



Patient Empowerment Strategies to Improve Tuberculosis Treatment Adherence in Surakarta: A Qualitative Perspective

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Article Info

Article History

Submitted: 02-09-2025

Revised: 21-10-2025

Accepted: 06-09-2025

Keywords:

Patient empowerment;
treatment
adherence;tuberculosis

Abstract

Tuberculosis (TB) is a global health problem that requires intensive efforts to control, especially in improving patient adherence to treatment. One strategy that has been found to be effective is patient empowerment. This study aims to explore patient empowerment strategies in improving medication adherence among TB patients in Surakarta. The approach used in this study was qualitative, involving in-depth interviews with TB patients, healthcare workers, and patients' families. The results of the study indicate that patient empowerment through an individualised education-based approach, social support, and motivation from family members and healthcare workers plays a crucial role in improving treatment adherence. Additionally, patient involvement in decision-making processes related to treatment and providing an understanding of the importance of completing treatment have been proven to reduce treatment discontinuation rates. This study recommends the importance of training for healthcare workers in effective communication and enhancing the role of families in supporting the continuity of patient treatment. The patient empowerment model based on a holistic approach is expected to serve as a reference in developing health promotion strategies at both local and national levels.

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eISSN 3063-2439

Introduction

Tuberculosis (TB) remains a global and national health problem that requires serious attention. Indonesia is one of the countries with the highest TB burden in the world. The city of Surakarta, as part of the Central Java region, faces its own challenges in TB control efforts, particularly regarding patient adherence to treatment. Patient adherence to TB treatment is a key factor in the success of TB elimination programmes, as non-adherence can lead to drug resistance, worsen patient conditions, and increase transmission in the community.

Various studies show that there are many barriers that cause patients to be non-compliant with treatment. Pradipta et al. (2021) found that barriers to compliance include drug side effects, long treatment duration, lack of social support, and economic factors. These barriers emphasise the need for more contextual strategies to improve patient compliance, especially through an empowerment approach.

Individual intervention approaches such as Directly Observed Treatment, Short-course (DOTS) have proven effective in some contexts, but their effectiveness is limited if not accompanied by ongoing support. Houtsma et al. (2020), through a systematic review, confirmed that personalised interventions, whether community-based or technology-based, can have a positive impact on patient compliance. However, such interventions still need to be integrated with patient empowerment strategies to be more sustainable.

On the other hand, research by Appiah et al. (2023) reveals that family and community involvement is crucial in encouraging therapy adherence. Family support is not only material, but also emotional and motivational, which has been proven to increase patient commitment to completing treatment. This indicates that patient empowerment must involve the surrounding social ecosystem.

Recent research also shows that family support is positively correlated with patient compliance. Alinaitwe et al. (2025) confirm a significant relationship between actual and perceived family support and patient compliance with TB therapy. Thus, patient empowerment strategies cannot stand alone but must be synergised with strengthening the role of family and social environment. In the Indonesian context, Ruru et al. (2018) highlight that improving the quality of health services, particularly in terms of communication and drug availability, contributes to increased adherence. Patient empowerment strategies in Surakarta need to consider local healthcare factors, accessibility, and local culture. Therefore, strengthening patient capacity through health education, mentoring, and community support is relevant to implement. Based on these research findings, it can be concluded that patient empowerment is a potential strategy to improve TB therapy adherence.

Based on data on tuberculosis (TB) treatment in Surakarta City, there has been a significant increase in the number of TB patients registered and undergoing treatment from year to year, from 702 cases in 2020 to 1,749 cases in 2022. However, treatment success rates are not yet optimal. In 2022, only 348 patients (19.9%) were recorded as cured, and 932 patients (53.3%) completed treatment without confirmation of cure. There were still 46 patients (2.6%) who died and 89 patients (5.1%) who discontinued treatment. These figures show that although treatment coverage has increased, there are still major challenges in improving patient compliance, particularly in completing treatment and achieving clinical and bacteriological cure.

Case detection and *case detection rate* in Surakarta are still below the 70% standard, both at the city/district level and the community health centre (puskesmas) level. The conversion rate and cure rate are still below the 85% target in a number of puskesmas, although the average target has been achieved at the district/city level.

Through a qualitative approach, this study seeks to explore patient empowerment strategies in Surakarta, taking into account the perspectives of patients, families, health workers, and the community. The results of this study are expected to contribute to the development of a more humanistic, contextual, and sustainable intervention model in the effort to eliminate TB in Indonesia.

