




Nursing Care for Community Health Deficit in The Aggregate of Tuberculosis Patients with Health Behavior Promotion Interventions

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Abstract

Efforts to control Tuberculosis (TB) are carried out in various ways, including activities to increase public knowledge about TB. Health Behavior Promotion Efforts are expected to increase changes in patient or client behavior so that they have the will and ability that are conducive to improving overall health. The aim of this research is a case study of community nursing care by providing intervention and implementation in selected target villages. The intervention provided is Promotion of Health Effort Behavior. The sample size was 87 respondents from selected area using the Cluster Sampling technique. Data collection instruments for taking cases managed in this scientific work use clean and healthy living behavior instruments, knowledge instruments about healthy homes, Knowledge Instruments on the Role of the Family as PMO (Drug Dispensing Supervisor), TB Screening and Scoring Instruments, procedures of Hand Washing. The intervention was carried out with Simple Inhalation Therapy Using Eucalyptus Oil Steam accompanied by a physical examination and vital signs measurements. The results of the research show that there is an effect of education on public knowledge with a p value ($p = 0.000$), the results of implementing the hand washing demonstration show results ($p = 0.000$) which means there is an effect of hand washing demonstration on public knowledge, while from the implementation of simple inhalation therapy with eucalyptus oil vapor the results were ($p = 0.017$) which means there is an effect of simple inhalation therapy with eucalyptus oil vapor on the patient's RR and SPO₂. From the existing results, effective nursing implementation is carried out for TB prevention is the identification of health behavior efforts that can be improved, screening and health education, as well as the implementation of simple inhalation of eucalyptus oil vapor in TB patients.

Keywords: Community Health, Tuberculosis, Health Promotion

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1. BACKGROUND

Based on the 2018 WHO report, it is estimated that there were approximately 10 million cases of tuberculosis (TB) globally, with a total of 1.4 million deaths. The reported cases of tuberculosis in Indonesia in 2018 reached 566,623, with the East Java Province recording 73,835 cases. According to the East Java Health Department's report in 2019, based on the reported TB cases, East Java ranked second with the highest number of TB cases in Indonesia. Data from the East Java Health Department in 2018 showed that Jember Regency recorded 3,397 cases. According to information on TB detection and treatment from the Jember Regency Health Department, there is a trend of increasing TB cases in the last 3 years. In 2020, there were 4,097 recorded cases with only 3,292 cases treated. In 2022, there were 5,493 recorded cases, and only 4,687 were treated. In 2023, the cases increased to 6,007, with only 4,918 cases treated. The rise in TB cases indicates that the implementation of TB control measures has not been optimal.

The cause or agent of tuberculosis is the bacterium *Mycobacterium tuberculosis*. This disease is most commonly found in young or productive age individuals, specifically those aged 15 to

64 years. Individuals with malnutrition or underweight status have a 1.6 times higher risk of developing pulmonary TB compared to those with normal nutritional status. There are several physical environmental factors that can influence TB, including house density, which can increase the risk of pulmonary TB as it facilitates disease transmission. House ventilation less than 10% of the floor area increases the risk by 7.667 times (2.524 - 23,284) for TB occurrence in children. House ventilation affects the humidity level inside, and high humidity in the household environment can create conditions conducive to the multiplication of *Mycobacterium tuberculosis* bacteria.

Efforts in handling tuberculosis are fundamentally carried out through various methods, including activities aimed at enhancing public knowledge about TB. Health Behavior Promotion is expected to bring about changes in the behavior of patients or clients, with the goal of fostering willingness and abilities that support overall health. Knowledge about TB can be increased through Information, Education, and Communication (IEC), counseling, health education on TB and its prevention, as well as health promotion such as advocating for Clean and Healthy Living (PHBS). Based on data obtained

from the Sukorambi Community Health Center in RW 06, Durjo Hamlet, Karangpring Village, Sukorambi Sub-district, Jember, there are 14 individuals with TB, but only about 39.58% are undergoing treatment according to the standard.

