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The Qualitative Study: Evaluation of Tuberculosis Control Program in Bandar Lampung City

Studi Kualitatif: Evaluasi Program Pengendalian Tuberkulosis Di Kota Bandar Lampung

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Abstract

Background: Indonesia has committed to implementing a TB control programme that is directed at accelerating the achievement of TB elimination by 2030, including Lampung Province and Bandar Lampung city is an area with a high prevalence of TB. Implementation of the TB control programme has been carried out. However, the cause of the high prevalence of TB remains unknown. **Purpose:** This study aims to evaluate the implementation of the TB control programme in Bandar Lampung City. Thus, it can contribute to planning efforts to reduce TB prevalence. **Methods:** This study is a qualitative research with a system approach based on input, process and output components. Data were collected at the Health Office of Bandar Lampung City and at three Community Health Centres in Bandar Lampung City. Data were collected using in-depth interviews, observation, and document review. Informants included policy makers, managers, cadres and TB patients. Data were analysed by collaborating the research data using triangulation methods, both source triangulation, method triangulation and data triangulation to draw conclusions. Results: The findings of this study showed that the TB control program in Bandar Lampung City has been running well and is in line with the achievement of the TB elimination acceleration program target in the input, process and output components, but TB prevention health promotion efforts are still not optimally implemented and coverage figures that describe TB prevention behaviour are not yet available. **Conclusion:** In general, the TB control programme in Bandar Lampung City is good and in line with the targets of the TB elimination acceleration programme. However, there is no evaluation of TB prevention health promotion efforts related to the attitudes and behaviour of TB prevention by vulnerable communities.

Keywords:
Evaluation; Tuberculosis Control Program; Bandar Lampung.

Abstract

Latar Belakang: Indonesia telah berkomitmen melaksanakan program penanggulangan TB yang diarahkan untuk mempercepat pencapaian eliminasi TB tahun 2030, termasuk Provinsi Lampung dan kota Bandar Lampung yang merupakan wilayah dengan prevalensi TB yang tinggi. Implementasi program penanggulangan TB telah dilakukan. Namun belum diketahui penyebab prevalensi TB masih tinggi. **Tujuan:** Penelitian ini untuk mengevaluasi program pelaksanaan penanggulangan TB di Kota Bandar Lampung. Sehingga, dapat memberikan kontribusi untuk upaya perencaan penurunan prevalensi TB. **Metode:** Penelitian ini merupakan penelitian kualitatif dengan pendekatan sistem berdasarkan komponen input, proses dan output. Pengumpulan data dilakukan di Dinas Kesehatan Kota Bandar Lampung dan di tiga Pusat Kesehatan Masyarakat di kota Bandar Lampung. Data dikumpulkan dengan metode wawancara mendalam, observasi, dan telaah dokumen. Informan terdiri dari para pengambil kebijakan, pengelola, kader dan pasien TB. Analisis data dilakukan dengan mengkolaborasikan data hasil penelitian menggunakan metode triangulasi, baik triangulasi sumber, triangulasi metode maupun triangulasi data untuk diambil kesimpulan. **Hasil:** Temuan pada penelitian ini diketahui bahwa program penanggulangan TB di Kota Bandar Lampung sudah berjalan baik dan sejalan dengan pencapaian target program percepatan eliminasi TB baik pada komponen input, proses dan output, namun upaya promosi kesehatan pencegahan TB masih belum terlaksana secara optimal dan angka cakupan yang menggambarkan perilaku pencegahan TB belum tersedia. **Simpulan:** Secara umum program penanggulangan TB di Kota Bandar Lampung sudah baik dan sejalan dengan pencapaian target program percepatan eliminasi TB. Namun, upaya promkes pencegahan TB tidak ada hasil evaluasi terkait sikap dan prilaku pencegahan TB oleh masyarakat yang rentan.

