

## TBC-Free Neighborhood: Community Empowerment in TBC Screening and Early Detection Efforts in Kota Wetan Sub-District, Garut City

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### Keywords:

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community  
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finding; TB-free

**Abstract.** One of the top 10 causes of death worldwide is Tuberculosis (TB). One of the strategic programs to eliminate TB is by increasing community involvement in TB control. This community service activity was conducted in RW 15, Kota Wetan Village, Garut Regency, using a community empowerment method with a series of TB health education and door-to-door TB screening activities. The results of the health education activities among 25 participants showed an increase in pre-test and post-test scores, with an average of 76.25 rising to 91.25. Residents aged over 15 years who participated in the screening consisted of 44 men (49%) and 46 women (51%). A total of 39 sputum samples were collected and then distributed to the community health center for laboratory analysis. The results of the TB screening based on the sputum sample test found 4 positive TB SO cases.

### Kata kunci:

skrining TB;  
pemberdayaan  
masyarakat; case  
finding; Bebas TB

**Abstrak.** Salah satu dari 10 penyebab kematian tertinggi didunia adalah Tuberkulosis (TBC). Salah satu strategi program dalam upaya mengeliminasi TB adalah dengan meningkatkan keterlibatan masyarakat dalam pengendalian TB. Kegiatan pengabdian masyarakat ini dilakukan di RW 15 Kelurahan Kota Wetan Kabupaten Garut dengan metode pemberdayaan masyarakat dengan rangkaian kegiatan edukasi kesehatan tentang TB dan skrining TB door to door. Hasil kegiatan edukasi kesehatan pada 25 partisipan terdapat adanya kenaikan nilai pre test dan post test dengan rata-rata 76,25 menjadi 91,25. Warga masyarakat berusia >15 tahun yang berpartisipasi untuk di skrining terdiri dari 44 pria (49%), dan 46 wanita (51%). Terkumpul 39 sampel dahak, yang kemudian didistribusikan ke puskesmas untuk dianalisis di laboratorium. Hasil skrining TB berdasarkan uji sampel sputum ditemukan 4 kasus positif TB SO.

## 1 Introduction

Tuberculosis (TBC) is one of the 10 highest causes of death in the world. TBC is also a leading cause of death from infectious diseases. Based on the 2022 tuberculosis control program report, in Indonesia the estimated incidence of TB in 2021 is 969,000 or 354 per 100,000 population. Deaths due to tuberculosis are estimated at 144,000 or 52 per 100,000 population. Based on the incidence of tuberculosis per year, in 2022 there are still 25% of cases that have not been notified; both unreached, undetected and unreported (Kemenkes RI, 2023).

The government has launched a program strategy formulated for comprehensive, integrated, and synergistic implementation in an effort to eliminate TB, which includes: strengthening district/city-based TB Program Leadership, increasing access to quality TB services, strengthening TB health systems and management, strengthening TB partnerships through coordination forums, controlling risk factors and increasing community involvement in TB (Kementerian Kesehatan, 2022).

Community involvement in TB control and control is a very important factor. One of them is through community empowerment in finding TB cases independently. Community engagement for TB includes a wide range of activities that contribute to the detection, referral and treatment of drug-susceptible, drug-resistant and HIV-associated TB (WHO, 2015). However, it certainly needs an understanding and awareness in advance from the community about the importance of controlling TB together. Where currently public stigma is still high against TB, so this is certainly one of the obstacles in finding TB cases early. Several studies reveal that stigma against TB sufferers is still high (Yin et al., 2018)

Community-based TB activities include screening for TB and TB-related morbidity (e.g. HIV counseling and testing), contact tracing, sputum collection and transportation, including through home visits (WHO, 2015). Community empowerment is more effective in increasing the discovery of tuberculosis cases, especially in remote and rural areas and is able to minimize barriers to access and health costs. Home visits conducted by health volunteers are also able to change the way people perceive, encourage the formation of health care seeking behavior and minimize public stigma against TB (Kardiatun et al., 2022).

A few of the TB-related problems that are now emerging include awareness and education gaps. Effective prevention efforts may be hampered by the general public's ignorance of tuberculosis (TB), its transmission, and preventative methods. It may result in postponed

diagnosis, treatment beginning, and illness dissemination. Social support and stigma around tuberculosis are additional issues. Compliance might be hampered by stigma. People who have tuberculosis may conceal their diagnosis and course of treatment out of fear of prejudice or social exclusion. Compliance with tuberculosis treatment can also be impacted by a lack of social support networks and understanding from family, friends, and the community (Kementerian Kesehatan, 2022).