The "Community as Partner" model is one of the community nursing models that emphasizes the process of collaboration with the community as a partner. The goal of this model is to address health issues, improve health status, and prevent nursing problems within the community. In this approach, nurses act as facilitators working with community members to identify health needs, develop intervention strategies, and promote active participation from the community itself in efforts to maintain and improve their health. Based on interviews with TB cadres in RW 06, Durjo Hamlet, Karangpring Village, Sukorambi Sub-district, Jember, the Health Center program conducts sputum examinations on residents with TB symptoms. Typically, people go directly to the health center when they have been coughing for more than 1 month. Due to the increasing TB rates in the Jember area, the author is implementing community nursing care by providing interventions and implementations to the selected foster

village, namely RW 6, Durjo Hamlet, Karangpring Village, Sukorambi Sub-district, Jember Regency. The intervention provided is Health Behavior Promotion, which aims to facilitate group members or the community in identifying community health problems and implementing solutions, including improving the implementation of programs for TB patients and addressing issues in the support system.

2. METHODS

This research is a case study with a quantitative approach in the managed area of RT 1, 2, and 3 RW 06, Durjo Hamlet, Karangpring Village, Sukorambi Sub-district, Jember. The process was conducted from November 2023 to January 2024, involving data collection and data assessment stages. The actions taken in this case study include: Health Promotion about Healthy Homes, PHBS (Clean and Healthy Living Behavior), family as Medication Supervisor (PMO), handwashing demonstration, TB health screening, and the provision of simple inhalation therapy with eucalyptus oil vapor. Before the intervention, the researcher conducted a pretest assessment and will perform a posttest after the intervention ends, measured with

questionnaires on knowledge of PHBS (Susilaningrum 2017), the instrument for knowledge about Healthy Homes (Yani, 2022), the instrument for knowledge of the family role as PMO (Medication Supervisor) (Febrina, 2018), the TB Screening and Scoring instrument developed by the Sukorambi Health Center, the 6-Step Handwashing Standard Operating Procedure to assess community knowledge about 6-step handwashing, and the Standard Operating Procedure (SPO) (Ministry of Health, 2022). Simple Inhalation Therapy Using Eucalyptus Oil (Juliawan, 2023) with a physical examination of vital signs. In this study,

the population used was 687. The sample calculation used the Slovin formula, resulting in 87 test samples. The statistical test conducted in this research is the Wilcoxon test.

3. RESULTS

The results obtained in this research include the results of TB screening in the community, the community's knowledge about Healthy House, PHBS (Clean and Healthy Living Behavior), handwashing, the family as a PMO (Primary Medical Observer), as well as a demonstration of simple inhalation with the vapor of eucalyptus oil, as presented in the following table.

Table 1. Distribution of screening results among respondents (n=87)

NO	Screening results for TB symptoms.	total	
		n	%
1	YES: Indicates suspected	14	15.9
2	REFERRAL NEEDED: further evaluation	0	0
3	NO: Does not indicate suspected TB.	42	84.1

Based on Table 1, after screening, it was found that 15.9% showed clinical symptoms suggestive of suspected TB,

where 13 individuals are indeed undergoing TB treatment.

Table 2. Distribution of community knowledge (n=84) and measurement of RR & SPO2 post-implementation of Simple Eucalyptus Oil Vapor (n=14), RT 06, Dusun Durjo, Desa Karangpring, Sukorambi, Jember.