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Introduction

Tuberculosis (TB) is an infectious disease caused by the acid-resistant bacillus, Mycobacterium tuberculosis with exposure to all age groups and all countries (WHO, 2021c); WHO, 2020). Although TB disease is curable and preventable (WHO, 2021c). However, it remains the second leading cause of death and infectious killer, after COVID-19 (Amare et al., 2020). (Amare et al., 2023; WHO, 2021a) with a global epidemic status (WHO, 2021b). WHO reports that there has been an increase in TB cases globally with an estimated 106 million people becoming sick with TB in 2021, compared to 101 million in 2020, and 16 million people dying from TB in 2021, compared to 15 million in 2020. In addition, the TB incidence rate increased by 36% in 2021 relative to 2020, showing a reversal of the downward trend of nearly 2% per year over the past two decades (Bagcchi, 2023). Indonesia ranks as the second highest TB burden country in the world after India (WHO, 2020; WHO, 2022) India (41%), Indonesia (14%), the Philippines (12%), and China (8%) are the countries that contributed the most to the global reduction in TB notifications between 2019 and 2020 (Chakaya, et al., 2021).

Global agreements have sought to control TB. WHO's End TB Strategy in 2035 is expected to expand the scope of interventions in TB treatment and prevention. More focused on those that are able to have a real or large impact (Chakaya, et al., 2021). Indonesia has long implemented TB control programs and in 1995, in accordance with WHO recommendations, implemented the DOTS (Directly Observed Treatment Short-course) strategy to reduce the incidence of TB. In line with the WHO program, Indonesia is also committed to accelerating the achievement of TB elimination targets by 2030 and ending the TB epidemic by 2050, through various efforts including increasing the coverage of TB case finding and TB treatment rates ≥ 90%, TB treatment success rates ≥ 90% and TB preventive therapy ≥ 80% (Kemenkes, 2022). However, in Bandar Lampung city, Indonesia has not yet indicated the achievement of successful TB treatment.

According to the 2021 report of the Ministry of Health of the Republic of Indonesia, the implementation of the TB prevention program shows that Lampung province has a significant contribution to the high national TB rate, which is 138/100,000 population (2021) (Kemenkes, 2022) and the TB case detection rate (CDR) is still very low (41.49%) in 2021 and increased to 53% in 2022. Meanwhile, the national CDR target is 90%, which shows that Lampung province's CDR target achievement is still very low (Dinkes Provinsi Lampung, 2023). The highest prevalence of TB is Bandar Lampung city out of 15 districts/cities in Lampung Province. In Bandar Lampung city in the last 3 years there has been a significant increase in the number of TB cases, namely in 2020 there were 2,376 cases, increasing in 2021 to 2,599 cases and 3,965 cases in 2022 (Dinkes Kota Bandar Lampung, 2023).

The high increase in TB cases indicates that the implementation of prevention and control programs needs further evaluation. In addition, the low CDR of TB cases means that TB transmission in the community of Bandar Lampung city is potentially still high. Meanwhile, the TB case control program in Bandar Lampung city has been implemented in every Community Health Center since before 2016 in accordance with the national program of the Indonesian Ministry of Health. Therefore, this phenomenon needs further study related to the implementation of the TB prevention program in Bandar Lampung City. A review of various literature on low TB case finding focused more on quantitative studies to find various significant factors carried out by (Amare et al., 2023a; Martinez et al., 2023a; Ding et al., 2022; Rizkiyah et al., 2023; Bhargava et al., 2021). However, this study focuses more on qualitative studies to answer the phenomenon of high TB cases in Bandar Lampung city, Indonesia. Therefore, this study aims to evaluate the implementation of the TB control program through a systems approach to the input, process and output components in order to accelerate the

TB elimination target in Bandar Lampung City and help contribute to the efforts of planning strategies for the implementation of TB control programs in the future.

Methods

This study is a qualitative research with a system approach based on input, process and output components. Data collection was conducted directly by researchers in October-November 2023 at the Health Office of Bandar Lampung City and 3 (three) health centers in Bandar Lampung City, namely Puskesmas Kedaton, Puskesmas Susunan Baru and Puskesmas Sukamaju.

Data were collected using in-depth interviews with informants, observation, and document review. The selection of informants in this study was carried out using purposive sampling method, which is a sampling technique based on certain considerations (Sutikno & Hadisaputra, 2020a), namely according to their authority and competence. Informants consisted of policy makers, program managers, cadres and TB patients. The number of informants was 37 people, Head of the Office (1 person); Head of Division (1 person), Head of Section (1 person), Person in Charge of the TB Program (1 person), Head of Puskesmas (3 people), Puskesmas TB Program Manager (3 people), Laboratory Officer (3 people), Cadres (9 people), and TB Patients (15 people).

