

YOUTH TUBERCULOSIS TROOPS: MOBILIZING CASE FINDING FOR TB ELIMINATION IN INDONESIA

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Abstract: This research explores the role of adolescents in tuberculosis (TB) prevention through the Laskar TB (Youth Tuberculosis Troops) program in Indonesia. A qualitative research design was employed, with data collected from 52 adolescent volunteers and committee members of the organization through in-depth interviews and focus group discussions. The study highlights the success of the “Goes To School” program, which effectively increased adolescents’ knowledge about TB and empowered them to become health advocates by disseminating information within their communities. The study also examined the recruitment methods used to attract participants, noting that a combination of formal and informal approaches proved to be effective in engaging youth. However, challenges were identified in sustaining member participation, as many adolescents did not consistently engage in the program’s activities. Despite these challenges, the study concludes that engaging adolescents as active participants and change agents in health education can significantly contribute to raising awareness about TB and advancing the goal of TB elimination. The findings suggest that youth-led initiatives, when properly structured and supported, can play a crucial role in community-based health interventions.

Keywords: tuberculosis, adolescents, health education, Laskar TB, community participation, peer education, TB elimination strategies.

Introduction

Tuberculosis (TB) is a bacterial infection caused by *Mycobacterium tuberculosis*, which can spread from person to person through airborne transmission (airborne disease) when an infected person coughs, spits, or sneezes (Making et al., 2023). The bacteria usually attack the lungs, but it is not uncommon for the bacteria to affect other parts of the body. The bacteria enter the human body through inhaled air into the lungs, where it can then spread to other parts of the body via the circulatory system, lymphatic system, respiratory tract (bronchi), or directly to other areas of the body. Most of these bacteria attack the lungs, but they can also attack other organs. If the disease is not treated promptly or incompletely, it can lead to dangerous complications and death (Ministry of Health, 2016).

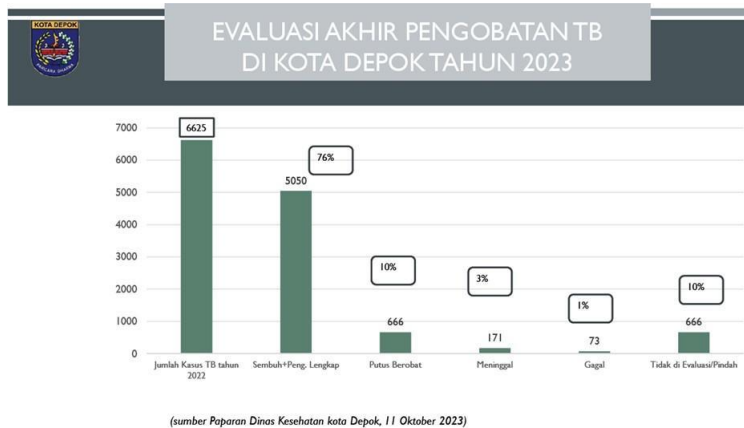
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Tuberculosis remains a public health problem that poses a global challenge. Globally, there were 6.4 million new causes of tuberculosis, accounting for 64% of the tuberculosis incidents (10 million). Tuberculosis continues to be one of the leading causes of death globally, with an estimated 1.3 million deaths from the disease (WHO, 2018). The majority of TB cases are in low- and middle-income countries (WHO, 2020b). Geographically, in 2019, the majority of TB patients were located in the WHO South-East Asia region (44%), followed by Africa (25%) and the Western Pacific (18%) (WHO, 2020). Indonesia ranks third in the world for the number of lung TB cases, after India and China. In Indonesia, there were 842,000 cases of lung TB. Of these, 442,000 individuals with pulmonary TB were reported, while around 400,000 others either did not report or were undiagnosed. These patients consist of 492,000 men, 349,000 women, and about 49,000 children (Rammang & Revalina, 2024).

Tuberculosis (TB) remains a significant public health challenge globally, with 6.4 million new cases reported annually, accounting for 64% of incident TB cases worldwide. Indonesia, which ranks third in the world for the highest number of TB cases after India and China, reported 842,000 cases of lung TB in 2019. Despite substantial efforts, including the Laskar TB program aimed at engaging adolescents in TB prevention and education, challenges persist in achieving comprehensive TB control. Comparatively, countries like India have implemented the National TB Elimination Program (NTEP), which focuses on active case finding and community engagement, while China has adopted a multi-sectoral approach integrating TB control into broader health and social services. These international strategies highlight the importance of a multifaceted approach in TB elimination efforts. By examining these global initiatives, Indonesia can enhance its TB control measures, ensuring more effective prevention, treatment, and community involvement.

Lack of knowledge about TB is a major factor in its rapid spread, especially for infected adults to children with weakened immune systems. The most important aspect of managing this disease is to provide clear and easy-to-understand education to the community on proper prevention methods. According to (Dahlianti, 2016), health education can play an important role in preventing diseases, especially TB. Through this education, individuals or families are expected to understand TB, from its causes to its prevention, so that they can avoid or take preventive measures and early detection of TB.

