Jurnal Ilmiah Keperawatan
P-ISSN 2085-3742 | E-ISSN 2598-1021
Vol. 21 No. 2 (2026) : October Edition
DOI: https://doi.org/10.30643/jiksht.v21i1.450

ORIGINAL ARTICLE

The Relationship Between Family Support and Clean and Healthy Living Behavior in Pulmonary TB Patients at the Ngagel Rejo Community Health Center, Surabaya

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ARTICLE INFORMATION

Article history
Received
Revised
Accepted

Keywords
Dukungan Keluargai;
Perilaku Hidup Bersih SEhat;;
Penderita TB

ABSTRACT

Introduction: *Pulmonary tuberculosis is still a public health problem that requires comprehensive treatment. Family support plays an important role in shaping clean and healthy living behaviors (PHBS) in people with pulmonary tuberculosis to prevent transmission and accelerate healing.*

Objectives: *The purpose of this study was to determine the relationship between family support and pulomonary tuberculosis at ngagel rejo.* ***Methods:*** *This research method was quantitative with a analytic observational approach to 32 samples measured using a questionnaire instrument and analyzed using spearman rho.* ***Results:*** *The results showed that Most patients with pulmonary tuberculosis have good family support as many as 27 respondent (84.4%) and PHBS in the moderate category as many as 16 respondent (50%). The Spearman Rank test showed that there was a relationship between family support and PHBS (p = 0.038 < 0.05) and a weak positive correlation (r = 0.369), where the better the family support, the better the PHBS of the patient.*

Conclusions: *The implication of of PHBS among patients with pulmonary tuberculosis in preventing transmission and improving health outcomes. Based on the findings of this study involving 32 patients with pulmonary tuberculosis at Ngagel Rejo Public Health Center, Surabaya, most respondents received good family support (84.4%), while the majority demonstrated a moderate level of Clean and Healthy Living Behavior (PHBS) (50%). The correlation coefficient indicates a positive relationship with a weak degree of association between family support and Clean and Healthy Living Behavior (PHBS). This suggests that better family support tends to be associated with better clean and healthy living behaviors among patients with pulmonary tuberculosis, although the strength of the relationship is weak.*

Introduction

Pulmonary tuberculosis is a highly contagious infectious disease caused by the rod-shaped bacterium Mycobacterium tuberculosis (bacillus). It is transmitted through airborne droplets of saliva and phlegm. Tuberculosis infection of the lungs causes respiratory problems, including prolonged coughing and difficulty breathing (Rika Widianita 2023b). Pulmonary tuberculosis can be fatal if not treated promptly and appropriately. Families play a crucial role in shaping an individual's adherence, beliefs, motivation, and health values. Family support contributes significantly to improving treatment adherence through supervision and motivation (Camuendo 2016). The problematic phenomenon found at the Ngagel Rejo Community Health Center in Surabaya, based on interview results, most of them have not practiced clean and healthy living behaviors such as spitting phlegm in random places, not washing hands with soap, and not covering their mouths when coughing due to a lack of support from their families. The families just keep

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quiet and do not remind them not to spit phlegm in random places, do not remind them to wash their hands with soap, and do not remind them to cover their mouths when coughing.

Indonesia has the second-highest number of tuberculosis cases in the world after India, with approximately 80% of pulmonary tuberculosis cases occurring in developing countries. Seventy-five percent of cases are in the productive age group, aged 15–55, although tuberculosis is essentially preventable (Nursalam 2020). The prevalence of pulmonary tuberculosis in Indonesia in 2016 was estimated at 1,600,000 cases, with approximately 1,000,000 new cases per year. The case detection rate remains relatively low, at around 33%, equivalent to 670,000 cases (Elvidiana, 2017). In Surabaya City, Health Office data for April 2024 recorded 3,228 TB cases, only 20% of the total estimated 16,127 cases. The number of Pulmonary Tuberculosis sufferers at the Ngagel Rejo Community Health Center in Surabaya in 2023 was 72 sufferers, while in 2024 there were 96 sufferers. At the time of the preliminary study on September 30, 2025, there were a total of 35 Pulmonary Tuberculosis sufferers at the Ngagel Rejo Community Health Center in Surabaya and from the results of interviews with 10 Pulmonary Tuberculosis sufferers, it was obtained that 7 respondents had not implemented clean and healthy living behaviors due to the lack of encouragement from their families such as reminding them not to spit out phlegm in random places, reminding them to always wash their hands with soap, and covering their mouths when coughing. Then 3 of them had implemented clean and healthy living behaviors due to support from their families such as reminding them not to spit out phlegm in random places, reminding them to always wash their hands with soap, and covering their mouths when coughing.