The measuring instruments used in this study were structured questionnaires, checklists, and other supporting measuring instruments. The development and validation of measuring instruments was carried out by testing measuring instruments to get feedback from researchers and program managers. The questionnaire contained questions about input, process, and output indicators. Input indicators include political commitment, staffing, funding, methods, facilities and infrastructure. Process indicators include TB case finding, TB case diagnosis, TB case treatment and health promotion efforts to prevent TB transmission. Output indicators include case finding rates, treatment success rates, TB treatment cure rates and TB prevention behavior coverage rates.

Data analysis in this study was carried out by collaborating the research data using the triangulation method, both source triangulation, method triangulation and analysis triangulation to then draw conclusions. Triangulation is a combination of data/informants using different data collection methods in one study (Pradono et al., 2018). Data analysis is carried out by researchers directly through the stages of reducing data, verifying data, presenting data, and drawing conclusions**.**

Results

The important findings in this study are in accordance with the research objectives, namely evaluating the TB prevention program in Bandar Lampung City through a system approach including input, process and output components. The results of this study are presented in the form of a table which is a conclusion of the collaborative results of data analysis based on data documentation, observations and information from respondents (informants). This study protocol has been reviewed and approved by the Health Research Ethics Commission (KEPK) of the Poltekkes Kemenkes Tanjungkarang on September 11, 2023 with document No.468/KEPK-TJK/IX/2023.

Input Component

The findings of this study in Table 1 Table 1 shows that the implementation of the TB control program in Bandar Lampung City in the input component which includes political commitment, manpower, funding, methods, facilities and infrastructure has been running quite well and adequate.

Process Components

The findings of this study in Table 2 show that the TB control program in Bandar Lampung City in the process component which includes efforts to find TB cases, efforts to diagnose TB cases, and efforts to treat TB cases have been running quite well and adequately, but for TB prevention health promotion efforts are still not implemented optimally.

Output Component

The findings of this study in Table 3 show that the TB control program in Bandar Lampung City in the output component which includes the TB case finding rate, TB treatment success rate, TB treatment recovery rate has been running quite well and adequate, but the coverage rate that describes TB prevention behavior is not yet available.

Table 1

Input Component of TB control program implementation

Input component	Data/information	Research results
Political Commitment	▪ There is already a local regulation No. 03/2018 on infectious diseases (including TB) ▪ There is no implementing regulation (Perwali)	Good enough
Staffing	▪ DH level: 1 TB Warden and 5 *Global Fund* recruited staff. ▪ DOT'S team in each health facility (hospital and health center) ▪ Cadres from the Healthy Lampung Initiative (ILS)	Adequate
Funding	▪ DAK Non-Physical ▪ APBD ▪ Global Fund ▪ Other non-binding funds	Adequate
Methods	▪ Case finding in health facilities and special places such as schools, dormitories, prisons etc. ▪ Primary diagnosis with Molecular Rapid Test (MRT), if there are limitations using BTA test ▪ TB treatment follows the standards of the Indonesian Ministry of Health	Already according to technical instructions
Infrastructure Facilities	▪ There are 20 hospitals and 31 health centers (15 inpatient, 16 outpatient) and 50 Puskesmas Pembantu and several clinics. ▪ 13 MRT machines and *cartridges* available (4 in hospitals and 9 in health centers)	Adequate

Discussion

Policy implementation is considered very important in solving a problem, especially health problems. In a policy, of course, several activity programs, strategies, and standards used to solve problems are described (Listiani et al., 2022). This also applies to the TB control policy contained in Permenkes No. 67/2016. TB control efforts in Permenkes No. 67 of 2016 are organized through activities, including: health promotion, TB surveillance, control of risk factors, discovery and control of TB cases, provision of immunity, and provision of preventive drugs (Faradis, 2018). TB control policies are made with the aim of protecting public health from TB transmission so that health status can be achieved.