Variable	Description	N	Median (min-max)	P value
Pre-test and post-test education program for a Healthy House	Lowered	0	Pre-test: 2 (1-5)	0.000
	Increased	72		

	Unchanged	12	Post-test: 6 (1-7)	
Pre-test and Post-test education program for PHBS	Lowered	0	Pre-test: 3 (1-5)	0.000
	Increased	84		
	Unchanged	0	Post-test: 8 (7-10)	
Pre-test and Post-test Handwashing demonstration	Lowered	0	Pre-test: 3 (1-7)	0.000
	Increased	68		
	Unchanged	16	Post-test: 8 (2-10)	
Pre-test and Post-test family as PMO (Primary Medical Observer)	Lowered	0	Pretest: 4 (2-5)	0.007
	Increased	9		
	Unchanged	5	Post-test: 6 (4-14)	
Pre-test and Post-test Simple inhalation with eucalyptus oil vapor	Lowered	0	Pre-test RR : 19 (17-20)	0.017
	Increased	7	Posttest RR : 20 (18-21)	
	Unchanged	7	Pretest SPO2: 95.50 (96-99)	
			Posttes SPO2 : 98 (96-99)	

Based on Table 2, the significance values for pretest and posttest of education on a healthy home, PHBS (Clean and Healthy Living Behavior), and handwashing demonstration are obtained, with a significance value of ($p = 0.000$) in the Wilcoxon test. This indicates that there is an influence of the healthy home education on the community's knowledge. Similarly, the significance value for empowering families as PMO in the

Wilcoxon test is ($p = 0.007$), signifying an impact of the Family as PMO education on community knowledge. Furthermore, the significance value for the demonstration of simple inhalation with eucalyptus oil in the Wilcoxon test is ($p = 0.017$), indicating an influence of the simple inhalation therapy with eucalyptus oil vapor on the RR and SPO2 of the patients.

4. DISCUSSION

The research results in RT 01, 02, and 03, RW 6, Hamlet Durjo, Karangpring Village, Sukorambi District, Jember, show that effective nursing implementation is carried out for tuberculosis prevention in RW 06, Karangpring Village, Sukorambi District, Jember Regency. This includes the identification of health behavior improvement efforts, health screening and education, as well as the implementation of simple inhalation of eucalyptus oil vapor for TB patients.

Based on the research results, it was found that the majority of respondents experienced an increase in knowledge about a healthy home. This indicates a significant influence of healthy home education on community knowledge. Counseling is a method of conveying information with the aim of improving knowledge, which is expected to ultimately result in behavioral changes supporting efforts to improve health quality. According to Sarwono (2014), knowledge includes cognitive elements related to oneself, behavior, and the surrounding environment. The health of homes and the environment plays a crucial role in enhancing family well-being. A healthy condition allows residents to achieve maximum productivity and also

serves as a preventive measure against the spread of various diseases. It is important for the community to understand the requirements for a healthy home so that their living spaces can be safe and comfortable environments. In addition to providing physical benefits, a healthy home can also reduce stress levels and enhance social well-being for its inhabitants. Based on these considerations, the researcher assumes that there is an influence of healthy home education on community knowledge because counseling is one way to convey information in improving an individual's knowledge, especially about a healthy home. It is hoped that this can change an individual's behavior and contribute to efforts to improve the quality of a healthy home.

In the context of education on Clean and Healthy Living Behavior (PHBS), based on the research results, it can be concluded that the majority of respondents experienced an increase in knowledge regarding Clean and Healthy Living Behavior (PHBS). The knowledge acquired by the community through educational activities is expected to have an impact on behavior change. With this knowledge, it is hoped that the community can shift their behavior towards positive aspects related to PHBS. This change is not only temporary

but will become a continuous habit. In other words, the knowledge received by the community through educational activities is expected to shape behavior patterns that support clean and healthy living. The researcher's assumption is that education on clean and healthy living behavior influences community knowledge. Counseling is considered one of the effective ways to convey information and improve an individual's knowledge, especially regarding clean and healthy living behavior. The expectation is that this can change community behavior and support an improvement in the quality of life by adopting clean and healthy living behaviors.

Based on the research results, it was found that the majority of respondents experienced an improvement in handwashing techniques after a demonstration. The learning method considered appropriate for clinical skills, according to Silalahi (2019), is the demonstration method. Demonstration is a teaching method that involves the careful presentation of actions or procedures, using moving and audible illustrations. The demonstration technique shows a real action or skill that is intended to be taught. This method involves the use of teaching aids that are safe, affordable, and effective,

making it easily transportable to various locations. Based on these considerations, the researcher assumes that there is an influence of handwashing demonstration on the handwashing behavior of the community because demonstration is one way to convey information in improving an individual's behavior, especially regarding handwashing. It is hoped that this can change an individual's behavior and contribute to efforts to improve the quality of handwashing in the community.

