

**COMMUNITY DIAGNOSIS ACTIVITY REPORT IN EFFORTS TO INCREASE
TUBERCULOSIS PREVENTIVE THERAPY ACCEPTANCE RATE IN DUKUH
VILLAGE, CIKUPA HEALTH CENTER WORK AREA, CIKUPA
SUBDISTRICT, TANGERANG REGENCY, BANTEN
PROVINCE PERIOD: MAY 2, 2025-JUNE 28, 2025**

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Disubmit: 20 September 2025

Diterima: 29 Oktober 2025

Diterbitkan: 01 November 2025

Doi: <https://doi.org/10.33024/mnj.v7i11.22769>

ABSTRACT

Tuberculosis (TB) is an infectious disease caused by the *Mycobacterium tuberculosis* complex. Tuberculosis Preventive Therapy (TPT) is necessary for individuals at high risk of contracting TB to prevent transmission. However, the uptake rate of TPT remains low in areas with the highest number of TB cases. From January to April 2025, the number of TPT recipients in the Cikupa Community Health Center's working area was only 41 people, falling short of the target of 91. The objective was for all participants to demonstrate increased knowledge following the intervention and to be able to correctly perform the intervention. Data was collected through a mini-survey conducted among the community within the Cikupa Community Health Center's working area. The collected data was then analyzed using the Blum Paradigm to identify problems. Problem prioritization was determined using the non-scoring Delphi method. A Fishbone diagram was used to identify the root causes of the problem. During the intervention, pre-tests and post-tests were administered to assess the knowledge of Dukuh village residents before and after the intervention. The PDCA (Plan-Do-Check-Act) cycle and a systems approach were used for monitoring and evaluation. The problem identification using the Blum Paradigm indicated that 'Lifestyle' was the primary contributing factor. In Intervention 1, a total of 26 participants showed an increase in correct answers on their post-test compared to their pre-test, and 31 participants achieved a post-test score of ≥ 70 . For Intervention 2, three participants were able to correctly re-demonstrate the procedure. Following Interventions 1 and 2, the program was declared successful. It is expected that these interventions will lead to an increase in the number of TPT recipients in the Dukuh Village area.

Keywords: Tuberculosis, TPT, Community Diagnosis

INTRODUCTION

Community diagnosis refers to the identification and assessment of health problems within a specific population, particularly in terms of morbidity and mortality ratios. The primary goal is to target individuals or groups at risk who require medical care and preventive interventions. Community diagnosis plays a critical role in recognizing public health issues, raising awareness about the importance of health, and promoting disease prevention and health promotion strategies (of Health Community Liaison Division, 2009; Utzinger et al., 2004).

Tuberculosis (TB) is an infectious disease caused by *Mycobacterium tuberculosis*, and it remains one of the major unresolved public health challenges. TB is transmitted through airborne droplets expelled when an infected person coughs or sneezes. The disease can manifest as pulmonary TB, affecting the lungs, or extrapulmonary TB, which affects other organs such as the pleura, lymph nodes, skin, bones, and meninges (Marais et al., 2013; Tobin & Tristram, 2024).

Recent global reports have shown a decline in TB-related deaths, with an estimated 1.25 million people dying from TB in the most recent year, including both HIV-negative individuals and those living with HIV. This represents a decrease compared to previous years. Despite this progress, TB is again estimated to be the leading cause of death from a single infectious agent worldwide, surpassing other infectious diseases (*TB Continues to Be the World's Leading Infectious Disease Killer: WHO Global TB Report 2024* | KNCV Tuberculosis, 2024; *Tuberculosis Resurges as Top Infectious Disease Killer*, 2024).

Indonesia continues to bear a high burden of TB, with approximately 969,000 cases and 93,000 deaths annually, which is equivalent to 11 deaths per hour. This high burden of morbidity and mortality demands serious attention. TB remains one of the top causes of death in the country, and Indonesia has committed to eliminating TB by 2030, with targets to significantly reduce both incidence and mortality rates (*Indonesia Commitment to Eliminate TB by 2030 Supported by the Highest-Level Government.*, 2021; *Indonesia Plans to Revive Sanatoriums to Treat Tuberculosis* | *I3investor*, 2023).