A policy such as health policy consists of various systems that work together and support each other so that the policy can run as expected. The various systems if grouped consist of input components, process components, and output components. The input component consists of resources that become raw materials. The process component is the strategy of processing raw materials into finished materials/finished products. The output component is the finished goods/finished products that are purchased or used by the consumer community (Nurfita, 2023).

Table 2.

Components of the implementation process of the TB control program

Process components	Data/information	Research results
TB Case Finding Efforts	▪ TB case finding through internal (activation of DOT'S Team) and external (contact investigation) networks ▪ The internal network of the DOT'S Team has not been optimized so that TB case finding and reporting is sometimes hampered.	TB case finding efforts are good and are conducted both passively and actively.
TB Case Diagnosis Efforts	▪ TB diagnosis refers to Presidential Regulation No.67 of 2021 and SE No.936 Director General of P2P of 2021 concerning Changes in the Flow of TB Diagnosis and Treatment. ▪ Primary diagnosis with MRT has not been fully implemented due to the limited number of MRT machines and cardtridges.	Efforts to diagnose TB cases are in accordance with technical guidelines issued by the Indonesian Ministry of Health, although there are still obstacles in its implementation.
TB Case Treatment Efforts	▪ TB treatment is conducted according to the Technical Guidelines for TB Treatment issued by the Indonesian Ministry of Health. ▪ TB patients are given Anti-Tuberculosis Drugs (OAT Cat 1 Adult Daily Dose, OAT Cat 1 Adult Intermittent Dose, Pediatric OAT, Combo-pack OAT, Drug Resistant TB OAT) ▪ The distribution of Children's OAT and Kombipak OAT from the center is slightly hampered at times.	Efforts to treat TB cases are in accordance with technical guidelines issued by the Indonesian Ministry of Health.
TB Prevention Health Promotion Efforts	▪ TB prevention health promotion efforts through Talk Show activities in electronic media, leaflet distribution, posyandu activities, cross-program and cross-sector meetings ▪ Educating the community through health facilities (Puskesmas) in Bandar Lampung City. ▪ Invite related OPDs to help socialize the TB control program within the OPD concerned.	TB prevention health promotion efforts have been carried out adequately although it is not certain that they can target all elements of society that are risk factors.

Table 3.
Output Components of TB control program implementation

Output component	Data/information	Research results
TB Case Finding Rate	▪ TB case finding rate 2020 (2,871), 2021 (3,474), 2022 (5,230) ▪ TB case finding by 2022 has reached the SPM target (100%)	The TB case finding rate has reached the SPM target (100%).
TB Treatment Success Rate	▪ TB treatment success rate 2020 (94.6%), 2021 (96.5%), 2022 (96.0%)	The TB treatment success rate exceeded the national target of 90%.
TB Treatment Cure Rate	▪ TB treatment cure rate 2020 (94.6%), 2021 (96.5%), 2022 (96.0%)	TB treatment cure rate exceeds national target of 90%
TB Prevention Behavior Coverage Rate	▪ Data on BCG immunization coverage, PIS PK, PHBS Promkes and Cough Ethics are available. ▪ There are patients who do not want to seek treatment / take medicine even though they have been diagnosed with TB ▪ There is a negative stigma towards people with TB in the community	Coverage data related to TB prevention behavior is not yet available.

In the TB control program, the input component may include political commitment, manpower, funding, methods, facilities and infrastructure, while the process component may consist of TB case finding efforts, TB case diagnosis efforts, TB case treatment efforts, TB prevention health promotion efforts and the output component may include TB case finding rates, TB treatment success rates, TB treatment cure rates and TB prevention behavior coverage rates, among others.

Input Component

The political commitment of the Bandar Lampung City Government in supporting the implementation of the TB control program is quite good. This is evidenced by the issuance of the Bandar Lampung City Regional Regulation Number 03 of 2018 concerning Prevention of Communicable Diseases, where TB disease is one of the diseases listed in the regulation. However, the Bandar Lampung City Government needs to develop implementing regulations in the form of a Mayor's Regulation (Perwali) to be more specific in implementing the TB control program. On the other hand, the Bandar Lampung City Government has also allocated part of the APBD to support the implementation of the TB control program, in addition to other sources of funds obtained from non-physical DAK funds, Global Fund funds and other non-binding funds.

