

The Effect of Cadres Training on Competence Of Tuberculosis Health Cadres At The Muntok Health Center In West Bangka Regency

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ABSTRACT

Tuberculosis remains a significant problem in Indonesia, and the country has set goals to eliminate the disease by 2030 and end the tuberculosis epidemic by 2050. However, the Tuberculosis Surveillance System evaluation in West Bangka Regency has revealed that the involvement of health cadres in community-based tuberculosis prevention and control has not been fully effective. Additionally, the CDR indicator, which measures the performance of tuberculosis control, was still very low at 18.7% in 2022, far below the target of 54%. To address these issues, a research was conducted at the Muntok Health Center in West Bangka Regency, aiming to enhance the knowledge and skills of health cadres in community-based tuberculosis prevention and control. The research design employed was a Pre-Experimental with the form of one-group pretest-posttest design, and a total of 27 individuals were sampled for the research. The research was conducted from November 2022 to January 2023. The intervention in this research consisted of training sessions that utilized lecture/presentation methods, discussions, and role-play activities. Questionnaires were used for data collection, and the data were analyzed through univariate and bivariate analyses using the Paired t-test and Mc-Nemar test. The participants predominantly consisted of females (100%), with a majority having a senior high school education (51.8%). Most of them had prior experience as health cadres (77.8%) and fell within the age range of 36-45 years (48.2%). The average knowledge score before the training was 9.3 (95% CI= 8.1-10.4), which significantly increased to 17.2 (95% CI= 16.4-17.9) after the training (p-value = 0.0001). In terms of skills, only 5 participants were deemed skilled before the training, but this number increased to 19 after the training. However, the statistical analysis showed no significant effect of the training on participant's skills before and after the training (p-value = 0.0005). Overall, the training conducted successfully increased the average knowledge of health cadres and had some impact on their skills at the Muntok Health Center in Bangka Barat Regency. It is important to optimize the role of knowledgeable and skilled health cadres, so that they can effectively contribute to community-based tuberculosis prevention and control, in collaboration with other healthcare professionals.

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1. INTRODUCTION

Tuberculosis (TB) is an infectious disease that continues to be a global concern, particularly in developing countries. Its impact is not limited to any specific country, affecting people of all ages globally (WHO, 2021). TB is among the leading causes of death worldwide and is caused by a single infectious agent (Republic of Indonesia Ministry of Health, 2018; WHO, 2018). According to the World Health Organization (WHO), in 2013, there were 9 million reported cases of tuberculosis (TB), resulting in 1.5 million deaths (WHO, 2018). In 2020, it is projected that the number of people affected by TB worldwide will reach 10 million, with approximately 5.6 million cases in men, 3.3 million in women, and 1.1 million in children. The highest concentration of cases is found in

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Southeast Asia, accounting for 43% of the total, followed by the African region with 25% and the West Pacific region (WHO, 2021).

In Indonesia, the number of tuberculosis (TB) cases identified in 2020 was 351,936, which represented a decline compared to the total number of TB cases detected in 2019, which stood at 568,987. However, it is believed that the actual number of cases in the community is much higher. The majority of TB cases in Indonesia are concentrated in the provinces of West Java, East Java, and Central Java. Collectively, these three provinces accounted for 46% of all TB cases reported in the country (Indonesian Ministry of Health, 2021). Indonesia remains committed to achieving the elimination of tuberculosis by 2030 and putting an end to the tuberculosis epidemic by 2050. The country is actively working towards tuberculosis elimination as directed in the 2020-2024 National Medium-Term Development Plan (RPJMN) and the 2020-2024 National Health Development Strategy. One of the key approaches is to enhance program management by strengthening the healthcare system, as emphasized by the Ministry of Health, 2020).

Program indicators for tuberculosis control are designed to assess the degree to which interventions aimed at combating the disease are effectively implemented. One such indicator is the Case Detection Rate (CDR), which measures the number of diagnosed patients compared to the estimated number of individuals suffering from tuberculosis within a specific region by the end of a given year. In the Bangka Belitung Islands Province, the CDR indicator is recognized to be below the desired target.