The main problems faced by people with pulmonary tuberculosis include obstacles in the treatment process, high mortality rates, financial burdens, and an increased risk of contracting resistant bacteria. These high mortality rates are generally related to a weakened immune system due to inadequate nutritional intake and suboptimal metabolic conditions (Elvidiana 2017). Poor personal hygiene can increase the risk of secondary infections, worsening the patient's condition. Environmental factors play a role in determining the success of the treatment process when implementing clean and healthy living behaviors (PHBS) (Elvidiana 2017). Pulmonary tuberculosis is classified as a highly contagious disease, so preventive measures play a crucial role in reducing the incidence. Social support, particularly from the family, significantly contributes to the recovery process by increasing adherence to treatment and providing motivation to patients. The family serves as a support system and monitors the implementation of therapy, both within the immediate and extended family. Family nursing care is a form of family-oriented health care through the stages of assessment, diagnosis, planning, implementation, and evaluation, involving all family members (Rika Widianita 2023a). Nurses have a role in improving the family's ability to care for family members who experience health problems (Maimunah et al. 2023).

Patients with pulmonary tuberculosis generally have a weakened immune system. The family plays a crucial role in encouraging the adoption of a healthy lifestyle. These behaviors include covering the mouth with a handkerchief when coughing, avoiding spitting carelessly, and maintaining personal hygiene. Families are also responsible for creating a healthy living environment for patients, including ensuring adequate ventilation, adequate lighting, and good home sanitation. Neglecting these aspects can hinder the patient's recovery process. (Elvidiana 2017). Based on these phenomena and problems, this study aims to determine the relationship between family support and Clean and Healthy Living Behavior (PHBS) in pulmonary tuberculosis patients at the Ngagel Rejo Community Health Center, Surabaya.

Methods

This study was conducted in January 2026. The design used an observational analytical cross-sectional approach. The independent variable was family support, while the dependent variable was the healthy hygiene behavior of TB patients at the Ngagel Rejo Community Health Center in

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P-ISSN 2085-3742 | E-ISSN 2598-1021
DOI: https://doi.org/10.30643/jiksht.v21i1.478

Surabaya. The study population was TB patients undergoing control at the Ngagel Rejo Community Health Center in Surabaya. A total sampling technique was used to obtain 32 respondents who met the inclusion and exclusion criteria. The instruments used were a questionnaire and an observation checklist. The questionnaire collected demographic data, including respondent identity: name, age, gender, religion, number of training sessions, and length of volunteering experience. Family support was measured using a 12-item questionnaire covering three domains: informational support, instrumental support, and emotional support (self-esteem). Family support was scored on a scale of 1-4: 1 (never), 2 (rarely), 3 (often), and 4 (always). Healthy hygiene behavior was measured using a 14-item Likert-based questionnaire. The data were then analyzed using the Spearman Rho test with a significance level of ρ≤ 0.05 section.

