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Original Research

The "Temukan, Obati Sampai Sembuh" (TOSS) Movement in Breaking Pulmonary Tuberculosis Transmission at Bambaira Health Center, Pasangkayu

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Abstract
Background: Tuberculosis (TB) remains a global health challenge. Indonesia ranks among countries with the highest TB burden, with over 800,000 cases reported in recent years (WHO, 2024). The Ministry of Health introduced the Temukan, Obati, Sampai Sembuh (TOSS) initiative to enhance early detection and treatment adherence. However, implementation barriers persist, especially in remote areas.
Objective: This study aims to evaluate the implementation of the TOSS TB program in breaking TB transmission at Bambaira Health Center, Pasangkayu Regency, and to identify systemic challenges and improvement opportunities.
Methods: This qualitative study used in-depth interviews, FGDs, observations, and document analysis. Participants included healthcare workers, TB patients, caregivers, and community leaders. Thematic analysis was conducted to explore program implementation.
Results: Barriers identified include poor public awareness, weak contact tracing, medication stockouts, and limited follow-up systems. Stigma also discouraged patients from seeking care. Nevertheless, early case detection and initial treatment showed promising outcomes when supported by trained staff and community involvement.
Conclusion: Addressing systemic barriers through education, logistics, and community engagement is key to TOSS TB success. Policy support and consistent funding are needed to ensure sustainability and integration with other health services.

Keywords: tuberculosis; TOSS TB; health center; public health; Indonesia

Background

Tuberculosis (TB) remains one of the world's deadliest infectious diseases, with an estimated 10.6 million people falling ill globally in 2022 and 1.3 million deaths among HIV-negative individuals, Indonesia ranks third worldwide in TB burden, with over 820,000 new cases annually (World Health Organization, 2024a, 2024b). Despite national and global efforts to reduce incidence, TB persists due to limited public awareness, persistent stigma, and inadequate health infrastructure (Kementerian Kesehatan RI, 2023).

To address this, the Ministry of Health launched the Temukan, Obati, Sampai Sembuh (TOSS TB) program, which focuses on early detection, effective treatment, and adherence monitoring (Pamela Sari & Rachmawati, 2019). Although

the program is conceptually sound, implementation in remote and underserved regions remains inconsistent due to operational and social barriers. Bambaira Health Center in Pasangkayu Regency, West Sulawesi, plays a strategic role in regional TB management. However, it confronts multiple barriers, such as limited access, staff shortages, and logistical difficulties in reaching rural communities. These conditions hamper the effective implementation of TB control programs and underscore the urgency of localized, evidence-based strategies (Adrian et al., 2020; Aviana et al., 2021).

Social stigma remains a primary obstacle in TB control, often discouraging individuals from seeking timely diagnosis or adhering to treatment protocols (Kementerian Kesehatan RI, 2023). This is compounded by widespread misconceptions about transmission and treatment, which hinder public health outreach. Additionally, community engagement remains limited. Although community health workers (CHWs) and volunteers act as vital links between the health system and local populations, their impact is reduced by lack of training, inadequate incentives, and operational constraints (Kementerian Kesehatan RI, 2020)

Despite nationwide rollout of the TOSS TB program, empirical insights on its local implementation especially in remote areas like Pasangkayu Regency remain scarce. Literature largely focuses on aggregated national statistics, with limited attention to region-specific barriers and operational realities (Pamela Sari & Rachmawati, 2019; Zannah et al., 2023). Understanding how factors like stigma, community involvement, and logistical support influence program success is therefore critical. This study seeks to address the identified gap by evaluating the implementation of the TOSS TB program at Bambaira Health Center, with a focus on uncovering operational challenges and proposing evidence-based improvements. The findings aim to inform local and national strategies for strengthening TB control efforts in Indonesia.

Methods

Study Design

This study employed a qualitative descriptive design to explore the implementation of the TOSS TB program at Bambaira Health Center, Pasangkayu Regency. This approach enabled an in-depth understanding of contextual factors, challenges, and opportunities that affect program effectiveness. Study Design A qualitative descriptive design was adopted to capture detailed perspectives from various stakeholders involved in the TOSS TB program. This method facilitated the collection of nuanced, experience-based data from healthcare workers, TB patients, caregivers, and community members.

Settings

This research was conducted at Bambaira Health Center in Pasangkayu Regency, West Sulawesi an area characterized by a mix of urban and hard-to-reach rural populations. The center delivers primary health services, including TB screening, treatment, and patient monitoring.