The objectives of this study are well-defined and align with its scope, focusing on the role of adolescents in TB prevention through the Laskar TB program. To enhance the relevance of this research, a broader goal of assessing the replicability of this model in other regions could be included. This would provide valuable insights into the potential for scaling up the program and adapting it to different contexts, thereby contributing to global TB elimination efforts.



The figure above shows the final evaluation of TB treatment in Depok City in 2023. There are several indicators measured, namely the number of TB cases in 2022, the number of patients who recovered with complete treatment, the number of patients who dropped out of treatment, died, failed, and who were not evaluated or moved. From the figure, the number of TB cases in 2022 in Depok City is 6625 cases. Of these, 5050 cases (76%) were cured with complete treatment. However, there were also 666 cases (10%) who dropped out of treatment, 171 cases (3%) died, 73 cases (1%) failed treatment, and 666 cases (10%) were not evaluated or moved. This data shows the success rate of TB treatment.

Depok City is quite high, with 76% of patients being cured. However, the high rates of treatment dropout and non-evaluated/moved cases indicate challenges in ensuring patients complete their treatment. The relatively low mortality and treatment failure rates indicate good efforts in managing TB, although there is still room for improvement. This evaluation is important for future health policy planning.

Getting more information about tuberculosis can help people feel more confident and actively involved in its management (Sukardin, 2023). One way to promote health is through lectures and discussions, which can help TB prevention efforts become more effective (Salindri, 2018). Information delivered through counseling, as well as media such as posters, leaflets, and videos, greatly affects a person's level of knowledge (Nevada, 2020). The lower the knowledge of patients or their families about the dangers of pulmonary tuberculosis disease to personal, family, and community health, the greater the possibility of transmission both at home and in the community. Conversely, a good level of knowledge about the prevention and management of tuberculosis can reduce the risk of transmission in the surrounding community.

Materials and Methods

This study involved 52 youth volunteers who were actively engaged in tuberculosis awareness and education across over 20 schools, along with 4 members from the Perkumpulan Pemberantasan Tuberculosis Indonesia (PPTI) Depok Branch organizational committee, or The Indonesian Association Against Tuberculosis. PPTI is a national civil society organization, which helps the government in the tuberculosis control program in Indonesia. A qualitative method was applied, using in-depth interviews and focus group discussions (FGD) to gather comprehensive data on the mobilization efforts of these youth volunteers in tuberculosis case finding.

In conducting FGD for youth volunteers, we conducted 5 smaller groups (10-11 participants each) based on their regional of the schools' to provide more productive discussions. We assigned each subgroup a facilitator and a note-taker and ensured diverse representation in each subgroup (age, gender, and class). On the other hand, we conducted in-depth interviews for 4 members from the PPTI. The detailed demographics table for the informants are below:

Table 1. FGD Participants Demographics

Characteristics	FGD Participants					Total (N=52)
	Group 1 (N=10)	Group 2 (N=10)	Group 3 (N=10)	Group 4 (N=11)	Group 5 (N=11)	
Sex						
Women	6	5	9	10	7	37
Men	4	5	1	1	2	15
Age (years old)						
15-16	7	6	5	9	7	34
17-19	3	4	5	2	4	18
Class						
First Years	6	3	2	4	5	20
Second Years	2	3	4	5	2	16
Third Years	2	4	4	2	4	16

According to Table 1, the majority of informants are female (n=37), age range from 15-16 years old with majority in their first years of highschools. On the other hand, the table for in-depth interview informants are below:

Table 2. In-depth Interview Demographics

Characteristics	In-depth Interview Participants (N=4)
Sex	F [n = 4] and M [n = 0]
Age Range (years old)	30-58
Experience	Public Servants [n=4]
Formal Education	Tertiary (n=4)

Table 2 showed that all of the informants are female and age ranging around 30-58 years old. The informants are public servants with the formal education in tertiary education. The qualitative approach, using interviews and focus group discussions, is suitable for exploring the role of youth in TB initiatives. However, the study could strengthen its methodological rigor by detailing how participants were selected and ensuring representativeness across regions. Providing a clear selection criterion and ensuring a diverse sample from various regions would enhance the validity and generalizability of the findings. This would help in understanding the broader applicability of the Laskar TB program and its potential impact in different contexts.

One limitation of this study's methodology is the limited sample size, which may affect the generalizability of the findings. The sample was drawn from specific regions in Indonesia, which may not fully represent the diversity of the population in other areas. Future studies with larger and more

diverse samples could provide a more comprehensive understanding of the youth's role in TB prevention across different demographic groups.

Data analysis was conducted through a systematic process of data reduction, data display, and drawing conclusions. To ensure the validity of the data, triangulation of sources was used, comparing and contrasting information obtained from various participants to confirm the findings and enhance the reliability of the results. This methodological approach allows for an in-depth understanding of the role of youth in the efforts to eliminate tuberculosis in Indonesia, with a focus on the effectiveness and challenges faced by the Youth Tuberculosis Troops in mobilizing case finding initiatives.