The coverage of tuberculosis (TB) case detection and registration (CDR) in the province of Bangka Belitung Islands has experienced a decline over the past four years. In 2018, the coverage stood at 40.1%, but it decreased to 37.0% in 2019 and further dropped to 29.8% in 2020. Moreover, in 2021, the coverage is projected to reach 29.10%, indicating that it is significantly below the target set by the province, which aimed for a 54% coverage by 2021 (Bangka Belitung Provincial Health Office, 2021; Bangka Belitung Provincial Health Office, 2022).

In 2022, the CDR rate in West Bangka Regency was only 18.7%. Various factors contribute to this low rate, both related to healthcare services and the affected community. A Surveillance System Evaluation conducted in West Bangka Regency and Pangkalpinang City revealed that tuberculosis program management officers in healthcare facilities have additional responsibilities as program managers for other activities. This situation is prevalent in West Bangka Regency, where 85.7% of officers are responsible for more than two programs, and in Pangkalpinang City (77.8%) as well. The achievement rate of the CDR score in Pangkalpinang City (35.9%) surpasses that in West Bangka Regency, which could be attributed to the workload of officers as a contributing factor. One possible reason for the notable disparity between West Bangka Regency and Pangkalpinang City in terms of optimizing the involvement of health cadres in supporting the tuberculosis control program conducted by the local health centers (puskesmas) could be attributed to the fact that only 14.29% of health cadres in West Bangka Regency are effectively fulfilling their role, whereas in Pangkalpinang City, this figure has already reached 66.67%.

A research carried out by Tjekyan in the Ilir II Sub-District of Palembang City examined the effectiveness of a one-year intervention program for controlling pulmonary tuberculosis. The intervention involved training tuberculosis cadres at the neighborhood level. The findings of this research revealed a significant rise in the case detection rate (CDR) of tuberculosis in the intervention group compared to the control group. Based on the findings of this research, addressing the issues identified in the assessment of the surveillance system implemented in West Bangka Regency involves improving the performance of health cadres. This can be achieved by enhancing the skills of health cadres regarding their involvement in supporting tuberculosis patients, managing tuberculosis prevention and control (such as early detection, identifying risk factors, and providing treatment), and promoting effective communication among health cadres.

Significant research is being conducted on interventions in public health programs, both at national and international levels. The primary objective of this research approach is to provide valuable guidance for implementing programs and attaining optimal outcomes. Through timely identification of issues, research plays a crucial role in developing evidence-based solutions and

aiding policymakers and implementers in adopting viable strategies to achieve maximum gains in public health (Malhotra & Zodpey, 2010).

The Muntok Health Center in West Bangka Regency had the lowest CDR (Case Detection Rate) at a mere 16.33%. Given this data, it is crucial to undertake a research aimed at enhancing the proficiency of health cadres. This can be achieved by augmenting their skills and knowledge pertaining to the assistance provided to tuberculosis patients, the management of tuberculosis prevention and control (including early detection, identification of risk factors, and treatment of tuberculosis), as well as fostering effective communication among health cadres.

2. METHOD

This research was conducted from November 2022 to January 2023 using a pre-experimental research design with a one-group pretest-posttest design, where the research variables were measured initially before the intervention and then measured again at the end after the intervention. The research variables consisted of knowledge and skills, while the intervention performed was training for health cadres.

The training for healthcare cadres involved a combination of two methods: firstly, a lecture-based approach where the material was presented, and secondly, a role-playing method that involved solving various cases or scenarios.

The training followed a specific structure, starting with a pre-test to assess participants' knowledge regarding the use of cadres in supporting tuberculosis patients, managing tuberculosis prevention and control (including early detection, risk factors, and treatment), and effective communication for healthcare cadres. After the pre-test, participants received theoretical material from a resource person, and at the end of each session, an evaluation took place. Following the theoretical component, participants engaged in role play to address various cases or events. Finally, a post-test was conducted at the end of the training.

The sample refers to the complete population being studied, specifically all the tuberculosis health cadres who were recruited from the working area of the Muntok Health Center in West Bangka Regency, totaling 27 individuals. Univariate data processing was conducted to examine the frequency and proportion distribution of each variable. Bivariate analysis was performed to test the hypothesis using STATA software version 13. The dependent T test (Paired T test) was employed to analyze the knowledge variable, as the data followed a normal distribution. The McNemar test was used for the skills variable.

