

The Role of Family Support in the Recovery of Tuberculosis Patients at Health Centres in Padang City

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ABSTRACT

Tuberculosis (TB) remains a major public health concern in Indonesia, including in Padang City. The success of TB treatment depends not only on the availability of medication but also on various factors, such as family support, medication adherence, lifestyle behaviours such as smoking, nutritional status, socioeconomic conditions, HIV co-infection, the presence of comorbidities like diabetes, psychological well-being, and the accessibility and quality of healthcare services. This research employed a descriptive quantitative design with a cross-sectional approach. Data were collected using a structured questionnaire from 67 TB patients who had undergone treatment for at least two months. The variables assessed included socioeconomic status, demographic characteristics, family support, and medication adherence. The findings revealed the majority of respondents reported high levels of family support (73.1%), with emotional support being the most prominent (74.63%) and support for smoking avoidance being the lowest (31.34%). Furthermore, 43.28% of respondents stated that their families never reminded them to avoid smoking, despite 88.06% acknowledging that cigarette smoke increases the risk of TB. Most smokers were male, who also represented the largest proportion of participants in this study. These findings indicate that although overall family support is relatively high, attention to smoking control remains limited. Family support, particularly in assisting patients to refrain from smoking, plays a vital role in the TB recovery process. Therefore, educational interventions that actively involve families in managing risk factors such as smoking should be strengthened within TB control programs at the primary healthcare (PHC) level.

Keywords: Family support, public health centre, recovery, smoking, tuberculosis.

1 INTRODUCTION

Tuberculosis (TB), caused by *Mycobacterium tuberculosis*, remains a major public health challenge, especially in developing countries such as Indonesia [1]. Globally, approximately one-quarter of the world's population is estimated to be infected with TB. Each year, around 90% of new TB cases occur in adults, with men being more affected than women [2]. In 2021, an estimated that 10.6 million people (range: 9.8–11.3 million) developed TB, resulting in 1.4 million deaths among HIV-negative individuals and 187,000 deaths among HIV-positive individuals. Ten countries contribute to two-thirds of the global TB burden, namely India (27.9%), Indonesia (9.2%), China (7.4%), the Philippines (7.0%), Pakistan (5.8%), Nigeria (4.4%), Bangladesh (3.6%), the Democratic Republic of the Congo (2.9%), South Africa (2.9%), and Myanmar (1.8%) [3]. According to the WHO Global Tuberculosis Report (2021), the global TB burden reached an estimated 10,556,328 cases, with the highest prevalence observed in South-East Asia,

followed by Africa and the Western Pacific Region. The global burden of drug-resistant TB (DR-TB) was estimated at 449,682 cases [2].

According to the World Health Organization's Global Tuberculosis Report 2023, Indonesia ranks second after India in terms of TB burden, with an estimated incidence of more than one million cases annually [2]. This high incidence suggests that TB control efforts remain suboptimal, particularly in case detection, treatment success, and prevention of transmission [4]. At the national level, the Indonesian Ministry of Health has set a target to eliminate TB by 2030. Various strategies have been implemented, including strengthening TB services at the primary care level, ensuring adequate drug availability, and promoting family and community based approach through the Healthy Indonesia Program with a Family Approach [5,6]. However, pulmonary TB cure rates in several regions, including Padang City, remain below the national target of at least 90% treatment success [7].

One of the major challenges in TB control is the low level of patient adherence to treatment. TB therapy requires a relatively long duration, at least six months, and may lead to adverse effects that reduce patients' motivation to continue treatment. In this context, non-medical factors such as social support, particularly from family, play a crucial role. Numerous studies have demonstrated that family support significantly improves treatment adherence

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and accelerates the recovery process of TB patients [8–10].

Family support encompasses various dimensions, including emotional support (motivation, care, empathy), instrumental support (assisting with medication intake and accompanying patients to health facilities), informational support (providing knowledge about TB), and support in decision-making and fulfilling basic needs such as nutrition and treatment-related expenses.