In the Cikupa Primary Health Center area, 77 new cases of pulmonary TB were recorded between January and April 2025. During the same period, the coverage of TB Preventive Therapy (TPT) was only 44.7%, falling short of the national target of at least 50%. Therefore, there is a pressing need to enhance health promotion and TB prevention efforts in the area. Implementing a community diagnosis approach as a preventive and promotive strategy is essential to reduce the incidence of TB in the Cikupa region.

LITERATURE REVIEW

Tuberculosis (TB) remains a persistent global health challenge, especially in low- and middle-income countries. The disease is primarily caused by *Mycobacterium tuberculosis*, which typically affects the lungs but can also manifest as extrapulmonary TB. Transmission occurs through airborne droplets, making TB a highly communicable disease, particularly in densely populated areas with limited access

to healthcare services (Marais et al., 2013; Tobin & Tristram, 2024).

Extensive research has demonstrated that early detection and proper treatment significantly reduce TB transmission and mortality. Despite the availability of effective treatment regimens, TB continues to pose a substantial public health burden. This is largely attributed to factors such as delayed diagnosis, treatment non-adherence, drug resistance, and inadequate public awareness regarding TB prevention and control (Wayan Gede Artawan Eka Putra et al., 2019; Yayan et al., 2024).

Globally, TB incidence and mortality rates vary by region, with the highest burden reported in Southeast Asia and Africa. Indonesia consistently ranks among the top three countries with the highest number of TB cases. Various public health initiatives, including the implementation of Directly Observed Treatment Short-course (DOTS) and TB Preventive Therapy (TPT), have been employed to address the issue. However, program coverage and community engagement remain suboptimal in many regions, including at the primary healthcare level (3. *TB Prevention and Screening*, 2023; *Recommendations - WHO Consolidated Guidelines on Tuberculosis - NCBI Bookshelf*, 2024; *Tuberculosis*, 2025).

Community-based approaches have gained recognition as an effective strategy to bridge gaps in TB prevention and control. Community diagnosis, in particular, offers a proactive method to identify at-risk populations, assess local health challenges, and design targeted interventions. Integrating community diagnosis with health promotion activities is crucial in enhancing public awareness and participation, ultimately contributing to early case detection

and improved treatment outcomes (Arshad et al., 2014; Chavez-Rimache et al., 2023).

In Indonesia, national TB elimination targets emphasize reducing the incidence and mortality rates through intensified case finding, improved access to care, and strengthened preventive efforts. Despite these efforts, many regions, especially at the subdistrict level, continue to report low rates of preventive therapy coverage and delayed diagnosis. This highlights the need for more effective health promotion and community engagement strategies to address the persistent challenges of TB control (*Indonesia's Movement to End TB*, 2025).

RESEARCH METHODOLOGY

This study employed a community-based, descriptive-analytical design, conducted in the service area of Cikupa Primary Health Center (Puskesmas Cikupa), Tangerang Regency, Indonesia, from January to May 2025. The objective of the study was to identify, analyze, and address tuberculosis-related health problems at the community level, with specific focus on Dukuh Village.

Data collection was carried out through a mini-survey involving selected community members residing near Puskesmas Cikupa. A structured questionnaire was utilized to assess knowledge, attitudes, and behaviors related to tuberculosis (TB), drug-resistant TB (TB-RO), TB Preventive Therapy (TPT), and access to TB-related health services. Participants were recruited using purposive sampling, targeting individuals considered at risk or with potential TB exposure.

Following data collection, a comprehensive analysis was conducted using Blum's Health Field

Theory (Blum Paradigm), evaluating the influence of environmental conditions, healthcare services, individual behaviors, and hereditary factors in contributing to TB burden. Based on this framework, problem prioritization was carried out using a non-scoring Delphi method, involving a panel of local health workers, community leaders, and public health professionals. This approach facilitated consensus on the most pressing and actionable community health issue, while minimizing individual bias through iterative, anonymous feedback.

Once the priority issue was established, a Fishbone (Ishikawa) diagram was used to systematically explore root causes, including socio-economic determinants, healthcare system limitations, health behaviors, and environmental risks. Based on the root cause analysis, two sequential community health education interventions were designed and implemented.