Methods

This study employed an exploratory qualitative approach using the Focus Group Discussion (FGD) method. The research was conducted in Surakarta City, involving 10 tuberculosis (TB) patients, 5 health workers from community health centers (*Puskesmas*), and 7 TB cadres. Informants were selected through purposive sampling, based on specific inclusion and exclusion criteria.

The inclusion criteria were: (1) individuals who had direct experience with TB treatment or TB program implementation for at least six months; (2) willing to participate voluntarily in the discussion; and (3) able to communicate effectively in Bahasa Indonesia. The exclusion criteria were: (1) participants who were unwilling to provide informed consent; and (2) those who were unavailable during the scheduled FGD sessions or whose health condition did not allow active participation.

Data were collected through FGDs guided by a structured discussion framework, facilitated by a trained moderator, and recorded in detailed minutes with participants' consent. All discussions were audio-recorded and transcribed verbatim. To ensure the validity and reliability (trustworthiness) of the data, triangulation techniques were applied, including source triangulation, method triangulation, and analyst triangulation. Source triangulation was conducted by comparing perspectives among TB patients, health workers, and cadres. Method triangulation was achieved by validating FGD findings with field notes and observation data. Analyst triangulation was applied through independent coding and theme review by multiple researchers to minimize bias.

Data were analyzed using thematic analysis, following the stages of transcription, coding, theme identification, and interpretation. The research complied with ethical principles, including confidentiality, anonymity, and obtaining informed consent from all participants prior to data collection.

Results

This study produced key findings from three groups of informants, namely tuberculosis patients (10 people) and community health centre staff (8 people). The analysis was conducted thematically, resulting in five major themes: (1) medication adherence, (2) family support, (3) the role of health workers and cadres, (4) the influence of information media, and (5) challenges and expectations in TB control.

Research Findings: Tuberculosis Patients

Table 1. Research Findings: Tuberculosis Patients

Theme	Description	Informant Statements
Patient	Most patients admitted to facing challenges in the	"At first, taking the medication

Theme	Description	Informant Statements
Experiences with Medication	early stages of therapy, mainly due to side effects such as nausea, dizziness, and weakness. These conditions caused reluctance and a desire to stop treatment prematurely. However, some patients who had received more detailed explanations from cadres or health workers said they were better prepared to deal with the side effects.	made me feel very nauseous, sometimes to the point of vomiting. So I felt very reluctant to continue." (P3) "After being informed by the cadre, he said that this was a normal effect. So I tried to endure it." (P10)
Motivation to Recover	The patients' motivation was mainly related to their responsibility to their families and their desire to return to normal activities. Several patients emphasised that this motivation was the main driver for continuing treatment despite the difficulties they faced.	"I want to get better because I still have young children, so I have to be strong and keep taking my medicine." (P7) "If I am sick for a long time, I cannot work. So I have to get better so I can go back to earning a living." (P2)
Family Support	Family support emerged as an important factor in maintaining compliance. The support provided took the form of reminders to take medication, provision of nutritious food, and emotional support. Without family support, patients admitted that they were more likely to forget and lose motivation.	"If my wife doesn't remind me, I often forget. So my family is very helpful." (P1) "My child likes to prepare drinking water so that I can easily take my medicine." (P5)
Economic Challenges and Access to Services	Economic constraints are a serious obstacle, especially regarding the cost of transport to the health centre to collect medication. Some patients also said they had to adjust their working hours so as not to clash with their medication collection schedule, which created a dilemma between work and treatment.	"Sometimes I want to take medicine but I'm confused about the cost, because my house is far from the health centre." (P5) "If I go to get medicine during working hours, I lose out on my daily wages." (P6)
Views on Health Cadres and Health Workers	Patients consider TB cadres to have a closer and more communicative role than health workers at the health centre. Cadres often make home visits or communicate directly, while health centre staff are considered to be limited by time and high workloads.	"The staff at the health centre are nice, they often ask if I have taken my medicine or not. But sometimes the staff at the health centre are busy, so they don't have time to talk much." (P9) "The health centre staff are nice, but when it's busy they rush." (P8)
The Role of Information Media in Patient Compliance	The media emerged as one of the factors supporting compliance. Some patients mentioned that information from posters, leaflets, and banners at the health centre helped them understand the importance of taking medication regularly. Younger patients admitted to more frequently using social media or WhatsApp groups as a source of quick information. However, there were complaints that information on the internet was often inconsistent with the explanations provided by health workers, causing confusion.	"I often see brochures at the health centre, which are quite clear. But sometimes the information on the internet is different, so I am confused about which one to follow." (P4) "Nowadays, there's often information sent via WhatsApp from health workers, which really helps me remember to take my medication." (P6) "If there were short videos on mobile phones, they might be easier to understand." (P8)
Patient Expectations	Patients hope for educational media that is easier to understand, such as educational videos or simple	"If possible, there should be videos or images on mobile