The social, economic, and cultural conditions of the community in Padang City are key factors that influencing the effectiveness of the family's role in supporting TB patients. In some cases, social stigma toward TB patients also serves as a psychological barrier that prevents both patients and their families from being open and actively engaged in treatment. Therefore, it is essential to understand the extent of family support provided and its impact on the recovery of TB patients in this region.

This study aims to examine the relationship between reinforcing factors particularly family support and the role of the treatment supporter and the recovery rate of pulmonary TB patients undergoing treatment at health centres in Padang City. The findings of this study are expected to inform the development of family-based interventions to improve TB treatment outcomes in a more holistic and sustainable manner.

2 MATERIAL AND METHOD

The study was conducted in Padang City, the capital of West Sumatra Province, which represents the largest urban area in the region. The city has a population of approximately 984,490 and covers an area of about 694.96 km². Administratively, it consists of 11 sub-districts and 104 urban villages. Padang is geographically diverse, encompassing plains, hills, and coastal zones, which influence access to health services and the distribution of disease burden. Understanding this context is essential for interpreting the challenges and opportunities in TB control within the city.

Within this urban setting, three community health centres, Lubuk Begalung, Air Dingin, and Belimbing Community Health Centres, were purposively selected as study sites. These centres were chosen due to their relatively high tuberculosis caseloads, which ensured the availability of adequate participants and data for analysis. Furthermore, the selected health centres reflect variations in demographic composition, socioeconomic conditions, and healthcare infrastructure across Padang City. Such diversity made these sites particularly suitable for evaluating the influence of family support on TB treatment outcomes, thereby enhancing the external validity of the study findings.

This study employed a cross-sectional design with a quantitative approach to investigate the role of family support in tuberculosis (TB) treatment outcomes. The sample comprised pulmonary TB patients undergoing treatment at several community health centres in Padang City during 2023. Participants were recruited through purposive sampling based on predefined inclusion criteria, specifically, patients who had been receiving treatment for at least two months, a total of 67 patients. This ensured that the respondents had already experienced a sufficient duration of therapy, making them eligible to provide reliable data regarding family support and treatment adherence.

Data were collected using structured questionnaires designed to assess multiple dimensions of family support and the role of treatment supervisors. In addition to primary data collection, medical records were reviewed to extract information on TB cure status, which was determined by sputum test results at the end of the treatment period. The combination of survey-based and clinical data allowed for a more comprehensive assessment of both social and biomedical aspects of treatment. To analyse the data, chi-square tests were performed to examine associations between categorical variables. This approach provided both descriptive and inferential insights into the relationship between family support and treatment outcomes. Ethical approval for this research was obtained under research permit number B-02/UN16.2/S2KESMAS/2023, and permission to conduct the study was granted under permit number 000.9.2/37/PKM-AD/2023. Informed consent was obtained from all respondents prior to recruitment.

3 RESULTS

3.1 Respondent Characteristics

This study involved 67 respondents from three community health centres in Padang City: Lubuk Begalung (n=24), Air Dingin (n=24), and Belimbing (n=19). Respondent characteristics included both numerical and categorical data relevant to TB treatment, such as age, nutritional status, education level, occupation, and number of family members.

Table 1: Characteristics of Respondents

Variables	Mean ± SD	Min - Max
Age (year)	41.0 ± 15.5	19 - 77
Body weight (kg)	50.4 ± 10.3	29 - 79
Height (cm)	162.82 ± 8.2	146 - 186
BMI (kg/m ²)	18.9 ± 3.3	11.6 - 27.3
Income (IDR)	3.120.299 ± 3.564.272	0 – 15.000.000
Family size (people)	5.0 ± 3.1	1 - 17

Respondents had a mean age of 41 years, ranging from 19 to 77 years, reflecting a diverse representation across age groups. The average Body Mass Index (BMI) was 18.9 kg/m², indicating that most participants were undernourished. Household income varied considerably, highlighting the economic disparity among respondents. The average household size was five members. As shown in Table 2, most respondents were male (60.6%), aged ≤45 years (59.2%), and had a secondary to high school education level (52.9%). In addition, the majority were employed (60.6%) and came from households with four or fewer family members (69.7%).