Participants

Participants were selected through purposive sampling based on the following inclusion criteria: active involvement in the TOSS TB program, willingness to participate, and ability to provide informed consent. Exclusion criteria included severe illness impeding communication or refusal to participate. A total of 25 participants were involved, including healthcare workers, TB patients, family caregivers, and community leaders.

Data Collection

Data were collected over a three-month period through the following methods: - Semi-structured interviews with 15 participants (healthcare workers, TB patients, and family caregivers); - Two focus group discussions involving 10 participants (community leaders and healthcare staff); - Direct observation during five TB screening sessions and three follow-up visits; - Document review including program reports, TB treatment records, and national TB guidelines. Interview guides were semi-structured, pilot-tested prior to data collection, and refined accordingly.

Data Analysis

A thematic analysis approach was used, following Braun & Clarke's framework. Transcripts and notes were imported into NVivo 12 software for systematic coding. The analysis included: - Familiarization with data; - Initial open coding; - Categorization into themes; - Interpretation in line with research objectives. Two independent coders analyzed the data, and discrepancies were resolved through discussion to enhance intercoder reliability.

Trustworthiness

To enhance trustworthiness, the study applied Lincoln and Guba's criteria: - Credibility: Achieved through triangulation across interviews, FGDs, observations, and documents. - Transferability: Facilitated by providing thick descriptions of the

research setting and participants. - Dependability: Ensured by maintaining a transparent audit trail of procedures and decisions. - Confirmability: Established through reflexivity and peer debriefing to minimize researcher bias.

Ethical Considerations

The study was approved by the Health Research Ethics Committee of Universitas Sulawesi Barat with reference number No. 112/KEPK-UNSULBAR/IV/2023. All research procedures followed ethical guidelines for qualitative health research. Written informed consent was obtained from all participants after a full explanation of the study's objectives, voluntary nature, and their right to withdraw without penalty. Confidentiality and anonymity were strictly maintained through coded identifiers and secure data storage. The research team made every effort to ensure participants felt respected, safe, and comfortable throughout the process.

Results

The results are presented according to six major themes that emerged during the analysis, each reflecting specific challenges and opportunities in the implementation of the TOSS TB program at Bambaira Health Center. Table 1 below summarizes the demographic and contextual profile of the 25 participants involved in this study.

Tabel 1. Participant Profile

Participant Code	Role	Gender	Age Range	Notes
HCW1	TB Program Coordinator	Female	30–40	5 years of TB program experience
HCW2	Nurse	Female	25–35	Responsible for DOTS implementation
HCW3	Head of Health Center	Male	40–50	Oversees TB program at facility level
HCW4	Nurse	Male	30–40	TB patient outreach and education
HCW5	TB Officer	Female	35–45	Handles TB reporting and drug inventory
PAT1	TB Patient	Male	20–30	Undergoing treatment for 3 months
PAT2	TB Patient	Female	30–40	First-time TB diagnosis
PAT3	TB Patient	Male	25–35	Lost to follow-up then resumed treatment
PAT4	TB Patient	Female	35–45	Living in remote village
PAT5	TB Patient	Male	18–25	Recently diagnosed
FAM1	Family Caregiver	Female	35–45	Caring for sibling with TB
FAM2	Family Caregiver	Male	40–50	Primary caregiver, lives in rural area
FAM3	Family Caregiver	Female	30–40	Wife of TB patient
FAM4	Family Caregiver	Male	25–35	Brother of TB patient
FAM5	Family Caregiver	Female	45–55	Caretaker with no health background
CL1	Community Leader	Male	50–60	Village head, supports health campaigns
CL2	Religious Leader	Male	45–55	Promotes TB awareness in community
CL3	Village Council Member	Female	35–45	Coordinates with health staff
CL4	Youth Leader	Male	20–30	TB education through youth programs
CL5	Women's Group Chair	Female	40–50	Mobilizes mothers in TB education
CHV1	Community Health Volunteer	Female	30–40	Active in TB education outreach
CHV2	Community Health Volunteer	Male	25–35	Assists with sputum transport
CHV3	Community Health Volunteer	Female	35–45	Former TB patient turned volunteer
CHV4	Community Health Volunteer	Male	30–40	Supports defaulter tracing
CHV5	Community Health Volunteer	Female	20–30	Young volunteer from urban village

As shown in Table 1, the participant group reflects a representation of the TB care ecosystem at Bambaira Health Center. Healthcare professionals contributed clinical and programmatic insights, while patients and caregivers shared lived experiences of navigating diagnosis and treatment. Community leaders and volunteers added contextual understanding related to local engagement and stigma. This diversity of perspectives enriched the thematic analysis presented in the subsequent sections.