Theme	Description	Informant Statements
	illustrations on mobile devices, as well as repeated counselling using simple language. Patients also hope that the roles of cadres and the media can complement each other.	phones, so it's clearer. If it's just text, sometimes people are too lazy to read." (P8) "If there were regular socialisation sessions in the village, that would be better, so that everyone understands about TB." (P7)

Research Findings: Health Workers

Table 2. Research Findings: Health Workers

Theme	Description	Informant Statements
Patient Adherence Levels Still Vary	Officials stated that patient compliance with TB therapy varies considerably. Some patients are disciplined and complete the treatment, but many stop after feeling healthy. This confirms that the perception of early recovery remains a major obstacle.	"Some patients stop halfway through, usually after two months because they feel they are no longer coughing." (PK2)
Limited Health Resources	Officials revealed that limited health personnel and high workloads make patient care less than optimal. These limitations impact the quality of communication and education, which should be intensive.	"Ideally, patients should be monitored daily, but with limited personnel, not everyone can be served optimally." (PK4)
Effectiveness of TB Cadres	Cadres are considered very helpful in assisting patients in the field, especially in reminding them to take their medication and motivating them. However, there are still obstacles such as cadres who are inactive or lack ongoing training.	"Cadres are the spearhead, because they are the ones who can directly supervise patients at home." (PK1)
Family and Social Environment Support	Officials emphasise that families play a major role in patient compliance. Patients who receive family support tend to be more compliant. In addition, stigma from the social environment remains a challenge, as some patients are reluctant to open up due to fear of being shunned.	"If the family is supportive, patients are usually more motivated. But if the family is indifferent, patients often skip taking their medication." (PK5)
The Role of Media in Patient Education	Officials mentioned that the media, particularly social media and educational posters at community health centres, play a role in increasing patient knowledge. However, the delivery of information is not yet fully structured. Officials hope for a more massive and consistent media campaign.	"Patients often ask questions based on information they see on the internet. But sometimes the information is inaccurate, so we have to correct it." (PK3)
Non-Medical Challenges: Economy and Access	Officers highlighted patients' economic barriers. Transportation costs and distance to health centres were reasons why many patients were late or did not collect their medication. This highlights the importance of systemic support, such as through transport assistance or delivery services.	"Some patients complain about the cost, especially those who live far from the health centre." (PK2)
Health Workers' Hopes	Officials hope for a strengthening of the system, including an increase in the number of active cadres, ongoing training, and local government support for cadre incentives and media-based education programmes.	"If possible, cadres should be given regular training and appropriate incentives, so that they are enthusiastic about assisting patients." (PK4)

Discussion

The results of the study indicate that TB patient compliance is influenced by various factors, including drug side effects, family support, the role of health workers and cadres, information media, and socio-economic challenges. These findings are consistent with recent studies in various countries.

First, patient knowledge and attitudes have been shown to play an important role in adherence. A study in Yogyakarta found that patient knowledge and attitudes were significantly correlated with adherence, while factors such as family support and stigma were not directly related in this context (Sofiana et al., 2022). This is in line with the findings of this study, in which patients who received explanations from health workers or cadres were better prepared to deal with side effects.

Secondly, family support is key to successful treatment. A study in Aceh showed that families with a better understanding of TB tended to be able to provide emotional and practical support, which contributed to increased patient compliance (Yahya & Bengi, 2025). This support was also confirmed in a study in Nepal, where 96% of MDR-TB patients who received family support showed better compliance (Shah, 2020).

Third, social stigma and psychological conditions affect compliance. A study in Uganda found that experiences of stigma were closely related to patient non-compliance (Nabaziwa & Kigongo, 2023). In fact, another study revealed that internalised stigma can cause depression, which ultimately reduces adherence to TB therapy (Pradhan et al., 2022). This is in line with the finding that patients in this study were reluctant to open up and even refused visits from cadres for fear of being stigmatised.

Fourth, the role of health workers and service quality are crucial. A study in Timor-Leste reported that the quality of health services is a major predictor of patient compliance, with patients who rate services as high quality being 14 times more likely to comply (Fernandes et al., 2024). However, this study also emphasised that the limited number of health workers in community health centres is a major obstacle to intensive support.