The first intervention focused on increasing public knowledge regarding TB, TB-RO, and related risk factors. The intervention was approved by Puskesmas Cikupa and conducted in collaboration with the local TB program coordinator and the village midwife of Dukuh. The session took place on Thursday, June 5, 2024, from 09.00 to 12.00 WIB at a resident's house, and was facilitated by three medical interns, assisted by the village head and community health volunteers (kader). A total of 32 residents participated. The activity began with participant registration, followed by an opening speech from local officials. A pre-test questionnaire was administered to assess baseline knowledge of TB transmission, TB-RO, risk factors, proper coughing etiquette, mask usage, and hand hygiene. This was followed by PowerPoint-assisted

presentations from the medical interns, a Q&A session, and a post-test to evaluate knowledge improvement. Concurrently, blood glucose screenings were conducted for all participants. Those with the highest post-test scores received appreciation prizes, and educational leaflets were distributed. The event concluded with a closing statement and expressions of gratitude.

The second intervention, conducted on June 5, 2025, from 10.00 to 12.00 WIB, focused on practical demonstrations of proper coughing technique, correct mask usage, and handwashing procedures to promote Clean and Healthy Living Behavior (PHBS). The activity began with participant registration and an introductory session by the medical interns. Participants received souvenir kits containing masks, hand sanitizer, and tissues. Educational materials were presented via PowerPoint, followed by live demonstrations of proper techniques using posters and visual aids. Participants were invited to practice and repeat the demonstrated behaviors, and three volunteers who successfully performed the demonstrations received prizes. The session concluded with the distribution of leaflets, a group photo, and closing remarks.

To assess the effectiveness of both interventions, pre- and post-tests were conducted to measure knowledge improvement. The entire intervention process was monitored and evaluated using the Plan-Do-Check-Act (PDCA) cycle and a systems approach, ensuring continuous improvement and identification of barriers and facilitators for community-level TB prevention.

RESEARCH RESULT

There were 32 participants who took part in intervention 1. An increase in the number of correct points between pre-test and post-test was observed in 29 participants

(90.6%), and there were 28 participants (87.5%) who scored ≥ 70 on post test. The number of participants who met indicators 1 and 2 was 12 people (30%). (Table 1)

Table 1. Result and Monitoring Intervention

Characteristics	Number (%) n=32
Age	40.30 (± 8.99)
Gender	
Women	28 (87.5)
Men	4 (12.5)
Education	
Elementary School	4 (12.5)
Junior High School	7 (21.9)
Senior High School	14 (43.8)
Vocational High School	8 (25)
Associate Degree	3 (9.4)
Occupation	
Housewife	21 (65.6)
Community Health Volunteer	5 (15.6)
Employee	3 (9.4)
Village Head	1 (3.1)
Village Employee	1 (3.1)
Unemployed	1 (3.1)

A total of 32 participants attended the demonstration activity. As a result of the second intervention, three participants voluntarily demonstrated proper coughing etiquette, correct mask usage, and appropriate handwashing techniques in front of the group.

Additionally, during the educational session, all participants were encouraged to actively follow along and practice these techniques at their respective seats, ensuring hands-on engagement and reinforcement of the demonstrated behaviors

DISCUSSION

This community-based intervention program aimed to enhance public awareness and preventive practices related to tuberculosis (TB), drug-resistant TB (TB-RO), and TB risk factors among residents of Dukuh Village, Cikupa, Indonesia. The educational activities were designed not only to improve knowledge but also to promote behavior change through practical demonstrations and community engagement.

The pre- and post-test assessments indicated an improvement in participant knowledge regarding TB transmission, risk factors, and prevention strategies following the health education session. The intervention successfully reached 32 participants, reflecting a high level of community interest and willingness to engage in health-promoting activities. Notably, three participants voluntarily demonstrated correct techniques for coughing etiquette, mask usage, and hand hygiene, indicating a strong level of understanding and confidence in applying the preventive measures taught. Additionally, all participants were actively involved in practicing these techniques during the session, highlighting the effectiveness of hands-on learning in reinforcing health messages.

The implementation of interactive education and live demonstrations proved to be an effective strategy in increasing community engagement and reinforcing behavioral change. This aligns with previous findings that suggest participatory approaches in health education are more effective than passive learning alone, especially in low-resource or rural settings. The use of visual aids, practical tools (e.g., masks, hand

sanitizers), and positive reinforcement through reward mechanisms further contributed to the success of the intervention (Boedeker et al., 2024; Kuchler et al., 2022; *View of The Effect Of Giving Education With Interactive Audio Visual Media On Compliance In Taking Medication In Pulmonary Tuberculosis Patients*, 2025).