Results

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

Characteristics		Frequency	(%)
Age	0-5 years	3	9,4
	13-18 years	1	3,1
	18-60 years	20	62,5
	>60 years	8	25
Gender	Male	22	68,8
	Female	10	31,2
Level of Education	TS	3	9,4
	SD	4	12,5
	SMP	7	21,9
	SMA	14	43,8
	PT	4	12,5
Long Suffering	1-2 months	6	18,8
	3-4 months	6	18,8
	5-6 months	18	56,3
	7-8 months	1	3,1
	9-10 months	1	3,1
Family Support	Yes	32	100

Based on the table above, the results of 35 respondents are that the majority of volunteers are aged 18-60 years, as many as 20 people (62.5%), for gender, the majority of volunteers are women, as many as 79 people (72.5%), for education level, the majority have a high school education, as many as 14 people (43.8%), for the duration of suffering, the majority are 5-6 months. Furthermore, for family support, all of them received family support, namely 32 people (100%).

Table 2. Relationship between family support and healthy living behavior in TB patients at the Ngagel Rejo Community Health Center, Surabaya (n=32)

Family Suppory	Clean and Healthy Living Behavior						Total	
	Good		Enough		Less			
	f	%	f	%	f	%	∑	%

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Good	13	48,1	12	44,4	2	7,4	27	100
Enough	0	0	4	100	0	0	4	100
Less	0	0	0	0	1	100	1	100
Total	13	40,6	16	50,0	3	9,4	32	100

Spearman Rank Test Value
0.038 (p < 0,05)
r = sufficient correlation
0,369 (positive)

Table 2 shows that out of 32 respondents, most of the pulmonary tuberculosis sufferers who have good family support with good clean and healthy living behavior are 13 people (48.1%), pulmonary tuberculosis sufferers who have good family support with sufficient clean and healthy living behavior are 12 people (44.4%), pulmonary tuberculosis sufferers who have sufficient family support with sufficient clean and healthy living behavior are 4 people (100%), pulmonary tuberculosis sufferers who have good family support with less clean and healthy living behavior are 2 people (7.4%), pulmonary tuberculosis sufferers who have less family support with less clean and healthy living behavior are 1 person (100%). The results of the Spearman Rho correlation test showed a correlation coefficient (r) of 0.369 with a p value = 0.038. The coefficient value indicates that the relationship between family support and Clean and Healthy Living Behavior (PHBS) has a positive direction with a weak level of closeness. This illustrates that better family support tends to be related to better clean and healthy living behavior in pulmonary tuberculosis sufferers, although the relationship found has a weak strength.

Discussion

Family Support for Pulmonary Tuberculosis Patients

The results of the study showed that the majority of respondents received good family support, namely 27 respondents (84.4%). Family support is an important aspect in the care of pulmonary tuberculosis patients and can be provided in the form of emotional, informational, and instrumental support. Emotional support can include attention, affection, encouragement, and acceptance of the patient's condition. Informational support is provided through advice, health information, and reminders to adopt healthy lifestyle behaviors. Meanwhile, instrumental support can include direct assistance in meeting daily needs and supporting the patient's treatment process.

The high proportion of respondents with good family support indicates that most patients feel their family is involved in coping with their illness. This involvement can help patients undergo treatment and implement healthy behaviors in their daily lives. Research (Diana, Sulistyowati, and Febrianti 2023) explains that family support for pulmonary tuberculosis patients can be demonstrated through attention, affection, acceptance of the patient's condition, and appreciation for their progress. However, good family support is not always accompanied by consistent implementation of clean and healthy living behaviors. This is evident from research results showing that some respondents with good family support still have clean and healthy living behaviors that are either adequate or inadequate..

Perilaku Hidup Bersih dan Sehat pada Penderita Tuberkulosis Paru

The results showed that 16 respondents (50.0%) had clean and healthy living behaviors (PHBS) in the sufficient category, 13 respondents (40.6%) in the good category, and 3 respondents (9.4%) in the poor category. These results indicate that the implementation of PHBS in pulmonary tuberculosis patients is still varied and not optimally implemented.