This is in line with the implementation of the national TB elimination strategy in order to achieve TB elimination targets, one of which is strengthening the commitment and leadership of the central government, provincial governments, and district / city governments (Presiden RI, 2021a). The commitment of the government, which involves policy makers and cross-sectoral cooperation, can be comprehensive, not only in health circles, but various related government agencies, both in relation to funding, regional implementation and other related matters. The government's political commitment to prioritize TB control is key to the success of this program. Government commitment involving policy makers and cross-sectoral cooperation is expected to provide substantial benefits to the community from the implementation of the TB control program.

Funding for the TB Program at the level of the Health Office of Bandar Lampung City and at the Puskesmas is available. At the level of the Health Office of Bandar Lampung City, funding comes from DAU and DAK Non-Physical (BOK) as well as the Global Fund. While at the Puskesmas level, funding for the TB program comes from the DAK Non-Physical (BOK) and also the Global Fund. Based on the results of interviews with TB program managers at Puskesmas, the availability of funds for the TB program at Puskesmas is considered sufficient, although there are some funds whose budget ceiling is still relatively limited, so that program activities do not run optimally. In terms of contact investigation activities, not all contact investigation activities on index TB cases found were funded. Limited funding resulted in contact investigation activities not running optimally.

The availability of funds is a supporting factor in the implementation of a program, including the TB control program. The availability of sufficient funds will support the process of program implementation to be effective and efficient. This is in line with Pujiono's research in Aryani, (2018) which states that the success of TB control is closely related to commitment and funding. Factors that support the progress of the TB control program include better access to services, adequate funding, central and local government support, increased community and private participation and the development of technology (Aryani, 2018).

Laboratory facilities and infrastructure that support TB control activities have been shown to meet the requirements, both at the city hospital and at the health center level. Laboratory facilities and infrastructure are facilities for confirming the diagnosis of TB cases and evaluating the results of TB treatment. Health centers and hospitals within the working area of the Health Office of Bandar Lampung City have microscopic examination facilities while MRT (Molecular Rapid Test) examination facilities are still limited, namely 13 MRT machines placed in 4 hospitals and 9 health centers. MRT examination at the health center level is often constrained by the availability of empty cartridges. If the cartridge is empty, TB diagnosis is based on microscopic examination. If the results of the examination are doubtful, it can be referred for examination using MRT to a health center or hospital where the cartridge is still available. Other supporting facilities and infrastructure that are still not

owned are communication tools and operational vehicles for officers. Communication devices and operational vehicles used by officers are privately owned and are used for the purpose of smooth running of TB control program activities.

Facilities and infrastructure are important elements and absolutely necessary in the management of a health program. This is in accordance with the results of Permatasari's research in Aryani (2018), concluding that the factors that influence the success of the TB prevention program are the availability of facilities and infrastructure factors which include the availability of sufficient and continuous drugs. The availability of sufficient facilities and infrastructure will support the program implementation process to be effective and efficient, and conversely a program will be hampered if the existing facilities and infrastructure are inadequate (Aryani, 2018).

Manpower and methods in the TB control program in Bandar Lampung City are good and adequate. At the city health office level, there is 1 TB officer and 5 administrative staff recruited by the *Global Fund,* a DOT'S team in each health facility (hospitals and health centers) and the availability of TB cadres in each health center from the Healthy Lampung Initiative (ILS). Personnel at the city health office level are in charge of program management, while the DOT'S team carries out activities in the field in the diagnosis of TB cases and TB treatment, while the search and discovery of cases is carried out by TB cadres. Case finding is conducted actively and passively in health facilities and special places such as schools, dormitories, prisons and others. The main diagnosis method is carried out using the MRT method, if there are limitations using BTA examination and TB treatment follows the standards of the Indonesian Ministry of Health.

This condition is in line with government policy in the TB control program. Meeting the needs of trained health human resources to achieve TB elimination targets is a form of strengthening the commitment and leadership of the central government, provincial governments, and district / city governments (Presiden RI, 2021b). Implementation of the TB control program will run well if all elements and components of the program are available and there is adequate political support. A program, whether a government program or other activity program, will run in accordance with the targets and objectives if all the necessary components are adequately available, and vice versa if the necessary components are not adequately available, the activity program will not run optimally.