Results and Discussion

Knowledge about Youth TB Troops

The "Goes To School" initiative, a central element of the Laskar TB program, effectively targets youth by providing comprehensive education on tuberculosis (TB). This program educates young people about TB transmission, associated risks, and proper management and prevention strategies. By doing so, it not only increases knowledge but also empowers teenagers to disseminate crucial health information within their communities, which is essential for TB prevention and control. Based on the interviews conducted, it was found that informants already have a solid understanding of what the Laskar TB program entails.

"...Laskar TB program concentrates on engaging youth, particularly through our flagship program, "Goes To School." Here, we educate young people about the transmission of the TB virus and the risk associated with the disease. Moreover, we provide instruction on proper TB management and prevention techniques. Crucially, we empower teenagers to collaborate with their communities and share this vital health information about TB..."

They were well-informed about the program's objectives and activities, indicating the effectiveness of the program's outreach and communication efforts. This awareness among the youth is a positive sign, demonstrating that the program is successfully raising consciousness about TB and its associated risks. The literature review highlights the significance of youth involvement in health education. However, the research gap could be more explicitly stated, particularly concerning the limited focus on adolescent-driven TB initiatives. While existing studies emphasize the positive outcomes of peer education and youth engagement in health campaigns, there is a notable lack of research specifically addressing the impact of adolescent-led TB prevention programs. This gap underscores the need for further investigation into how youth-driven initiatives can be optimized to enhance TB control efforts, particularly in high-burden countries like Indonesia.

Previous studies have shown that engaging young people in health education can significantly impact public health outcomes. For instance, Dodd et al. (2022) reviewed 67 studies on peer education and found that 52.2% reported positive outcomes, especially in increasing health-related knowledge. The study highlights that the effectiveness of peer education is further enhanced when educators are knowledgeable and skilled in communication and public speaking, which helps to influence peers and boost participation in health initiatives. The approach of involving youth as active participants in TB

awareness is in line with these findings, highlighting the potential of peer education in amplifying the reach and effectiveness of health campaigns.

The use of settings like schools and Islamic boarding schools (Pesantren) further supports the program's goal of reaching a diverse audience, addressing the gaps often found in traditional school curricula regarding TB education.

"...conducting socialization about what TB is, risk factors, and how to prevent it, for school or even Islamic boarding schools (Pesantren)..."

This inclusive approach ensures that even students in more religious or rural settings, who might otherwise be overlooked, receive crucial information about TB. Such strategies are essential for widespread public health education, especially in areas where TB remains a significant health challenge. By tapping into the natural networks of young people and providing them with the tools to educate others, the Laskar TB program can potentially create a ripple effect, leading to greater community awareness and a reduction in TB cases.

How to Join Youth TB Troops

The recruitment process for joining the Laskar TB program reflects a combination of formal and informal methods. According to the interview data, One participant reported being persuaded to join by a school teacher, illustrating the role of educators in the recruitment process.

"...I was persuaded to join by my teacher in school..."

Another participant described an initial invitation from PPTI, which called for a few volunteers. This participant proactively sought to expand the number of recruits by asking their teacher to add more members, highlighting the influence of personal initiative and interest. A third participant joined based on personal interest in healthcare, demonstrating the impact of intrinsic motivation on recruitment.

"...There was an invitation from PPTI to the school. Initially, they needed 3 people to join the troops. However, I asked the teacher to add more people so I could join because I was interested in this program..."

"...I volunteered of my own interest, as I have a profound passion for the healthcare field. I spoke up forthrightly and secured membership..."

These methods align with findings from previous research on recruitment and engagement strategies. Studies have indicated that both formal invitations and personal motivations play crucial roles in effective recruitment. Previous studies have examined the advantages of combining formal and informal recruitment methods to enhance participation rates and attract dedicated members. Henrik Egbert (2009) analyzed combining structured invitations (formal methods) with opportunities for personal engagement (informal methods) can effectively broaden an organization's recruitment base. This balanced approach helps attract individuals who are both interested and capable of contributing meaningfully to the program's goals. Integrating formal and informal methods aligns with best practices in peer education and community health initiatives, supporting the recruitment and retention of

dedicated members. Susan Sameen (2016) concluded by strategically combining formal invitations with opportunities for personal engagement, organizations can effectively recruit dedicated members who are both interested and capable of contributing to the program's goals. This balanced approach aligns with best practices in peer education and community health initiatives.

Effectiveness of Recruitment Methods

The effectiveness of recruitment methods for the Laskar TB Youth Troops was found to vary based on the approach used. Some participants highlighted the value of formal recruitment methods, such as official letters from PPTI to schools, which instilled a sense of responsibility and commitment among the recruits. One interviewee mentioned that formal invitations help legitimize the program and encourage a more serious involvement from the participants.