From the screening results, it was found that the most common clinical symptoms experienced by adult and elderly residents in RW 6, Hamlet Durjo, are cough, especially cough lasting for more than 2 weeks. Meanwhile, the most common symptoms in children are body weight/nutritional status (based on growth monitoring charts - KMS). Screening is an activity aimed at identifying and differentiating individuals who appear healthy but are at risk of disease from those who may not have the disease. It is important to note that screening is not a method for diagnosing diseases. Individuals with positive screening results or suspected of having a disease should be referred to a doctor for proper diagnosis and treatment.

Based on the research results, it was found that the majority of respondents experienced an improvement in their knowledge about the Family as a PMO (Pengawas Menelan Obat/Supervisor of Drug Ingestion). The family's role as a supervisor of medication ingestion in the treatment of pulmonary TB includes providing motivation, moral support, and hope for recovery to the patient. Social support from the family, including moral support, is crucial in the treatment of pulmonary TB. The better the family support provided, the higher the compliance of pulmonary TB patients in undergoing treatment. Therefore, the role of the family as a supervisor of drug ingestion not only helps reduce the risk of treatment failure but also enhances the patient's spirit and self-confidence to achieve recovery. Based on these considerations, the researcher assumes that there is an influence of family education as a PMO on community knowledge because counseling is one way to convey information in improving an individual's knowledge, especially about family support as a PMO. It is hoped that this can change an individual's behavior and contribute to efforts to improve the quality of the family's role as a Supervisor of Drug Ingestion.

The research results indicate that Simple Inhalation Therapy with Eucalyptus Oil Vapor has a significant effect on increasing Respiratory Rate (RR) and SPO2 levels in respondents. Vapor inhalation is the process of inhaling vapor, with or without the addition of medication, through the upper respiratory tract. The purpose of this action is to provide relief to breathing, soften mucus for easier removal, and maintain moisture in the mucous membranes of the respiratory tract. Eucalyptus oil, extracted from the leaves of the *Melaleuca leucadendra* plant, primarily contains eucalyptol (cineole). Based on this, the researcher assumes that simple inhalation therapy with eucalyptus oil vapor has an impact on the increase of Respiratory Rate (RR) and blood oxygen levels (SPO2) in clients. This assumption is expected to provide support and assistance to alleviate the shortness of breath experienced by TB patients.

5. CONCLUSION

The community nursing assessment of TB incidents in Block 06, Karangping Village, Sukorambi District, Jember Regency, is influenced by the high population density and the close proximity of residents' houses, leading to a lack of

sunlight entering the homes. Therefore, the nursing diagnosis adopted for this TB incident is Community Health Deficit, with health behavior promotion interventions chosen as the preferred approach to addressing community health deficit issues through direct nursing care, health promotion, and activity demonstrations. After implementing nursing care, it was found that effective interventions include identifying health behavior efforts that can be improved, health screening and education, as well as implementing simple inhalation of eucalyptus oil vapor for TB patients. The evaluation results of the TB prevention health behavior promotion activities effectively improve the community's health status. Therefore, it is recommended that healthcare workers at the Community Health Center (Puskesmas) actively monitor and further evaluate the implemented activities, including active participation in health education and the development of follow-up plans.

AUTHOR CONTRIBUTIONS

Substantial contributions to conceptualization, data curation, analysis: Sisma Yesi Yunnita, Hanny Rasni, and Fahrudin Kurdi. Supervision Writing-review & editing: Sisma Yesi Yunnita and

Hanny Rasni. Manuscript revisions: Sisma Yesi Yunnita.

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CONFLICT OF INTEREST

The authors declare no conflict of interest for this publication.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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