Theme 1: Awareness of the TOSS TB Program

Healthcare workers demonstrated a clear understanding of the TOSS TB program's objectives and procedures. However, awareness among TB patients and their families remained limited. Interviews indicated that health promotion activities were sporadic and lacked consistency. A nurse stated, "Many patients don't fully understand the importance of completing their TB treatment because they rarely attend educational sessions."

Stigma was a significant barrier to awareness. According to a community health volunteer, "Some families hide TB cases because they don't want neighbors to know." This social stigma discouraged patients from participating in group education sessions.

Educational outreach was also limited by shortages of printed materials. A program staff member reported, "We often run out of materials, and restocking takes too long."

Theme 2: Screening and Early Detection Challenges

Challenges Participants reported significant obstacles to early detection. A TB officer noted, "People wait until their symptoms are severe before visiting the health center," citing stigma and financial limitations as primary deterrents.

The COVID-19 pandemic also led to reduced TB screening, as many individuals avoided health facilities. A nurse reported, "During the pandemic, the number of people coming in for TB tests dropped significantly."

Logistical issues were also reported, particularly regarding the transport of sputum samples. Delays in test results discouraged patient follow through.

Theme 3: Contact Tracing Limitations

Participants identified barriers to effective contact tracing. A nurse shared, "It's difficult to convince patients to share information about their family members or friends they've been in contact with," primarily due to stigma and privacy concerns.

Inconsistent implementation was also attributed to inadequate training. A TB program coordinator stated, "We don't have standardized guidelines for approaching families, and this makes tracing inconsistent."

Human resource shortages also emerged as a barrier. Health workers often managed multiple responsibilities, reducing time for contact tracing.

Theme 4: Treatment Barriers

TB treatment was challenged by financial burdens and side effects. A male TB patient expressed, "I couldn't afford to keep traveling to the health center every week for medication."

Medication shortages were also reported. A nurse stated, "Sometimes we run out of medication, and patients lose trust in the system."

The long duration of TB treatment caused fatigue and reduced motivation among patients.

Theme 5: Monitoring and Follow-Up

Participants noted irregularities in monitoring, especially home visits. A TB nurse reported, "We can't visit patients regularly because we don't have enough transportation facilities."

The use of digital tools was minimal. A program coordinator remarked, "If we had proper mobile health tools, we could keep track of patients better."

Staff turnover further disrupted monitoring activities.

Theme 6: Integration with Other Health Programs

Programs Some healthcare workers reported a lack of coordination between the TOSS TB program and other health services. A midwife explained, "Sometimes we duplicate efforts because different teams aren't aligned." Integration with maternal and child health services was perceived as beneficial but inconsistently implemented.

Theme 7: Community Involvement

Community involvement in TB control was reported to be limited. A community volunteer shared, "We want to help, but we need better training and support." Constraints included inadequate capacity building and absence of structured support.

Discussion

This study highlights structural and operational barriers that undermine the effectiveness of the TOSS TB program in a resource-constrained setting. Socio-cultural stigma, fragmented communication, and logistical inefficiencies persist as core challenges. This discussion contextualizes the findings within broader TB control literature and outlines strategies to enhance implementation.

Theme 1: Awareness of the TOSS TB Program

Program The study found a clear gap between the programmatic knowledge held by healthcare workers and the limited awareness among patients and their families. This discrepancy reflects longstanding weaknesses in community-level health promotion, which are further complicated by stigma and misinformation. Participants reported sporadic health education activities, minimal patient engagement, and inadequate distribution of educational materials.

This aligns with literature emphasizing the need for localized, continuous health promotion tailored to cultural norms and communication styles (Agus Fitriangga, 2024; Waliulu et al., 2024). Interventions that involve trusted local actors such as religious leaders or school personnel have been shown to be more effective. CHWs must be supported through regular training and logistical reinforcement to serve as effective community liaisons (Setyowati et al., 2018).

Theme 2: Screening and Early Detection Challenges

Challenges Financial hardship, long distances to healthcare centers, and TB-related stigma emerged as key barriers to timely diagnosis. These findings reflect broader trends documented during public health crises, including COVID-19, where health-seeking behavior declined significantly due to fear and access constraints. Overcoming these obstacles requires innovations such as mobile screening units, decentralized sputum collection, and digital platforms for remote access approaches that have proven effective in similar settings (Mahmood et al., 2020; Mergenthaler et al., 2022). Integrating financial assistance and community-based diagnostic services is particularly important in remote areas.