This is in line with the results of study on the evaluation of the TB prevention program in Boyolali, which concluded that there are several things that inhibit Puskesmas from achieving the target of finding new cases, including lack of funding, lack of health workers who have attended training and there are still many officers who have concurrent duties in the implementation of the Lung TB prevention program (Aditama & Zulfikar, 2009).

To be able to improve the performance of the TB control program in the input component to run more optimally in the future, it is recommended that there is a need for the preparation of mayoral regulations which is a legal umbrella that can technically regulate the TB control program, the formation of a TB control task force to the village level involving all relevant elements so that the duties and functions and responsibilities of each party are more visible and measurable so that it will facilitate monitoring and evaluation.

Process Components

TB case finding efforts are at the forefront of the TB control program. Table 2 shows that TB case finding efforts in Bandar Lampung City are carried out by involving various elements of the community such as TB cadres, neighborhood associations, sub-district heads and other stakeholders.

Based on the results of in-depth interviews, information was obtained that case finding activities carried out both actively, namely door knocking or door to door and passively, namely patients coming to the health center, have been carried out at each health center in Bandar Lampung City. Through the role of TB cadres coordinated by Inisiatif Lampung Sehat (ILS) at each health center, case finding activities can be carried out effectively.

This proves that TB case finding efforts are already well underway. These results are also in line with the Technical Guidelines from the Indonesian Ministry of Health that TB case finding activities can be carried out by active and passive searches. Active case finding activities are carried out by tracing/investigating cases, screening contact cases, screening suspected cases, mass screening, especially in vulnerable groups and at-risk groups. Putri & Suryawati (2020) conducting active promotions such as door knocking or door to door, etc. (Parera & Hadisaputro, 2020). Passive case finding can be done by involving cross-sectors and networks such as doctors, midwives, clinics, laboratories, pharmacists and health service networks in the working area of each Puskesmas (Putri & Suryawati, 2020). Passive discovery is also supported by counseling by both health workers and the community to increase the coverage of case finding (Parera & Hadisaputro, 2020) or commonly known as Passive Promotive Case Finding.

For TB diagnosis and treatment efforts, based on the results of in-depth interviews with program managers both at the Health Office of Bandar Lampung City and at the 3 health centers appointed to represent (Community Health Centre Kedaton, Baru, and Puskesmas Sukamaju), it was found that TB diagnosis and treatment efforts have referred to the technical guidelines issued by the Indonesian Ministry of Health, but in its implementation for TB diagnosis there are still obstacles due to the limited MRT machines and cartridges available, therefore if this happens, sputum examination is carried out microscopically.

Suspects found through active and passive case finding activities are examined for sputum from suspects using MRT, while microscopic examination is carried out for follow-up examination of patient treatment. If the health center does not have a MRT machine, the sputum examination of the suspect is referred to a health center that has a MRT machine available. TB suspects found through general clinic visits, screening activities, cadre referrals and contact investigation results are recorded in the TB manual form 06 and then inputted into the Tuberculosis Information System Application (SITB).

TB treatment efforts are carried out using the DOTS (Directly Observed Treatment Short Course) strategy approach. This strategy recommended by WHO has been implemented in Indonesia since 1995. DOTS is a strategy for Lung TB control that aims to break the transmission of Lung TB to reduce TB morbidity and mortality rates in the community. There are five components to the DOTS strategy: 1) political commitment from the government to implement a national TB program; 2) TB diagnosis through microscopic sputum examination; 3) TB treatment with a combination of Anti-Tuberculosis Drugs (OAT) directly supervised by a Drug Monitoring Officer (PMO); 4) continuity of OAT supply and 5) recording and reporting using a book to facilitate monitoring and evaluation of the TB control program.

Treatment of TB patients is recorded in the TB manual form 01 or TB patient treatment card and inputted into the SITB application. Close contact records of the results of contact investigations were recorded in TB manual form 16 or TB Contact register and inputted into the SITB Application, specifically for contact tracing in cases of pediatric TB recorded in TB form 15 or pediatric contact

tracing form. The flow and process of recording cases manually and electronically at the research site is in accordance with the guidelines of Permenkes RI No. 67 of 2016.