Fifth, the role of information media is increasingly crucial in the digital age. Literature studies show that health system factors, educational media, and environmental support contribute to patient compliance (Palangan et al., 2021). This is consistent with the results of this study, in which print and digital media such as WhatsApp are considered helpful to patients, although there are still issues with information consistency.

Overall, this study confirms that TB patient compliance is a multidimensional issue, influenced by individual factors (knowledge, attitude, motivation), social factors (family support, stigma), structural factors (access to services, economics), and health communication factors (media and health workers).

Conclusion

This study found that tuberculosis patient compliance is greatly influenced by individual factors, family support, the role of health workers, cadres, and information media. Patients face challenges in the form of drug side effects, limited understanding, and stigma, while family support and the use of social media and health campaigns play an important role in increasing their motivation and knowledge.

On the other hand, health workers and cadres have a strategic role in assisting patients, although they still face obstacles such as limited resources, stigma, and low patient participation. The results of the study confirm that patient empowerment strategies to improve therapy adherence need to be based on multi-stakeholder collaboration with the support of continuous education, community strengthening, and optimisation of information media as a means of health communication.

References

- Alinaitwe, B., Shariff, N., Bandela, B. M., & Banadda, B. (2025). Treatment adherence and its association with family support among tuberculosis patients. *Scientific Reports*, 15(1), 1–10. <https://doi.org/10.1038/s41598-025-96260-8>
- Appiah, M. A., Arthur, J., & Adongo, D. (2023). Barriers to tuberculosis treatment adherence in community-based programs. *BMC Public Health*, 23(1), 16259. <https://doi.org/10.1186/s12889-023-16259-6>
- Fernandes, A., Laohaprapanon, S., Nam, T. T., Sequeira, E. M. D. C., & Le, C. (2024). Adherence to pulmonary tuberculosis medication and associated factors among adults: A cross-sectional study in the Metinaro and Becora sub-districts, Dili, Timor-Leste. *International Journal of Environmental Research and Public Health*, 21(12), 1662.
- Houtsma, D., van Boven, J. F. M., Pradipta, I. S., et al. (2020). Interventions to improve medication adherence in tuberculosis: A systematic review. *NPJ Primary Care Respiratory Medicine*, 30(1), 179. <https://doi.org/10.1038/s41533-020-0179-x>
- Nabaziwa, S., & Kigongo, J. (2023). Adherence to tuberculosis treatment and its associated factors among drug-susceptible tuberculosis patients in Lira District, Northern Uganda. *International Journal of Academic Research in Business and Social Sciences*, 13(4).
- Palangan, O., Peristiowati, Y., & Ellina, A. D. (2021). Factors related to medication adherence among pulmonary tuberculosis patients: A literature review. *Journal of Tuberculosis Research*.
- Pradhan, A., Koirala, P., Bhandari, S. S., Dutta, S., García-Grau, P., Sampath, H., & Sharma, I. (2022). Internalized and perceived stigma and depression in pulmonary tuberculosis: Do they explain the relationship between drug sensitivity status and adherence? *Frontiers in Psychiatry*, 13, 869647.

- Pradipta, I. S., Idrus, L., Probandari, A., Lestari, B. W., & Alffenaar, J. W. C. (2021). Barriers and strategies to successful tuberculosis treatment: A mixed-methods study. *BMC Public Health*, 21(1), 12005. <https://doi.org/10.1186/s12889-021-12005-y>
- Ruru, Y., Matasik, M., Oktavian, A., & Mahendradhata, Y. (2018). Factors associated with non-adherence during tuberculosis treatment in Indonesia. *Global Health Action*, 11(1), 1510592. <https://doi.org/10.1080/16549716.2018.1510592>
- Shah, A. (2020). Treatment adherence among MDR TB patients in Nepal. *Texila International Journal of Public Health*, 8(1), 369–373.
- Sofiana, L., Ayu, S. M., Amelia, D., Adiningsih, P., Sa'diyah, U., Putri, N., Azizah, A. R., & Safitri, A. A. (2022). Medication adherence of tuberculosis patients in Yogyakarta: A cross sectional study. *Journal of Health Education*, 7(2).
- Yahya, M., & Bengi, S. (2025). Analysis of the relationship between family support and compliance with tuberculosis treatment in Seumirah Village, North Aceh. *Medical: Jurnal Kesehatan dan Kedokteran*, 2(1).