“...through an official letter by PPTI to the school it is effective, as I feel a strong sense of responsibility and commitment as a member to participate in this initiative...”

However, other participants noted challenges with the current recruitment practices. For instance, one interviewee pointed out the limitations of relying solely on formal letters or informal referrals mentioned that the observation highlights a gap in sustained engagement, with many recruits not actively participating in ongoing activities.

“...In my view, relying solely on formal letters or informal referrals for recruitment is not an effective approach. Currently, the Laskar Troops have a large membership, but many members are not actively engaged. They tend to participate only when there are specific programs, and often even skip the regular weekly meetings. I believe it is crucial for members to attend both major and minor meetings to stay informed about the progress and preparations for the group's initiatives. To address this, a more systematic recruitment process could be beneficial...”

To enhance engagement and participation, a more structured and systematic recruitment process was suggested, including regular meetings and clear expectations for members. Previous studies support this view, indicating that a combination of formal and informal recruitment methods can enhance overall participation rates by leveraging the strengths of each approach (Dodd et al., 2022). Specifically, while formal methods can provide a structured entry point and convey the seriousness of the program, informal methods can reach individuals who have a genuine personal interest or passion for the cause, which may lead to higher levels of sustained engagement. This integrated approach could help in maintaining an active and committed membership base, essential for the effectiveness of health initiatives such as the Laskar TB Youth Troops. A study focusing on the banking sector in Pakistan found that formal recruitment methods significantly impacted job satisfaction, while informal methods influenced aspects like coworker relationships and communication. This suggests that the effectiveness of recruitment methods is closely linked to how well they align with the needs and motivations of potential members or employees, further supporting the idea that a mixed approach can enhance engagement and retention (Zark Mir, 2011).

Formal recruitment methods, such as official invitations and school-led initiatives, have proven effective in fostering a sense of responsibility and commitment among members. However, informal recruitment based on personal interest can lead to varying levels of engagement, highlighting the need

for a more structured approach. By strengthening formal recruitment channels and providing clear roles and expectations, the program can enhance member retention and participation.

Role of Adolescents in New Case Finding TB Elimination

Adolescents play a pivotal role in the elimination of tuberculosis (TB) by actively participating in awareness and prevention efforts. Through their involvement in the Laskar TB Youth Troops, young individuals are not only educated about TB but also become advocates for health within their communities. As one interviewee expressed,

“...Young people play a crucial role in addressing important social issues at this time. My personal experiences, such as participating in school socialization programs “Goes to School” and witnessing the impact of tuberculosis in my family, have heightened my awareness of these challenges. Furthermore, my involvement with the TB Troops organization has further educated me about the dangers of TB and encouraged me to actively promote healthy habits, including the importance of avoiding smoking, within my family circle...”

These experiences suggest that personal connections to the issue, such as witnessing the impact of TB firsthand or participating in educational programs, significantly increase an adolescent's commitment to TB prevention. Another interview reinforced this point by stating,

“...As a teenager, participating in this program has enhanced my understanding of tuberculosis prevention and treatment. This newfound awareness has motivated me to adopt a healthier lifestyle, moving away from habits like smoking that can adversely impact one's wellbeing...”

The role of adolescents in tuberculosis (TB) elimination is increasingly recognized, particularly in light of their potential to address significant social issues and promote health awareness within their communities. The insights from the interviews align well with existing research on the involvement of young people in TB prevention and awareness initiatives. A study emphasizes the need to prioritize childhood and adolescent TB in health strategies, recognizing that these groups represent a substantial portion of the global population yet often face a lack of targeted interventions. Adolescents can serve as key agents in bridging the gap between health initiatives and community awareness, as they are uniquely positioned to influence their peers and families (Gröschel Matthias et al, 2019). This is aligned with the statement of WHO, The World Health Organization (WHO) has acknowledged the importance of engaging youth in TB prevention efforts. Initiatives that mobilize young people to advocate for health awareness and prevention can lead to improved health outcomes and greater community involvement in TB elimination strategies (WHO, 2023). The interviews reflect a growing trend in which adolescents take on roles as health advocates, promoting healthy behaviors and awareness of diseases like TB. This aligns with findings that suggest youth engagement in health initiatives can enhance their understanding of health issues and foster a sense of responsibility towards their communities (Graham et al, 2023).

Adolescents are uniquely positioned to contribute to public health efforts, especially in challenging areas like TB prevention, due to their ability to connect with peers and communicate effectively. The Laskar TB Youth Troops program not only educates young individuals but also empowers them to actively participate in the fight against TB, spreading vital health information and promoting behaviors that reduce the disease's spread. Their involvement is critical, as it enhances their understanding of TB

and empowers them to encourage healthy habits within their families and communities. Prioritizing youth involvement in TB prevention strategies allows health organizations to leverage their potential to drive significant change towards the goal of TB elimination.