Community empowerment and TBC Collaboration emerged as two of the government's innovative program's solutions to the issue. To aid and promote the effectiveness of TB therapy, empowerment is practiced at all societal levels (Family, community leaders, cadres, community groups, etc.). Innovative approaches to tuberculosis (TB) collaboration include: optimizing ICT implementation and application-based online screening; integrating the TBC information system; educating the community through outreach initiatives and collaborating with public figures, religious leaders, TBC partners, cadres, and other community institutions/organizations; collecting sputum samples using a ball pickup; conducting cadre training sessions; and supplying KIE media (pocket books) for cadres (Kementerian Kesehatan, 2022).

One of these community service activities aims to increase public understanding of the importance of preventing TB transmission through community empowerment in a series of education and screening activities, where it is theoretically revealed that Pulmonary TB patients with BTA Positive, can transmit to 10-15 people per year around him. However, if the infected person has a good immune system, he will not immediately get sick with tuberculosis. As many as 5-10% of infected people can become sick with tuberculosis (Kementerian Kesehatan, 2022). Effective strategies to enhance TB case finds include mapping out the areas where cases are reported, utilizing mass media and local communication channels to raise knowledge and awareness, bolstering laboratory systems, facilitating house visits for contact tracing, and engaging the community strategically (Kusimo et al., 2018). So that one of the community empowerment strategies carried out in this community service activity in addition to education is also carried out door to door TB screening.

Kelurahan Kota Wetan, Garut Regency is a center for processing sheepskin, goats, and cattle that is famous throughout Indonesia. RW 15 is one of the RWs located in the Kota Wetan sub-district area. So that efforts to support the leather handicraft business have an impact on quite a number of industries that stand in RW 15. The modernization of the

leather industry in RW 15 plus urban urbanization made RW 15 Sukaregang a densely populated area separated only by small alleys. The results of a survey conducted by Ners professional students, Faculty of Nursing, Unpad in January 2024 on 4552 residents in 13 RWs in the Wetan City sub-district, found 0.9% TB Suspect (43 people), and RW 15 as one of the contributors to 7 suspect TB cases.

## 2 Method

Service activities were carried out in RW 15 Kelurahan Kota Wetan, Garut Kota sub-district in collaboration with TB program holders of the Guntur Health Center, Garut Regency. Time phase activities from February 8-12, 2024. The activities go through three stages, namely initial coordination, implementation and evaluation. The approach of empowering the community in this activity has been carried out since the initial coordination, where the decision to implement the activity was made through community deliberation of RW 15. The activity involved RW 15 administrators and RW 15 health cadres. Meanwhile, the participants of the activity are community members aged 15 years and above, with a target of 15 community members from each RT (RT 1, RT 2, RT 3, RT 4 and RT 5).

### a. Initial coordination

At this stage, there are several activities carried out in community organizing, including coordination with the Guntur health center and RW 15 of Kelurahan Kota Wetan to determine activities and identify the needs of activity targets.

Coordination was carried out through community consultation in RW 15 which was held from January 30, 2024 - February 1, 2024 to discuss survey results and service activity plans. The meeting was attended by the head of Puskesmas Guntur, community leaders, health cadres and community representatives in RW 15. The result of the deliberation was agreed that RW 15 would be used as a pilot for TB-Free RW, and an activity implementation team was formed consisting of community members and cadres who would work together in this community service activity. The series of activities agreed to begin with health education with counseling methods about TB disease. Counseling activities were carried out in conjunction with recitation activities and gymnastics activities in RW 15. In addition to counseling, TB leaflets were also distributed to community members in RW 15. While the target of the activity is community members aged 15 years

and over, with a target of 15 people from each RT (RT 1, RT 2, RT 3, RT 4 and RT 5).

b. Implementation

The series of activities began with health education about TB through counseling and distributing leaflets about TB, integrated with the activities of Ners Professional students batch 46 of the Faculty of Nursing, Universitas Padjadjaran. Health educations activities were carried out at the beginning with the aim of increasing understanding and active participation of community members in the next series of activities, namely TB screening. This is in line with research conducted by Hinga (2019) and Purnama and Witdiawati (2018) which stated that there was an increase in respondents' knowledge and attitudes after being given education.