3. RESULTS AND DISCUSSION

Characteristics of Respondents

Training was conducted at the Muntok Health Center in West Bangka Regency, involving 27 participants who attended and completed the entire training program. The age range of the participants was between 24 and 51 years, with an average age of 40,1 years.

Table 1 Characteristics of Participants

Variable	Total (n=27)	%
Gender		
- Female	27	100,0
- Male	0	0,0
Education		
- Elementary School	0	0,0
- Junior High School	13	48,2
- Senior High School	14	51,8
- University	0	0,0
Experienced as a Health Cadre		
- Yes	21	77,8
- No	6	22,2

Age

- ≤ 25 Years Old	1	3,7
- 26 – 35 Years Old	6	22,2
- 36 – 45 Years Old	13	48,2
- 46 – 55 Years Old	7	25,9
- > 55 Years Old	0	0,0

According to Table 1, the majority of the training participants were females (100%), had completed senior high school education (51,8%), had experience working as health cadres (77,8%), and were in the age group of 36-45 years (48,2%).

The Effect of Training on the Knowledge of Participants

The Minister of Health of the Republic of Indonesia has issued a directive, known as Decree 725/Menkes/SK/V/2003, which outlines guidelines for conducting training in the healthcare field. This decree emphasizes that the purpose of such training is to enhance proficiency in knowledge, attitudes, and skills within the health sector. According to Notoadmojo (2009), knowledge plays a crucial role in shaping an individual's actions, as behaviors grounded in knowledge tend to endure longer compared to those without a knowledge foundation.

Table 2 Analysis of the Changes in Pre-Post Test Values

Variable	Category	n	%
Results of a pre-test and post-test assessing knowledge	Positive Rank	25	92,6
	Unchanged	0	0,0
	Negative Rank	2	7,4

Table 2 presents data indicating that the majority of participants observed an enhancement in their knowledge (92,6%) following the intervention. Nevertheless, a portion of participants (7,4%) actually experienced a reduction in their knowledge. Notably, there were no individuals whose knowledge remained unaltered both before and after the training session.

Table 3 Analysis of the Effect of Training on Knowledge

Knowledge	Mean	SD	95% CI	p-value
Pre-Test	9,3	2,9	8,1 – 10,4	0,0001
Post-Test	17,2	2,0	16,4 – 17,9	

According to the findings presented in Table 3, the statistical analysis indicates a significant improvement in the average knowledge of the participants. Prior to the training, the average knowledge was 9,3 (95% CI = 8,1 – 10,4), but it increased to 17,2 (95% CI = 16,4 – 17,9) after the training. The difference in average knowledge before and after the training was statistically significant, with a *p-value* < 0,05. In other words, the data suggests a strong statistical association between the training program and the increased knowledge of the participants.

The findings of this research are consistent with previous research, demonstrating that training for health cadres contributes to increased knowledge. In a research conducted by Elamn Boy (2015) on the effectiveness of tuberculosis control training for health cadres in targeted areas, it was observed that there were noticeable differences in tuberculosis knowledge and treatment before and after the training. The majority of the trainees (72%) showed improved knowledge after completing the training program. In a research carried out by Wening Sari (2020), the training of health cadres was examined in the areas of Cempaka Putih, Johar Baru, Kemayoran, and Sawah Besar. The research findings indicated that there was a statistically significant disparity in the average knowledge of the

cadres before and after attending the training sessions. It was observed that the majority of participants (97%) experienced an increase in their knowledge.

The enhanced understanding of healthcare cadres who participated in this training may be attributed to various factors, such as the assessment tools used, the participants' characteristics, and the training techniques employed. Employing pre-test and post-test assessments with identical questions enabled participants to concentrate on and scrutinize material directly linked to the questions throughout the training. Consequently, when the post-test was administered, participants acquired a greater comprehension of the answers to these questions.

The majority (77,8%) of the training participants were individuals who had previous experience as health cadres. This prior experience as health cadres was significant as it enhanced the participants' knowledge during the training. Being familiar with the field of health and related activities, these participants found it easier to comprehend the presented material. Furthermore, the participants were primarily in the age group of 36-45 years (48,2%) and possessed a senior high school education (51,8%). This demographic composition was advantageous from a psychological standpoint, as it allowed them to better absorb and comprehend knowledge and information.