Effectiveness of Peer Education Program by Youth TB Troops

The Goes to School program by Laskar TB Troops effectively addresses a critical gap in the regular school curriculum by providing essential TB education to middle and high school students. According to feedback from participants, *"The Goes to School program offers valuable TB education to middle and high school students, which they do not receive through their regular school curriculum. This supplementary learning opportunity is highly beneficial for the students, as expressed by the school principal, student affairs department, and teaching staff."* The program has been praised for its role in helping students gain crucial knowledge about TB, which they otherwise might not learn about. As one participant noted, *"Through my experiences in schools, students have become more conscious of the information we share with them. What they initially lacked understanding of, they have now gained knowledge about. Consequently, they make concerted efforts to prevent contracting tuberculosis."*

The Laskar Troops' peer education program, particularly the "Goes to School" initiative, has demonstrated significant effectiveness in improving TB knowledge among middle and high school students. This aligns with previous research on the impact of peer education interventions in enhancing health awareness and promoting behavior change. A systematic review and meta-analysis of peer-led interventions for HIV prevention in developing nations found that these programs were significantly associated with increased knowledge and improved behavioral outcomes (Medley A, 2009). Similarly, a study in Indonesia showed that peer education methods were effective in increasing knowledge and positive attitudes among vocational health school students regarding HIV/AIDS prevention (Winarti Y, 2019). Research indicates that peer education programs can empower both educators and their target groups by fostering solidarity and encouraging collective action. By engaging students as peer educators, the Laskar Troops program taps into this potential, fostering a sense of responsibility and leadership among the youth. Peer educators are considered to have greater access to hidden populations that might have minimal interaction with traditional health programs. In the context of the Laskar Troops program, peer educators can effectively reach their fellow students, a population that may not be adequately targeted by conventional TB education initiatives (Medley A, 2009).

The peer education approach implemented by the Laskar TB Troops has been well-received, with positive feedback from both students and schools. This method effectively complements existing school curricula by providing practical and relatable information about TB. However, to maintain and enhance its effectiveness, ongoing support, training, and resources for peer educators are essential. This will ensure that educators remain knowledgeable and capable of delivering accurate information.

The innovative approach presented in this study highlights the potential of involving adolescents in tuberculosis (TB) prevention, specifically through the Youth Tuberculosis Troops initiative. By focusing on empowering youth and utilizing peer networks for health education and case-finding, this model offers a scalable and sustainable solution for TB control, especially in low- and middle-income countries. However, further elaboration is needed on how these findings could influence national or

global TB policies. Specifically, integrating youth-driven TB initiatives into national health frameworks could enhance community engagement and support broader public health goals

Supporting Factors of Youth Participation in Youth TB Troops

The effectiveness of the Laskar TB Troops program in engaging youth is significantly influenced by several supporting factors, as highlighted by the participants. One key factor is the expertise and approach of the educators involved. As one participant mentioned, *"A supporting factor that can effectively engage young people in this program is the expertise and approach of the educator. I believe that knowledge can be effectively conveyed through fostering understanding. If the TB program members possess strong public speaking abilities and a deep grasp of TB, this can be a powerful means of persuading other teenagers to participate. Peers can significantly influence each other to join this important initiative."* This underscores the importance of having knowledgeable and skilled educators who can effectively communicate complex health information, thereby motivating peers to engage actively.

Personal experiences also play a critical role in fostering participation. As one youth shared, *"The primary reason I participate in this activity is my personal experience. I have a family member with tuberculosis, and this program gives me the chance to further engage in this activity." Personal connections to TB increase the perceived relevance and urgency of the program, encouraging greater involvement from individuals who have witnessed the impact of the disease firsthand. Additionally, another participant highlighted the value of the program's capacity-building aspects: "This program has capacity building about what TB is itself, how to deliver the health promotion, and many empowerment led me to join this program."*

Studies have shown that youth are more likely to engage in health programs when they perceive the information as relevant and beneficial. For example, a study on youth participation in global development emphasized that young people are motivated by a sense of responsibility and the opportunity to contribute to their communities. Research indicates that peer dynamics play a significant role in youth engagement. Adolescents are more likely to participate in programs when they see their peers involved, reinforcing the importance of peer-led initiatives like those of the Laskar Troops. Previous studies have demonstrated that programs that focus on capacity building and education not only enhance knowledge but also foster a sense of agency among youth. This empowerment is crucial for sustaining long-term engagement in health initiatives, as it encourages young people to take ownership of their health and the health of their communities (Fatharini AT, 2024).

The competence of peer educators, particularly their public speaking skills and understanding of TB, plays a crucial role in encouraging youth participation. Additionally, personal motivation, whether driven by experiences with TB or a passion for healthcare, significantly influences commitment levels. These findings highlight the importance of investing in the development of peer educators' skills and fostering an environment that nurtures personal motivation.