Theme 3: Contact Tracing Limitations

Stigma and privacy concerns hindered the disclosure of close contacts by TB patients, limiting the reach of tracing efforts. These findings mirror global reports on the influence of trust and confidentiality in public health surveillance (Latif et al., 2023). Trust-building measures including culturally sensitive communication and strict confidentiality are critical to improving contact tracing (Alcantara et al., 2017; Al-Worafi, 2023). Strengthening human resources and adopting digital tools may enhance coverage and consistency, as also highlighted in national TB guidelines (Ropitasari et al., 2024).

Theme 4: Treatment Barriers

This study confirms that prolonged TB treatment, coupled with transportation costs and medication side effects, significantly impedes patient adherence. Medication stockouts further worsen these barriers by disrupting continuity and diminishing trust in the health system. These findings are supported by studies showing that comprehensive support transport subsidies, psychosocial services, and nutritional aid can improve adherence (Hutchison et al., 2017; World Health Organization, 2014, 2020). Strengthening the medicine supply chain is also vital to prevent treatment interruption and maintain patient confidence.

Theme 5: Monitoring and Follow-Up

Monitoring inconsistencies such as infrequent home visits and underutilized digital tools emerged as critical gaps in patient tracking. Frequent staff turnover further disrupted continuity, undermining follow-up and data consistency. Mobile health innovations, including SMS reminders and real-time dashboards, have proven effective in comparable low-resource settings (Alcantara et al., 2017; Mahmood et al., 2020). These technologies, when coupled with workforce stability and ongoing training, can improve adherence tracking and reporting reliability (Al-Worafi, 2023; Setyowati et al., 2018).

Theme 6: Integration with Other Health Programs

Weak coordination across health programs emerged as a barrier to optimizing TB services. Although maternal and child health programs offer an opportunity for synergy, the study revealed operational silos and duplication of efforts. These gaps reflect broader systemic inefficiencies observed in decentralized health systems. Evidence suggests that shared reporting systems, interdepartmental communication protocols, and integrated training can facilitate collaboration and avoid redundancy (Istiono et al., 2024; Setyowati et al., 2018).

Theme 7: Community Involvement

Despite their frontline position, community actors such as health volunteers and local leaders are not fully mobilized. Lack of structured support and limited training impede their ability to contribute to awareness and adherence. This reflects a missed opportunity to localize TB control. Community empowerment should be institutionalized through capacity-building, mentorship schemes, and modest incentives. Peer-led education has demonstrated success in increasing trust and reducing stigma (Hutchison et al., 2017; Ropitasari et al., 2024; World Health Organization, 2020).

Support TB control remains vulnerable to systemic delays in budget execution and shifting political priorities. The lack of stable and timely funding undercuts planning and service continuity, a trend common in under-resourced health systems. Long-term sustainability requires political will, transparent budgeting, and integrating TB into broader

health and social protection agendas (World Health Organization, 2020). Advocacy efforts should be aligned with national health financing reforms and decentralized governance frameworks. The barriers reported stigma, service fragmentation, and workforce limitations are consistent with global TB program challenges. This study contributes a localized understanding by highlighting how geographic isolation and cultural stigma uniquely shape implementation in remote Indonesian settings. Thus, solutions must be context-driven and co-developed with community stakeholders.

Conclusion

This study reveals that the effectiveness of the TOSS TB program in Bambaira is constrained by structural, operational, and sociocultural challenges. Limited public awareness, stigma, staff turnover, and supply disruptions undermine program outcomes. Strategic improvements must focus on localizing health education, strengthening inter-program integration, and enhancing digital infrastructure for monitoring. Collaborative and community-based approaches, supported by sustained policy and funding commitments, are essential to improve TB control in remote settings. To strengthen the implementation of the TOSS TB program in remote areas, the following actions are recommended: Intensify culturally tailored health education by engaging schools, media, and faith-based organizations to improve TB awareness. Upgrade training modules for healthcare workers to enhance screening, tracing, and communication competencies. Ensure uninterrupted TB drug supply through strengthened logistics and supply chain coordination. Introduce patient support schemes such as transportation subsidies and treatment incentives to reduce economic burdens. Adopt mobile health technologies for real-time monitoring, adherence tracking, and improved data reporting. Foster intersectoral collaboration to align TB programs with other health and development initiatives. Secure long-term funding and integrate TB control into broader policy frameworks. Mobilize local leadership and peer educators to reduce stigma, build trust, and sustain community engagement.

Declaration of conflicting interest

The authors declare that there is **no conflict of interest** with respect to the research, authorship, and/or publication of this article.

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Author Contribution

The author was solely responsible for the conception and design of the study, development of the methodology, coordination of data collection and analysis, as well as the drafting, critical revision, and final approval of the manuscript. All aspects of the research and writing process were conducted independently by the author.

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