The training method that combined interactive lectures with question-and-answer sessions provided participants with ample opportunities to submit questions. This two-way communication in training created a relaxed atmosphere, allowing participants to comfortably absorb the material being presented. Additionally, the training incorporated role-playing exercises based on solved cases, enabling participants to develop practical skills and a deeper understanding of the subject matter. The combination of these methods enhanced the participants' knowledge and proficiency.

The Effect of Training on the Skills of Participants

In general, skills can be defined as the proficiency or capability to perform tasks effectively, acquired through learning outcomes related to physical actions and designed to resemble cognitive learning outcomes (Mulyati, 2007). According to Davis Gordon, skill refers to an individual's enhanced ability to perform work with greater ease and precision, resulting from self-improvement through training and gained experience (Wahyudi, 2012). The training conducted led to a 70,4% increase in the number of participants who demonstrated skills (with 5 people in the *pre-test* and 19 people in the *post-test*).

Table 4 Analysis of the Effect of Training on Skills

Skill		<i>Post-Test</i>		Total	<i>p-value</i>
		Skilled	Less Skilled		
<i>Pre-Test</i>	Skilled	4	1	5	0,0005
	Less Skilled	15	7	22	
Total		19	8	27	

Table 4 presents the transformation in the skills of healthcare cadres who initially lacked certain skills but became proficient after receiving training. The table includes data from 15 participants. Notably, one respondent exhibited a decline in skills from being skilled prior to the training. The analysis revealed a statistically significant difference in the proportion of participants' skills before and after the training, with a $p\text{-value} < 0.05$. This implies that the training had a statistically significant impact on the skills of the participants.

Improving skills can be accomplished through training. These results of the research align with Ardenny's (2022) research on the training and mentoring of cadres to enhance family function in TB cases. Ardenny's research revealed a connection between training and the development of skills, leading to a notable increase in the percentage of skilled participants from 47,1% to 58,8% after undergoing the training. Furthermore, a research by Hida Fitri (2009) also investigated the impact of training provided to posyandu cadres in Brekat Village, Tegal Regency. The research revealed that the training significantly enhanced the participants' proficiency in conducting anthropometric measurements. Similarly, Imaniar Ranti (2021) conducted a training program for posyandu cadres in Bantul Regency and discovered a correlation between cadre training and their abilities in early

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detection of PTM (preventable and treatable diseases). The training also resulted in an increase in the percentage of skilled cadres from 36,7% prior to the training to 70,0% after the training.

The findings of this research also revealed a transformation in the abilities of healthcare cadres who lacked skills prior to the training. After the training, 15 participants demonstrated improved proficiency. However, one participant experienced a decline in skills, transitioning from skilled prior to the training to a less proficient state afterward. Various factors, such as motivation and experience, as suggested by Widayatun (2015), could contribute to this outcome. Motivation refers to the inner drive that prompts individuals to engage in various actions. This drive is what inspires individuals to act based on the instructions they have learned. The participants displayed high levels of motivation during the training, actively engaging by asking numerous questions, sharing field experiences, and participating in lively and interactive role-plays. Additionally, their prior experience as health cadres, with a majority of participants (77,8%) having previous experience, also played a significant role in enhancing their skills.

4. CONCLUSION

The majority of participants in this research were females (100%), had completed senior high school education (51,8%), had experience working as health cadres (77,8%), and were in the age group of 36-45 years (48,2%). The findings of this research indicated that the training conducted had a significant impact on enhancing the participants' knowledge and skills, as supported by statistical.

An effective approach to enhancing the effectiveness of health cadres involves enhancing their skills and ensuring their ongoing involvement in the community. The proactive involvement of healthcare centers (puskesmas) entails nurturing cadres to ensure their continued support and active participation in community-centered efforts to prevent and control tuberculosis. This can be achieved through collaboration with local officials at the village and sub-district levels, where various measures, including both tangible and intangible forms of recognition, are implemented. Furthermore, training programs have demonstrated their effectiveness in improving the competence of health cadre participants. Therefore, it is desirable for the West Bangka Regency Health Office to organize similar initiatives across all puskesmas within their operational areas.

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