

Counseling On The Benefits Of Air Circulation In The House As An Effort To Prevent TB Disease

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Abstract

One way to prevent TB is to maintain air circulation in the house. Good air circulation in the house is essential to create a healthy and comfortable environment. Good air circulation ensures fresh air. Community service aims to help provide insight to the community regarding the benefits of healthy air circulation at home as an effort to prevent TB disease in the work area of the Wonokromo sub-district health centre, Surabaya City. The service method used is counselling about tuberculosis with partners who are 62 residents of RW 05, Wonokromo Village, Surabaya City. The results of the community service can be concluded that the extension of the benefits of indoor air circulation as an effort to prevent TB disease can increase public knowledge about pulmonary tuberculosis in the work area of RW 07, Wonokromo Village. The results of implementing community service can significantly increase community knowledge about pulmonary tuberculosis by 86.6%. Suggestions: Regular education needs to be carried out as an effort to eliminate TB so that the morbidity rate for pulmonary tuberculosis in Wonokromo Village decreases.

Keywords: Healthy Homes, Air Circulation, TBC, Environmental Cleanliness

1. Pendahuluan

Tuberculosis (TB) is still a public health problem in the world even though efforts to control TB have been implemented in many countries since 1995(1). Tuberculosis is an infectious disease caused by the bacterium *Mycobacterium tuberculosis*. The source of infection is TB patients, especially patients who contain TB germs in their phlegm(2). When coughing or sneezing, patients spread germs into the air as droplet nuclei. Infection will occur if a person inhales air containing infectious phlegm. One cough can produce

around 3000 splashes of phlegm containing 0-3500 M(3). Tuberculosis germs. Meanwhile, if you sneeze, you can release as much as 4500 – 1,000,000 Mycobacterium Tuberculosis (4).

According to the World Health Organization (Global TB Report, 2022), the estimated number of people diagnosed with TB in 2021 globally will be 10.6 million cases, an increase of around 600,000 cases from 2020, which was estimated at 10 million TB cases(5)(6). Of the

10.6 million cases, there are 6.4 million (60.3%) people who have been reported and undergoing treatment and 4.2 million (39.7%) other people who have not been found/diagnosed and reported. Of the total 10.6 million cases in 2021, at least 6 million cases are adult men, then 3.4 million cases are adult women and the other TB cases are children, namely 1.2 million cases(7).

Indonesia itself is in second place with the highest number of TB cases in the world after India, followed by China. In 2020, Indonesia was in third place with the highest number of cases, so 2021 will not be better. TB cases in Indonesia are estimated at 969,000 TB cases (one person every 33 seconds)(8). This figure is up 17% from 2020, namely 824,000 cases. The incidence of TB cases in Indonesia is 354 per 100,000 population, which means that for every 100,000 people in Indonesia, 354 people suffer from TB. This situation is a major obstacle to realizing the target of eliminating TB by 2030(5)(9).

Currently, Tuberculosis (TB) is one of the 10 highest causes of death caused by microorganisms that cause infection, namely bacteria, and is one of the 10 health problems that attack all human life cycles starting from babies and toddlers, children, teenagers, adults productive, and elderly(10). 10 countries contribute two-thirds of the total TB cases, such as India (27.9%), Indonesia (9.2%), China (7.4%), Philippines (7.0%), Pakistan (5.8%), Nigeria

(4.4%), Bangladesh (3.6%), Democratic Republic of the Congo (2.9%), South Africa (2.9%), and Myanmar (1.8%)(11). The estimated number of TB cases in Indonesia in 2021 will reach 969,000 or 354 per 100,000 population, with TB-HIV cases amounting to 22,000 cases per year or 8.1 per 100,000 population(12). Good air circulation can help prevent TB bacteria from settling in the house. TB germs can survive in the air for several hours, depending on the environment. These germs spread more easily in indoor

areas or other places with poor air circulation(3)(7).

Identification Of Problems

In the neighbourhood of RW 07, Wonokromo Village, is a very densely populated stretch of river area, small houses that are close together create minimal air circulation and lighting within the house. Building areas can facilitate the transmission of Mycobacterium tuberculosis bacteria if there are TB sufferers in places with high residential density. Apart from that, because the population is dense, there will be more interaction with other people, which can speed up the spread of tuberculosis bacteria through the air. With this problem, it is very important to provide education regarding the importance of air circulation in the house as an effort to prevent TB disease.