Inhibiting Factors of Youth Participation in Youth TB Troops

The involvement of youth in the Laskar TB Troops program, while promising, is also hampered by several inhibiting factors. A key challenge identified through interviews is communication issues between Laskar and the PPTI, which often results in a lack of direct support and resources necessary for the program's activities. As one participant noted, *"While there can be communication issues between Laskar and PPTI, the organization often struggles to directly provide the necessary resources to support its activities. Furthermore, members lack a guaranteed incentive structure, which presents challenges."* This lack of resources and incentives can diminish motivation among youth participants, impacting their engagement and commitment to the program.

Another significant barrier is the regulatory environment imposed by schools, which can restrict access and participation. One interviewee explained, *"Sometimes we faced significant barriers to engaging students because of regulatory requirements imposed by certain schools."* Such barriers can hinder the program's reach and limit opportunities for youth to participate, thereby affecting the overall effectiveness of the initiative. Stigma associated with tuberculosis and the relative obscurity of the Laskar TB Troops among the general public also present challenges. As one member expressed, *"Our organization remains relatively unknown to the general public, which can sometimes lead to stigma, particularly in relation to tuberculosis."* This stigma can deter potential members from joining or actively participating in the program due to fears of being associated with the disease.

Additionally, inconsistent training and capacity building for Laskar TB members can affect their confidence and effectiveness in delivering health education. One participant pointed out, *"The training or capacity building provided to Laskar TB members is not consistently delivered, resulting in some members feeling less confident in their ability to effectively provide health education during the Goes to School program."*

A study on youth participation in global development emphasizes that young people's involvement is often hindered by a lack of resources, support, and recognition within their communities. This mirrors the challenges faced by Laskar Troops, where communication and resource limitations impede engagement (Fatharini AT, 2024). These challenges align with findings from previous studies, such as those discussed by (Eslit, 2023), which highlight the importance of consistent support, adequate resources, and comprehensive training to ensure the success of youth-led health initiatives. Addressing these inhibiting factors is crucial for sustaining youth engagement and maximizing the impact of programs like Laskar TB Troops in combating tuberculosis. By improving communication, ensuring consistent training, addressing stigma, and navigating regulatory barriers, the program can better support its members and enhance its overall effectiveness in TB elimination efforts.

Challenges such as miscommunication with supporting organizations, limited resources, and inadequate incentives can hinder participation. Furthermore, regulatory barriers, including difficulties in obtaining school permissions and stigma associated with TB, pose additional challenges. Addressing these issues through improved communication, resource allocation, and strategies to reduce stigma is crucial for maintaining effective program operations and expanding reach.

Strategies to Maximize Youth Participation in the Future

Participants in the Laskar TB Youth Troops highlighted several strategies to maximize future youth participation. One participant noted, *“Laskar is transitioning into a more community-focused brand, capable of attracting new members through innovative online and offline initiatives.”* This aligns with the group's vision of increasing its appeal and engagement through creative approaches. Another member emphasized the importance of TB screening, stating, *“Prioritizing TB screening for members and ensuring equitable distribution can effectively engage young people in this important program.”* Additionally, leveraging popular social media platforms was a common suggestion, as one participant mentioned, *“Our organization can leverage popular social media platforms like Instagram and TikTok to engage a wider audience. Additionally, hosting engaging health-related competitions could further bolster Laskar's appeal and community building efforts.”*

To further strengthen the program, a systematic recruitment approach was recommended. A participant elaborated, *“To strengthen our program, we should focus on more systematic recruitment. We should also work on branding our program to be better known to the public, which could involve collaborating with journalists or media to cover our troop activities. Additionally, we must screen our members more thoroughly, including increased screening at schools.”* These insights from the participants underline the importance of strategic branding, media collaboration, and structured recruitment in enhancing the impact and reach of the Laskar TB Youth Troops program.

The strategies identified by participants to maximize future youth participation in the Laskar TB Youth Troops align with findings from similar studies on community health engagement. The emphasis on transitioning Laskar into a more community-focused brand that utilizes both online and offline initiatives is crucial. Research has demonstrated that effectively branding health programs can significantly enhance their appeal and visibility, thereby increasing participation (Aguerrebere et al., 2024). For instance, leveraging social media platforms like Instagram and TikTok, as suggested by participants, aligns with current trends where digital media is pivotal in engaging young audiences. Engaging content on these platforms can capture the attention of youth and encourage their active involvement in health-related initiatives (Eslit, 2023).

Furthermore, organizing health-related competitions can provide a fun and interactive way to educate and involve the youth, fostering a sense of community and purpose. The importance of systematic recruitment and equitable member screening also resonates with the need for structure in health programs to ensure committed participation. By collaborating with media and journalists, Laskar can enhance public awareness, a strategy that has been shown to amplify outreach efforts and create a broader impact in community health programs (Johnson et al., 2019). These strategies not only aim to increase participation but also to sustain engagement, ensuring that the youth remain actively involved in TB elimination efforts.