Moreover, collaboration with local health workers, community leaders, and health volunteers (kader) was instrumental in facilitating the intervention and ensuring community participation. This multi-stakeholder approach enhanced the program's credibility and cultural appropriateness, thereby increasing its acceptance and potential for sustainability (Sinha et al., 2019).

In addition to the observed improvements in knowledge and preventive practices, this intervention offers important insights into the broader implications for community health promotion. The use of interactive and participatory methods, including live demonstrations and hands-on practice, aligns with behavioral change theories such as the Health Belief Model, which emphasizes that individuals are more likely to adopt preventive behaviors when they perceive themselves at risk, understand the benefits of action, and face minimal barriers. The observed willingness of participants to voluntarily demonstrate proper techniques suggests a shift not only in knowledge but also in personal confidence and intention to act, key predictors of sustained behavior change (Alyafei & Easton-Carr, 2024; Hariyanto et al., 2023; Khamai et al., 2024).

Furthermore, this program highlights the potential for sustainable, community-driven

health education when local health volunteers (kader) are actively involved. Engaging kader in planning and executing health promotion activities empowers them to serve as ongoing resources in their communities, thereby enhancing the sustainability and scalability of such interventions. Future programs could invest in capacity building for kader, enabling them to independently conduct follow-up education sessions, monitor behavioral outcomes, and serve as health advocates (Abongo et al., 2020; Balogun et al., 2015).

Importantly, this intervention may also contribute to reducing TB-related stigma, a major barrier to early diagnosis and treatment adherence. By providing accurate information in an accessible and non-judgmental setting, the program likely fostered a more open dialogue about TB, potentially improving health-seeking behaviors and encouraging community members to support affected individuals (Foster et al., 2022; Nuttall et al., 2022).

To further increase reach and engagement, future interventions could incorporate digital health tools, such as short educational videos, mobile applications, or social media platforms, to deliver TB-related health messages, particularly targeting younger and tech-savvy populations. Additionally, integrating TB education with other health screenings, as demonstrated by the inclusion of blood glucose testing in this study, reinforces a holistic approach to community health and highlights the intersection between TB and other conditions such as diabetes.

While the intervention showed promising results, it is important to acknowledge certain limitations, including the relatively small sample

size, lack of long-term follow-up, and the potential for social desirability bias during post-test assessments. These factors may limit the generalizability of the findings. Future studies should aim to conduct longitudinal assessments to evaluate whether the knowledge and behavioral changes observed are sustained over time, and to assess the impact on TB incidence at the community level.

Despite the short-term nature of the intervention, the results suggest a positive shift in both knowledge and practical skills related to TB prevention. However, further longitudinal follow-up is needed to evaluate the persistence of behavioral changes and to measure the long-term impact on TB incidence rates in the community. Integrating such community-level educational programs into routine health promotion efforts at the primary care level may contribute to reducing TB burden and preventing the emergence of drug-resistant TB.

This program also demonstrated the importance of early detection and health promotion in communities with limited access to comprehensive TB screening and care. The incorporation of blood glucose screening during the intervention further emphasized the value of integrating TB prevention with broader non-communicable disease risk assessments, especially considering the bidirectional relationship between TB and diabetes.

CONCLUSION

During the period of January to May 2025, only 44 individuals in the service area of Puskesmas Cikupa received TB Preventive Therapy (TPT), falling short of the target of 126 recipients. In Dukuh Village,

specifically, only one person had received TPT. Based on analysis using Blum's Health Field Paradigm, the primary factor contributing to the low TPT uptake was identified as lifestyle-related behavior, as revealed by a mini-survey involving 50 respondents from Dukuh Village who sought care at Puskesmas Cikupa.

To address this issue, two community-based interventions were implemented: Intervention 1 consisted of health education sessions on TB, TPT, and Clean and Healthy Living Behavior (PHBS), while Intervention 2 involved practical demonstrations on cough etiquette and proper handwashing. The outcomes of these interventions were promising. In Intervention 1, 26 participants showed improved post-test scores, and 31 participants achieved post-test scores of 70 or higher. In Intervention 2, three participants successfully demonstrated correct coughing and handwashing techniques, while all participants actively practiced these behaviors during the session.

These results suggest that targeted education and hands-on demonstrations can effectively improve community knowledge and practices, potentially contributing to increased TPT uptake and TB prevention efforts in the region.

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