The implementation of PHBS in patients with pulmonary tuberculosis includes behaviors to

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P-ISSN 2085-3742 | E-ISSN 2598-1021
DOI: https://doi.org/10.30643/jiksht.v21i1.478

prevent transmission, such as practicing cough etiquette, disposing of phlegm in an appropriate container, washing hands, maintaining personal and environmental hygiene, wearing a mask as recommended, and ensuring proper home ventilation. Implementing these behaviors is crucial to support efforts to prevent tuberculosis transmission, particularly in the home environment. The lack of consistent implementation of these behaviors indicates the need for ongoing health education so that patients can incorporate the information gained into their daily habits.

Research (Tunny and Rumakey 2024), As discussed in the research source, tuberculosis prevention behaviors related to cough etiquette, mask use, environmental hygiene, and home ventilation are highlighted, (Hidayattullah et al. 2025) discussed the importance of participatory health education through counseling, demonstrations, and interactive discussions to support increased knowledge and preventative behaviors. These findings reinforce the need for education that focuses on preventive measures that can be directly implemented by patients and their families. However, this study did not measure all factors that potentially influence PHBS separately, so the influence of knowledge, home environment conditions, and socioeconomic status on respondents' behavior cannot be determined.

The Relationship Between Family Support and Clean and Healthy Living Behavior

The results of the Spearman correlation analysis showed a correlation coefficient of (r = 0.369) with a value of (p = 0.038). This coefficient value indicates a positive relationship with a weak relationship strength between family support and clean and healthy living behavior in pulmonary tuberculosis patients at the Ngagel Rejo Community Health Center, Surabaya. The direction of the positive relationship indicates a tendency that the better the family support, the better the PHBS implemented by the patient. However, the weak relationship strength indicates that the relationship between the two variables is relatively limited.

The cross-tabulation results show that of the 27 respondents who received good family support, 13 respondents (48.1%) had PHBS in the good category, 12 respondents (44.4%) in the sufficient category, and 2 respondents (7.4%) in the insufficient category. Meanwhile, all respondents with sufficient family support, namely 4 respondents, had PHBS in the sufficient category. Meanwhile, one respondent with insufficient family support also had PHBS in the insufficient category. This distribution shows that respondents with good family support still show variations in the implementation of PHBS.

The weak correlation found suggests that family support is not the sole factor associated with PHBS implementation in patients with pulmonary tuberculosis. Other factors, such as knowledge, attitudes, availability of supporting facilities, residential conditions, and support from healthcare professionals, may also play a role in shaping patient behavior. However, these factors were not fully analyzed as separate variables in this study, and their role requires further investigation.

These findings demonstrate the importance of family involvement in efforts to improve PHBS (Healthy Living Behavior) in patients with pulmonary tuberculosis. Nurses and health workers at community health centers can involve families in health education, including encouraging emotional support, providing accurate information, and assisting in adopting preventative behaviors. These behaviors include practicing cough etiquette, proper phlegm disposal, handwashing, wearing masks as recommended, and maintaining home ventilation. Therefore, family support can be a key aspect to consider in efforts to improve patient health behaviors, while also addressing other factors that may influence it.This study used a cross-sectional design, so the results describe the relationship between family support and PHBS at the time of the study, not a causal relationship. Future research is recommended to involve a larger number of respondents and consider other variables potentially associated with PHBS in patients with pulmonary tuberculosis.

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Conclusion

Based on a study of 109 patients at the Ngagel Rejo Community Health Center in Surabaya, it can be concluded that family support for TB patients is generally considered good. Most TB patients' hygiene and healthy living behaviors are considered adequate. Family support and healthy living behaviors are significantly related. The implication of this study is that high levels of family support lead to improved hygiene and healthy living behaviors, and vice versa.

Ethics approval and consent to participate

This research received a letter of recommendation from Hang Tuah Health College, Surabaya, and permission from the National Unity and Politics Agency (Bakesbangpol). This research received ethical approval under the number PE/266/XII/2025/KEPK/SHT.

Acknowledgments

The researcher would like to thank the Head of Ngegel Rejo Community Health Center and Hang Tuah Health College Surabaya for the opportunity and support in this research.

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