Strategies to Maximize Youth's Role in Eliminating TB Cases

Participants in the Laskar TB Youth Troops suggested several strategies to maximize the role of youth in eliminating TB cases. One key recommendation was to collaborate with existing youth organizations in the community, such as Karang Taruna, to amplify tuberculosis awareness and education efforts. As

one participant stated, *“It would be highly beneficial for the existing youth organizations in our neighborhood, such as Karang Taruna, to actively participate in tuberculosis awareness and education efforts. By leveraging the engagement of these youth-led groups, we can effectively maximize their potential to contribute to the overall success of TB socialization programs within the community.”* Another participant concurred, suggesting that engaging with youth organizations that share Laskar TB's vision and mission could be a valuable strategy, mentioning, *“Yes, engaging with youth organizations that share our vision and mission regarding tuberculosis, including those affiliated with mosques (Remaja Masjid), could be a valuable strategy to consider.”*

These strategies are in line with previous research that underscores the importance of community-driven approaches in public health initiatives. For instance, research has shown that involving local organizations and peer groups can significantly enhance the reach and effectiveness of health programs (Eslit, 2023). By collaborating with youth organizations like Karang Taruna dan Remaja Masjid, Laskar TB can build a more robust network of advocates who are already embedded within the community, thereby facilitating greater awareness and proactive engagement in TB prevention and control efforts.

Studies have shown that involving youth in community health initiatives can lead to improved outcomes. For example, a systematic review on youth-led health promotion programs found that these interventions were effective in increasing knowledge, changing attitudes, and promoting healthy behaviors among participants. Research suggests that peer-led education is particularly effective in reaching and engaging youth. A study on a peer-led HIV prevention program in Indonesia found that it significantly increased knowledge and positive attitudes among vocational health school students (Gröschel Matthias et al, 2019). Previous studies have emphasized the importance of empowering youth as change agents in their communities. When young people are given the opportunity to take on leadership roles and contribute to decision-making processes, they are more likely to feel invested in the success of the program and to continue their involvement (CDC, 2024).

Collaborating with local youth organizations, such as Karang Taruna and mosque youth groups, can strengthen community involvement in TB awareness initiatives. These partnerships can amplify educational efforts by utilizing existing networks and fostering community support. By integrating TB education into the activities of these organizations, the program can broaden its reach and foster a collective effort towards tuberculosis elimination.

Conclusion

The conclusion of this study is that the Laskar TB Troops programme is highly effective in increasing community awareness and knowledge about tuberculosis (TB). Through the ‘Goes To School’ programme, adolescents are trained to provide comprehensive TB education, increasing knowledge about TB transmission, risks, and prevention strategies. The programme also motivates adolescents to actively participate in TB awareness and prevention efforts, so that they can become health advocates within their communities. The recruitment method used, a combination of formal and informal, is effective in building a sense of responsibility and commitment among members. However, there is a need to improve the recruitment process to increase consistent member participation. Thus, the programme can be more effective in reducing TB cases and improving overall community health. Adolescents play an important role in TB elimination by actively participating in awareness and

prevention efforts, and can be key agents in increasing community awareness and participation in TB elimination strategies, especially to reduce stigma.

While this study provides valuable insights, several limitations must be considered. For instance, the study was conducted in a single region, and the findings may not be applicable to other regions with different demographics or health challenges. Therefore, future research should aim to include more diverse populations to assess the broader applicability of the programme across different contexts.

This conclusion suggests that the Laskar TB Troops programme can be an effective model for increasing community awareness and knowledge about TB, as well as motivating adolescents to actively participate in TB prevention and treatment.

The length of the study aligns with academic standards, though sections discussing methodology and limitations could be more concise. Streamlining these sections would enhance readability and focus, ensuring that the key points are communicated effectively without unnecessary detail. This approach would also make the study more accessible to a broader audience, including policymakers and practitioners who may benefit from the findings.

Future research could explore the long-term health outcomes of the Laskar TB Troops program, specifically its impact on reducing TB transmission and improving treatment adherence over time. A longitudinal study could provide valuable insights into the sustainability and effectiveness of youth-driven health education initiatives in the fight against tuberculosis. Additionally, comparative studies with similar youth-led health programs in other high-burden countries could offer important lessons for scaling up and adapting such initiatives to different socio-cultural contexts. These studies would contribute to a deeper understanding of how adolescent engagement can be optimized to maximize the impact of TB control strategies globally.

References

- Egbert, H., Fischer, G., & Bredl, S. (2009). Advertisements or friends? Formal and informal recruitment methods in Tanzania. Leibniz Information Centre for Economics. <https://doi.org/10419/74454>
- Sameen, S. (2016). Employee hiring through informal and formal sources of recruitment: An implication for job satisfaction and intention to leave. *International Journal of Innovation Management and Technology*, 7(6), 286–291. <https://doi.org/10.18178/ijimt.7.6.286-291>
- Mir, Z., Ahmad, K., Mateen, A., Ahmad, W., Bilal Nasir, A., & Yasir Hassan, B. (2011). Job satisfaction in the private banking sector of Pakistan. *Global Journals of Research in Engineering, Type Double Blind Peer Review International Research Journal*. 11(12).
- Gröschel, M. I., van den Boom, M., Migliori, G. B., & Dara, M. (2019). Prioritising children and adolescents in the tuberculosis response of the WHO European Region. *European Respiratory Review*, 28(151), 180106. <https://doi.org/10.1183/16000617.0106-2018>
- Viney, K. (2023). Roadmap towards ending TB in children and adolescents.