Based on interviews at the health center level and the city health office level, TB case reporting uses SITB. Electronic SITB has been implemented in all health centers and TB referral hospitals in the Health Office of Bandar Lampung City work area. At the Puskesmas level, reports are submitted to the leadership through the SME Responsible Officer, while at the City Health Office level, reports are submitted to the Head of the Health Office through the P2PM Program Coordinator and the Head of the P2P Division, and also reported to the Provincial Health Office. The frequency of case reporting is in accordance with the guidebook, which is every month.

For health promotion efforts in TB prevention, according to the results of in-depth interviews with program managers both at the Health Office level and at the Puskesmas level have also been carried out to various parties both instirutionally through OPDs and the general public. However, it is not certain whether the efforts made have been effective and can target all elements of society because there has never been an evaluation related to TB prevention health promotion efforts both at the PHC level and at the city health office level. This is very likely to be one of the causes of the high transmission and incidence of TB from year to year in Bandar Lampung City.

Although the performance of the TB control program in the process component is currently running well, it still needs to be improved and improved in the future. It is recommended that all health facilities be equipped with MRT machines and sufficient cartridge availability. Conduct massive TB prevention health promotion efforts by optimizing the performance of the TB control task force in each village involving all relevant elements. Evaluate the TB prevention health promotion efforts that have been carried out to ensure that the efforts are targeted and effective in preventing TB transmission.

Output Component

One of the national indicators to measure TB control is the Case Detection Rate (CDR) and TB treatment. CDR is the percentage of new TB patients with positive results. In addition, there is also a Success Rate (SR) indicator, which is the percentage of TB patients who show a cure rate or TB treatment rate. The CDR indicator is used to assess the achievements of the TB control strategy at the district/city, provincial, and central levels. The success of the TB control program can be seen through the CDR and SR indicators (Kusumadewi & Muyassar, 2022).

The results of this study showed that the implementation of the TB control program in Bandar Lampung City in the output component, namely the achievement of TB case finding rate, TB treatment success rate and TB treatment recovery rate, was good and had exceeded the national target, while the coverage rate of TB prevention behavior was not yet available. These results are certainly in line with expectations because the input component and the process component have also been running well and in accordance with the provisions and technical instructions from the Indonesian Ministry of Health.

Although the coverage rate of tuberculosis (TB) prevention behavior is not considered a primary indicator in the national TB control program, it nonetheless represents a crucial component in achieving effective disease control. TB prevention behavior encompasses a range of community-based efforts aimed at minimizing the transmission of Mycobacterium tuberculosis through increased awareness, knowledge, and the adoption of preventive practices. Strengthening these behaviors within the community plays a significant role in interrupting transmission chains. The broader the public's understanding and awareness of TB prevention measures, such as early detection, adherence to treatment, respiratory hygiene, and environmental control, the greater the potential to reduce new TB infections and, consequently, lower the overall incidence of the disease in the long term.

The tuberculosis (TB) control program, particularly in terms of its output components, is currently being implemented effectively; however, there remains considerable room for improvement in the future, especially regarding the enhancement of TB prevention behaviors within the community. Strengthening these preventive behaviors is essential to ensure the sustainability and long-term success of TB control efforts. One of the most effective strategies to achieve this is through comprehensive health promotion initiatives. Such efforts can be implemented by providing structured and continuous health counseling, which focuses on increasing public knowledge, shaping positive attitudes, and encouraging consistent preventive practices against TB transmission. Through well-designed counseling interventions, communities can be empowered to adopt healthier behaviors, thereby supporting the broader goals of TB elimination.

Conclusion

In general, the implementation of the TB control program in Bandar Lampung City has been running well and is in line with the achievement of the TB elimination acceleration program target in the input, process and output components. However, TB prevention health promotion efforts have not been implemented optimally and coverage figures describing TB prevention behavior are not yet available. To improve the performance of TB program management in the future, it is recommended that a regulation on the implementation of the TB eradication program be formulated by the Mayor, a TB task force be established in each urban village involving all elements of the community, and a strategy plan for massive and continuous health promotion efforts to improve community knowledge, attitudes and behaviors in TB prevention. Further studies are needed on the various factors of community characteristics, socio-culture and behavior that contribute to the increase in TB incidence, both quantitative and qualitative studies.

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