The next series of activities is the implementation of door-to-door TB screening. Where in this activity every resident's house was visited to ask about their willingness to be screened for tuberculosis and sputum samples were taken. For residents who are willing, the team keeps a pot of sputum in the resident's house. Where the sputum pot will be taken back by the team the next day. Furthermore, on the third and fourth days, the team took sputum samples at residents' homes, then sent sputum samples to the Puskesmas for analysis by laboratory officers.

c. Evaluation

Evaluation of activities is carried out by looking at the participation of community members who participate in TB activities and screening results. Health educations activities are evaluated with pretest and posttest. As for screening activities, it is evaluated from the number of people who are willing to participate in screening and taking samples of their sputum for lab testing. The results of the evaluation became a follow-up plan that was submitted to the Guntur Health Center, Garut Regency and RW 15.

The following is a diagram of the scheme of community service activities in RW 15 Kelurahan Kota Wetan in the "TB-Free RW" activity.

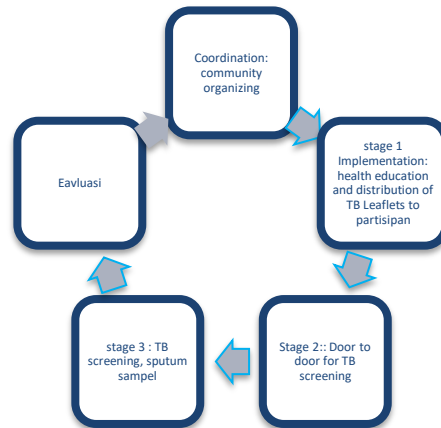


Figure 1. “TB-Free RW” Community Service activities scheme

### 3 Results

The activity received appreciation from community members. After education and distribution of information leaflets about tuberculosis, when interviewed most community members were willing to be screened and take samples of sputum for examination. After completing the educational activities, there was an increase in pre-test and post-test scores by an average of 76.25 to 91.25 to 25 participants who attended the health educations. In the discussion and question and answer session, the participants who attended were very enthusiastic to ask questions related to tuberculosis. Some questions from participants included the types of TB disease, how to transmit, the difference between TB disease and other respiratory diseases, how to care for people with TB at home, and side effects of TB treatment. Most of the participants who attended said they had never received information about TB. Especially information about the mode of transmission of TB.

The second day of the activity, namely independent TB screening by storing sputum pots in each resident's house for sputum samples. There were 90 community members aged >15 years who were willing to be screened. It consisted of 44 men (49%), and 46 women (51%) partisipants. On the third and fourth days, sputum samples were taken by the team according to agreement with the families screened. 39 sputum samples were collected, which were then distributed to the puskesmas for analysis in the laboratory. Important to ensure that the participant already knows how to properly prepare a sputum sample. The data is presented in the form of the following frequency distribution table.

Table 1. Characteristic responden TB screening

Characteristic	Frequency (f)	%
Gender		
Male	10	29.3
Female	29	70.7
History of TB treatment		
Yes	3	7.69
No	36	92.31
Screening Result		
Positive	4	10.25
Negative	35	89.74

The screening results found 3 people were undergoing TB treatment, and laboratory test results found 4 positive cases of TB based on sputum samples. Furthermore, community members who are known to be positive for TB are carried out in accordance with TB treatment procedures.

Based on the results of the activity, community-based screening, through community empowerment is effective for early screening and discovery of TB cases. With a community empowerment approach, stigma against TB began to decrease. However, for positive TB lab test results, taking into account ethical principles are only notified directly to the community concerned and the team involved in the activity.

#### 4 Discussion

Tuberculosis (TB) is an infectious disease transmitted through airborne splashes but can be prevented (WHO, 2021b). The results of research by Fitrianti et al. (2022) and Yani et al. (2018) stated that there was a significant relationship between age, education level, occupation, environmental sanitation, close contact with sufferers, hygiene practices and smoking habits. Environmental factors are related to residential density and population density. Areas with high population densities can

increase the risk of transmission due to close contact between individuals. RW 15 is geographically an area with a high residential density, where most of the distance between people's houses is only separated by narrow alleys. Dense residential locations will certainly have an impact on the poor ventilation and lighting of each house. A household environment with inadequate ventilation will facilitate the spread of TB bacteria through the air and a high risk of TB transmission. In addition to environmental factors, air pollution originating from factories and leather handicraft industries in RW 15 Sukaregang can also contribute to the increased risk of transmission and development of tuberculosis (TB). So there needs to be understanding and awareness from the community to participate in healthy behavior and protect their environment to avoid tuberculosis.