- Graham, S. M., Marais, B. J., & Amanullah, F. (2022). Tuberculosis in children and adolescents: Progress and perseverance. *Pathogens*, 11(4), 392. <https://doi.org/10.3390/pathogens11040392>
- Medley, A., Kennedy, C., O'Reilly, K., & Sweat, M. (2009). Effectiveness of peer education interventions for HIV prevention in developing countries: A systematic review and meta-analysis. *AIDS Education and Prevention*, 21(3), 181–191. <https://doi.org/10.1521/aeap.2009.21.3.181>
- Winarti, Y., & Ernawati, R. (2019). Effectiveness of peer education method in increasing knowledge and attitude towards HIV/AIDS prevention among students in Samarinda. *Indonesian Journal of Nursing of Practice*, 3(2). https://www.researchgate.net/publication/368138139_Effectiveness_of_Peer_Education_Method_in_Increasing_Knowledge_and_Attitude_Towards_HIVAIDS_Prevention_among_Students_in_Samarinda
- Fatharini, A. T., Anggraheni, P., & Putri, N. A. (2024). Youth participation in global development: A lesson learned from local volunteering in Semarang. *Proceedings of the International Conference on Multidisciplinary Studies*, 1(1), 14–22. <https://prospectpublishing.id/ojs/index.php/icomsi/article/view/224>
- Centers for Disease Control and Prevention. (2024). Tuberculosis elimination priorities. <https://www.cdc.gov/nchhstp/priorities/tuberculosis-elimination.html>
- Develotte, C., Charrier, A., & Mangenot, F. (2021). Language learning during and after the COVID-19 crisis: Reflections on rapidly developing digital practices. *Language Learning & Technology*, 25(2), 10–29.
- Dahlanti, T. (2016). Hubungan tingkat pengetahuan keluarga tentang tuberkulosis paru anak dengan upaya pencegahan tuberkulosis di RW 05 Kelurahan Sukabumi Selatan Jakarta Barat. Unpublished manuscript.
- Kemenkes. (2016). Peraturan Menteri Kesehatan Republik Indonesia Nomor 67 Tahun 2016 tentang penanggulangan tuberkulosis. Data dan Informasi Kementerian Kesehatan RI.
- Making, M. A., Banhae, Y. K., Aty, M. Y. V. B., Abanit, Y. M., Selasa, P., & Israfil. (2023). Analisa faktor pengetahuan dan sikap dengan perilaku pencegahan TB paru pada kontak serumah selama era new normal COVID-19. *Jurnal Penelitian Perawat Profesional*, 5(1), 43–50.
- Nevada, B. P. D., & S. (2020). Efek pemberian edukasi health belief model pada penderita tuberkulosis paru terhadap pengetahuan dan persepsi kepatuhan pengobatan. *Jurnal Gema Lingkungan Kesehatan*, 18, 58–64.
- Rammang, S., & Revalina, R. (2024). Edukasi perilaku pencegahan penyakit tuberkulosis di RS. Woodward. *EJOIN: Jurnal Pengabdian Masyarakat*, 2(1), 118–122. <https://doi.org/10.55681/ejoin.v2i1.2171>

- Salindri, G. (2018). Pengaruh penyuluhan tentang TB paru terhadap motivasi penderita TB dalam program pengobatan Puskesmas Pasokan Kabupaten Tojo Una-Una. Unpublished manuscript.
- Sukardin, D. (2023). Keperawatan komunitas, gerontik, dan transkultural. Media Sains Indonesia.
- World Health Organization (WHO). (2018). Global tuberculosis report 2018. https://www.who.int/tb/publications/global_report/en/
- World Health Organization (WHO). (2020a). Laporan tuberkulosis global 2020. <https://apps.who.int/bookorders>
- World Health Organization (WHO). (2020b). Tuberkulosis. https://www.who.int/health-topics/tuberkulosis#tab=tab_1
- Aguerreberre, P. M., Medina, E., & Pacanowski, T. G. (2024). Building smart brands through online and artificial intelligence tools: A quantitative analysis about the best hospitals in Spain. *Online Journal of Communication and Media Technologies*, 14(1), 1–15. <https://doi.org/10.30935/ojcm/14132>
- Eslit, E. R. (2023). Unveiling the cognitive depths: Delving into language learning and acquisition amidst the post-pandemic era. National Center for Biotechnology Information. <https://www.ncbi.nlm.nih.gov/books/NBK558907/>