3.1 Recovery Rate

The majority of respondents had successfully recovered or completed their treatment, accounting for 76.1% (51 respondent) of the sample, as detailed in Figure 1.

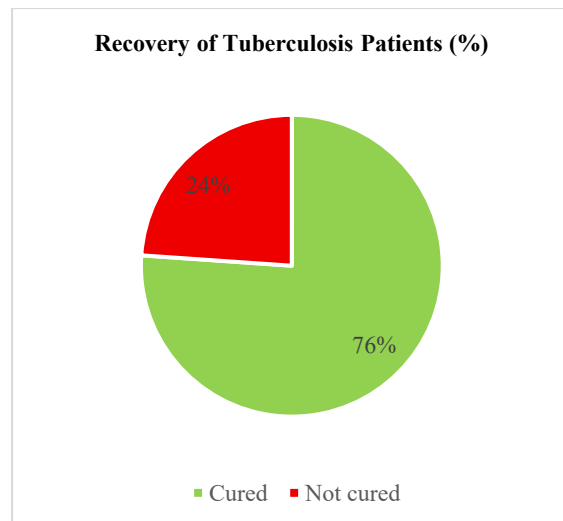


Figure 1: Distribution of treatment outcomes among pulmonary tuberculosis patients

3.2 Family Support

Table 3 presents the frequency distribution of responses concerning family support (DK). The majority of respondents reported receiving good family support, with 21.6% indicating they often received support and 54.15% stating they always received support. Among the various types of support, emotional support had the highest average percentage score at 74.63%, while support aimed at helping patients avoid smoking was the lowest, at 31.34%.

3.3 Association between Family Support and Tuberculosis Cure

The association between the level of family support and the recovery status of tuberculosis patients in the

Padang City Health Center working area in 2023 is presented in Table 4.

Based on the results in Table 5, the proportion of respondents with a high level of family support reported better recovery (85.7%) as compared to 14.3% who did not recover ($p = 0.002$).

4 DISCUSSION

Family support plays a pivotal role in the recovery process of TB patients. This study found that most patients received substantial support-emotionally, practically, and informationally which positively influenced treatment adherence. These findings align with Bandura's Social Cognitive Theory, which highlights the influence of the social environment, particularly family, in shaping individual health behaviours [11,12].

Emotional support, including motivation and encouragement from family members, emerged as the most prevalent form of assistance received by patients. Tuberculosis patients who receive consistent emotional reinforcement from their immediate environment demonstrate higher treatment adherence. Such support functions as a protective factor against psychological stress, anxiety, and the social stigma commonly experienced by TB patients [13–15].

Support in the form of reminders to take medication and attend routine health check-ups was also reported to be high among respondents. This type of support is crucial, as adherence to long-term therapy, such as tuberculosis treatment, which requires a minimum of six months depends significantly on consistent external prompts. Family members who serve as daily reminders and motivators play a central role in maintaining patient discipline and routine, thereby greatly enhancing the effectiveness and success of the DOTS (Directly Observed Treatment Short-course) strategy [16–18]. One notable finding in this study was the relatively low level of family support in assisting patients to avoid smoking. This is particularly concerning given that smoking has been shown to exacerbate tuberculosis conditions, reduce treatment efficacy, and increase the likelihood of relapse [19,20].

Smoking cessation is therefore a critical component of effective TB control strategies. Strengthening family involvement in establishing a smoke-free environment-such as by consistently reminding patients and minimizing exposure to cigarette smoke at home-is essential to support treatment success and overall patient recovery.