Another effort made in controlling TB is community empowerment. Community empowerment is an effective step in TB management. Through community empowerment, it can increase knowledge, access to health information for the community and TB sufferers, and increase the cure network for TB suspects (Prasastin & Muhlshoh, 2022);(Rahmadani et al., 2023);(Aruan, 2023). Community empowerment is also an effort to prevent TB transmission in the community (Lalla & Arda, 2022).

Community empowerment activities are an effort to control TB through screening in RW 15. With the theme of the declaration "TB-Free RW" proved effective in TB case finding. The results of the evaluation of educational activities found a significant increase in pretest and posttest results, namely by an average of 76.25 to 91.25. With the increase in knowledge and the availability of educational media in the form of leaflets, it is hoped that it can shape TB prevention behavior in community. Where the use of deep educational media can be one of the strategies in controlling and preventing TB transmission (Ruben et al. (2023); Yenti et al. (2023);Manurung and Tambunan (2022)).

Research findings Hassan et al. (2017) indicate that priority interventions are needed to improve communication and dissemination of information on tuberculosis to the general public, to assist in TB control and all prevention efforts. With a good understanding and knowledge of TB disease, it will be the basis for a person to behave healthily. The lack of public knowledge in efforts to prevent tuberculosis transmission is one of the causes of lack of information and education from both health workers and health cadres (Ningsih et al., 2022).

The following is documentation of community service activities "TBC-Free RW" through community empowerment in RW 15.





Figure. 2. Community deliberations RW 15



Figure. 3. Health education activities



Figure. 4. Documentation of "TB-Free RW" activities

The next stage after health education is carried out is the implementation of TB screening and door to door sputum sampling. But only 58 families were willing to be examined for sputum samples. Many

factors influence a person's behavior to screen, including the high stigma of society against TB. This is in line with research conducted by Yin et al. (2018) and Chen et al. (2021) which revealed that there is a relationship between a person's TB status and the stigma they receive. Stigma is a social determinant, which is a major barrier to accessing health services (resulting in delayed diagnosis) and the ability to manage the disease and complete TB treatment (Craig et al., 2017). Improved health education for the community is needed as an effort to reduce stigma on TB. In line with the literature summary by Sommerland et al. (2017) that knowledge formation interventions, attitude change and patient support can be effective in reducing TB stigma.

Based on the sputum sample test in RW 15, 4 people were positive for tuberculosis. With early TB cases found, preventive management can be done quickly (Kementerian Kesehatan, 2022). Although the door-to-door screening activity in RW 15 succeeded in finding TB cases, there are several things that must be considered based on the results of the evaluation during the activity. The first is that it is important to ensure that the public already knows how to properly prepare a sputum sample and how to properly remove sputum when coughing. Then the second, ensuring that samples taken from the community can be packed and distributed safely when delivered to the puskesmas or laboratory for analysis.

Through community empowerment, it is expected to be able to realize community independence in managing their health, one of which is in the prevention and control of tuberculosis. So that the community is able to overcome health problems by utilizing existing potential. The potential that exists and is owned by the community includes community leadership, community organizing, community financing, community knowledge and community decision making process (R Hapsara Habib Rachmat, 2018).

Community empowerment is at the heart of health promotion. According to WHO (2022), community participation is a process to make people able to be active and participate in defining problems related to health determinants, making decisions, planning and implementing policies, developing and delivering health services (Sulaiman, 2021). Building partnerships with communities, with the goal of improving people's health status, is one step beyond participation and engagement.

The establishment of partnerships between institutions and communities requires community empowerment so that they are able to assume these responsibilities. Through empowerment, individuals may assist care in their homes and communities by promoting their health,

taking preventative actions, and acting accordingly. Communities may frequently recommend a strategy to these treatments that is more suited for the local situation because they share duties with the health system. According to the evaluation of community involvement in tuberculosis control, a person's circle of close friends and neighbors is highly significant to them and might be their first port of call for support and guidance (WHO, 2021a). The results review Cyril et al. (2015) imply that, when appropriately developed and executed via successful community engagement and consultation, Community Engagement models can result in better health and health-related behaviors among underprivileged groups.

## 5 Conclusion

Community service activities in an effort to realize TB-free RWs through community empowerment efforts can significantly increase public knowledge and understanding of TB disease, which is marked by an increase in pretest posttest results. In addition, this activity can also increase the coverage of screening and finding TB cases in the community. It is important to have continuity of program activities in the future through synergies in health service programs that involve community participation, one of which is by forming and increasing the capacity of TB cadres.

## 6 Acknowledgment

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