table 2. Results of Bivariate Analysis of the Role of Treatment Supervisors Based on Pulmonary TB Patient Recovery in the Working Area of Poasia Primary Health Center

Role of Treatment Supervisor (RTS)	Pulmonary TB Treatment Outcome				Total		p value
	Recovered		Not Recovered				
	n	%	n	%	n	%	
Active	15	75	5	25	20	45.5	0.006
Inactive	7	29,2	17	70,8	24	54.5	
Total	22	50	22	50	44	100	

Based on Table 2, there is a statistically significant association between the role of Treatment Supervisors and pulmonary TB patient recovery in the working area of Poasia Primary Health Center, with a *p* value of 0.006. Patients supervised by active Treatment Supervisors showed a higher recovery proportion of 75.0 percent, compared with only 29.2 percent among those with inactive supervisors. In contrast, the proportion of non-recovery was higher in the inactive supervisor group at 70.8 percent. These findings indicate that active supervision plays a crucial role in supporting treatment adherence and increasing the likelihood of patient recovery.

Table 3. Results of Bivariate Analysis of Family Support Based on Pulmonary Tuberculosis Patient Recovery in the Working Area of Poasia Primary Health Center

Family Support	Pulmonary TB Treatment Outcome				Total		p value
	Recovered		Not Recovered				
	n	%	n	%	n	%	
Supportive	15	75	5	25	20	45.5	0.006
Not Supportive	7	29,2	17	70,8	24	54.5	
Total	22	50	22	50	44	100	

Based on Table 3, there is a significant association between family support and recovery among pulmonary tuberculosis patients in the working area of Poasia Primary Health Center, with a p value of 0.006. Patients who received family support showed a higher recovery proportion, at 75 percent, compared to patients without family support, who achieved only 29.2 percent. In contrast, the proportion of patients who did not recover was higher in the group without family

support, at 70.8 percent. These findings confirm that family support plays an important role in improving treatment adherence and the success of pulmonary tuberculosis therapy.

Discussion

This study demonstrates that the role of Treatment Supervisors and family support is significantly associated with recovery among pulmonary tuberculosis patients. (Lisnawati, Yusnayanti, & Helty, 2024). These findings address the research hypothesis that social support factors play a crucial role in the success of tuberculosis therapy (Nindrea, Aryandini, & Sari, 2024).

The higher recovery rate among patients supervised by active Treatment Supervisors is consistent with the findings of Komariah et al. in 2023, who reported that active supervision improves medication adherence through direct monitoring and behavioral reinforcement. Similar results were reported (Nurpaqih, Hidayat, & Rahman, 2023), indicating that consistent supervisor involvement reduces treatment interruption among pulmonary TB patients. These similarities confirm that the supervisory role remains essential across primary healthcare settings (Puspitasari & Widodo, 2024).

However, this study found a high proportion of inactive Treatment Supervisors. This result differs from the findings of (Ravo, Kadir, & Yusuf, 2023), who reported predominantly active supervisors. This discrepancy may be attributed to limited understanding of supervisory roles, family workload, and insufficient continuous guidance from healthcare providers. These findings suggest that the presence of a supervisor alone is insufficient without role strengthening and regular evaluation (Sinaga & Syafei, 2024).

Family support was also significantly associated with patient recovery. This result aligns with the study by Nindrea et al. in 2024, which emphasized that emotional, instrumental, and informational family support enhances patient motivation and treatment adherence. Similarly, Ravo et al. in 2023 highlighted that families serve as the primary support system during long-term TB treatment. These consistent findings reinforce the importance of family involvement in pulmonary tuberculosis management.

The proportion of non-recovered patients in this study remains considerable. This finding is in line with Nurpaqih et al. in 2022, who reported that TB treatment failure is often linked to weak social support and poor medication adherence. The unique contribution of this study lies in identifying the concurrent occurrence of inactive supervision and inadequate family support, which together increase the risk of non-recovery (Zhang, Li, Chen, & Wang, 2024).

The implications of this study highlight the critical role of nurses in providing TB education, strengthening Treatment Supervisor capacity, and actively involving families in DOTS programs. From a scientific perspective, these findings reinforce the understanding that pulmonary tuberculosis treatment success is influenced not only by medical factors but also by social and behavioral determinants.

Conclusion

This study concludes that the role of Treatment Supervisors and family support is significantly associated with recovery among pulmonary tuberculosis patients. Active Treatment Supervisors improve treatment outcomes through consistent medication monitoring, while inactive supervision increases the risk of non-recovery. Family support plays a crucial role in strengthening treatment adherence and patient motivation. These findings highlight social support as a key determinant of successful pulmonary tuberculosis therapy and underscore its importance in healthcare and nursing practice.

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