In addition, support in fulfilling basic needs-such as access to nutritious food and financial assistance for supplements was also found to contribute positively to the recovery process. This aligns with previous research emphasizing the strong correlation between nutritional status and the success of TB therapy. Patients who received adequate nutritional support demonstrated better

Table 2: Frequency Distribution of Respondent Sociodemographic Characteristics

Characteristics of Respondents	Health Center						Total (N=67)	
	Lubuk Begalung (n = 24)		Air Dingin (n=24)		Belimbing (n=19)			
	n	%	n	%	n	%	n	%
Gender								
Male	13	54.2	18	75.0	10	52.6	41	60.6
Female	11	45.8	6	25.0	9	47.4	26	39.4
Age Group								
Teenagers (12-25 Tahun)	5	20.8	5	20.8	2	10.5	12	17.4
Adults (26-45 Tahun)	10	41.7	10	41.7	8	42.1	28	41.8
Elderly (46 -65 Tahun)	9	37.5	9	37.5	9	47.3	27	39.8
Age Group Category								
≤45 Years	15	62.5	15	62.5	10	52.6	40	59.2
>45 Years	9	37.5	9	37.5	9	47.3	27	40.8
Highest Level of Education								
No education	1	4.2	1	4.2	1	5.3	3	4.5
No elementary education	0	0.0	0	0.0	5	26.3	5	8.8
Elementary	3	12.5	5	20.8	1	5.3	9	12.9
Junior high	2	8.3	8	33.3	4	21.1	14	20.9
Senior high	16	66.7	9	37.5	8	42.1	33	48.8
Diploma/Bachelor and above	2	8.4	1	4.2	0	0.0	3	4.2
Education Category								
High	18	75.1	10	41.7	8	42.1	36	52.9
Low	6	25.0	14	58.3	11	58.0	31	47.1
Employment Status								
Civil Servant	1	4.2	2	8.3	1	5.3	4	5.9
Private Employee	2	8.3	0	0.0	2	10.5	4	6.3
Self-employed	5	20.8	8	33.3	3	15.8	16	23.3
Student	3	12.5	0	0.0	1	5.3	4	5.9
Farmer	0	0.0	5	20.8	2	10.5	7	10.5
Laborer	4	16.7	4	16.7	2	10.5	10	14.6
Housewife	7	29.2	2	8.3	7	36.8	16	24.8
Other	2	8.3	3	12.5	1	5.3	6	8.7
Job Category								
Employed	12	50.0	19	79.1	10	52.6	41	60.6
Not Working	12	50.0	5	20.8	9	47.4	26	39.4
Family Size Categories								
< 5 members	18	75.0	17	70.8	12	63.2	47	69.7
≥ 5 members	6	25.0	7	29.2	7	36.8	20	30.3

Table 4: The association between family support levels and recovery outcomes of pulmonary tuberculosis patients at the Padang City health centre

Family Support Level	Treatment Outcomes in Pulmonary Tuberculosis Patients						P value
	Recovered		Not Recovered		Total		
	n	%	n	%	n	%	
High	42	85.7	7	14.3	48	100	0.002*
Low	9	50.0	9	50.0	18	100	

*p<0.05 significant using Chi-Square test

Table 3: Frequency distribution of responses concerning family support for pulmonary tuberculosis patients at the Padang City health centre

Item Statement	Never		Rarely		Sometimes		Often		Always	
	n	%	n	%	n	%	n	%	n	%
Time Support	3	4.48	4	5.97	8	11.94	16	23.88	36	53.73
Family reminders to take medication	3	4.48	5	7.46	9	13.43	11	16.42	39	58.21
Average		4.48		6.72		12.69		20.15		55.97
Appreciative Support										
My family acknowledges and values my discipline in adhering to the treatment regimen	5	7.46	3	4.48	5	7.46	13	19.40	41	61.19
My family commends the improvements in my health progress.	5	7.46	2	2.99	4	5.97	18	26.87	38	56.72
Average		7.46		3.73		6.72		23.13		58.96
Informational Support										
My family provides me with information about tuberculosis (TB)	4	5.97	4	5.97	6	8.96	16	23.88	37	55.22
My family offers information that supports my TB treatment	5	7.46	3	4.48	4	5.97	18	26.87	37	55.22
Average		6.72		5.22		7.46		25.37		55.22
Reference Support										
My family recommends supplements or vitamins	7	10.45	2	2.99	5	7.46	18	26.87	35	52.24
My family models healthy behaviors to encourage my recovery	5	7.46	4	5.97	3	4.48	20	29.85	35	52.24
Average		8.96		4.48		5.97		28.36		52.24
Cost Support										
My family prioritizes expenses related to my recovery	6	8.96	3	4.48	4	5.97	17	25.37	37	55.22
My family facilitates the cost of purchasing supplements or vitamins	6	8.96	6	8.96	3	4.48	19	28.36	33	49.25
Average		8.96		6.72		5.22		26.87		52.24
Facilitation Support										
My family accompanies me to routine medical check-ups	13	19.40	3	4.48	8	11.94	11	16.42	32	47.76
My family assists me in obtaining my medication	17	25.37	1	1.49	7	10.45	9	13.43	33	49.25
Average		22.39		2.99		11.19		14.93		48.51
Support to Meet Needs										
My family prioritizes my food needs over other basic needs	5	7.46	1	1.49	4	5.97	17	25.37	40	59.70
My family prioritizes my nutritional needs over those of other family members	7	10.45	3	4.48	4	5.97	15	22.39	38	56.72
Average		8.96		2.99		5.97		23.88		58.21
Support to Avoid Smoking										
My family reminds me not to smoke	29	43.28	2	2.99	5	7.46	10	14.93	21	31.34
Average		43.28		2.99		7.46		14.93		31.34
Emotional Support										
My family motivates me to be patient in managing TB	3	4.48	1	1.49	2	2.99	11	16.42	50	74.63
My family encourages me to recover	3	4.48	1	1.49	1	1.49	12	17.91	50	74.63
Average		4.48		1.49		2.24		17.16		74.63
Average Percentage Score		12.85		4.15		7.22		21.64		54.15

treatment responses and lower rates of treatment failure, highlighting the importance of comprehensive family support that extends beyond emotional and practical aspects to include meeting essential health-related needs [21–23].

Reference support in the form of modelling healthy behaviours and providing supplement recommendations also emerged as a significant contributing factor to treatment success. Establishing and maintaining healthy behaviours among TB patients often depends on the presence of role models within their immediate environment, particularly family members. This is especially crucial in developing countries where formal health support systems may be limited.

The findings of this study reinforce the need for a holistic approach to TB management that integrates not only biomedical treatment but also the psychosocial and behavioural dimensions of care. Public health programs are encouraged to actively engage families in the care process through structured, family-based interventions, which have been shown to enhance adherence and improve treatment outcomes among TB patients [24,25]. Overall, the results of this study reinforce the evidence that family support, in its various forms, plays a crucial role in the recovery of TB patients. Interventions aimed at enhancing the capacity of families to provide emotional, informational, and instrumental support should be integrated as a fundamental component of TB control strategies, particularly in high-burden settings like Indonesia.

5 CONCLUSION

This study confirms that family support plays a critical role in the recovery of pulmonary tuberculosis patients. Emotional, practical, informational, and financial assistance from family members significantly enhance treatment adherence and perceived recovery outcomes. Patients who received consistent emotional support and assistance with medication routines were more likely to complete therapy successfully. Family engagement in providing health information and reminders further strengthened patients' motivation throughout the lengthy treatment period. These findings highlight the need for TB control programs to integrate family-centred strategies into routine care by involving and educating families during treatment. Health professionals should actively include family members in counselling sessions to foster a supportive home environment. Future studies are encouraged to examine the long-term effects of structured family support interventions tailored to the local socio-cultural context.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this paper.

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