2. Metode

Community service activities were carried out in the following activities: (1) providing information about pulmonary tuberculosis to the residents of RW 07, Wonokromo Village, totalling 62 participants. The activity was held on Sunday, May 12 2024. Pulmonary TB education uses the lecture method to provide education about the importance of maintaining air circulation in the house. The people who attended this activity were mostly fathers and mothers. Community service activities consist of pre-activity, activity and monitoring evaluation stages. This activity consists of the following stages: (1) Pre-Activity. This activity involves conducting surveys and data searches in the Wonokromo Community Health Center area to obtain appropriate regional information for implementing tuberculosis education activities and then communicating with stakeholders in the region. RW 07 to determine the time, place and participants for pulmonary TB education activities. (2) Creation of counselling modules and preparation of counselling that will be given to participants. (3) Monitoring and evaluation. The monitoring and evaluation stage is carried out by conducting a pre-test and post-test to determine the increase in public knowledge after an educational lecture on pulmonary tuberculosis.

3. Hasil dan Diskusi

Activities have been carried out in stages which can be seen in Figure 1. Stages of

Implementing Community Service Activities. The pre-activity stage carries out activities in the form of preparation using field surveys, making outreach materials and brochures/leaflets, banners and holding meetings with the head of the community health centre, the person in charge of the TB program and the chairman of RW 07 to coordinate the place and time of the activity.



Figure 1. Discussion participants with cadres regarding the benefits of indoor air circulation as an effort to prevent TB disease



Figure 2. Implementation of outreach on the benefits of indoor air circulation as an effort to prevent TB disease. Carrying out pre-test post-test

Table 1. Characteristics Counseling participants on the benefits of indoor air circulation as an effort to prevent TB disease

No	Gender	Frequency	Percentage
1	Man	2	3.2%
2	Woman	60	96.8%
No	Age Range	Amount	Percentage
1	< 45 Years	2	3.2%
2	> 65 Years	18	29.0%
3	45 - 55 Years	25	40.3%
4	56 - 65 Years	17	27.4%
No	Profession	Amount	Percentage
1	Housewife	55	88.7%
2	Private	7	11.3%

Table 1 provides information that the majority of participants are women with the most age being 45 – 55 years, most of whom work as housewives. Counseling is carried out by giving lectures about the causes, symptoms, ways of transmission, and ways to prevent TB as well as how to avoid TB disease by using air circulation at home. The participants were 62 residents of RW 07, most of whom were women, who were able to participate in the lecture presentations enthusiastically.

Survey activities can help the Bakti Tunas Husada University community service team find out the characteristics and needs of the community to improve health(13). The survey results revealed a suitable place to carry out health education and examination activities. The pretest activity provides an overview to the service team of the level of community understanding of pulmonary tuberculosis before counselling is carried out(2)(12),

The results of community service regarding the knowledge of the people of RW 07, Wonokromo subdistrict, show that there is a lack of knowledge about the causes of tuberculosis. In the RW 07 area, people generally know the symptoms of pulmonary tuberculosis but do not know the causes(14). Tuberculosis disease, then outreach activities about Tuberculosis Lungs in Karikil Village are a solution to increase the knowledge of the local community, which still has a poor understanding of the causes of pulmonary tuberculosis(15).

The outreach activities carried out can increase public knowledge about the causes of the disease, symptoms, modes of transmission and methods of transmission of Pulmonary Tuberculosis, so it is hoped that awareness will be raised about disease prevention, knowing how to maintain environmental health can influence a healthy lifestyle(1)(16).

The counselling carried out by the team has also become a medium to increase motivation and awareness of the local community to change bad perceptions or views of health facility services so that people do not feel afraid to Check themselves at the nearest health service facility if they have symptoms of fever or cough(17). This outreach activity provides knowledge about the management of the diagnosis of Pulmonary Tuberculosis so that the public knows the types and examination materials to determine the diagnosis of Tuberculosis. Outreach activities through lectures can be seen below the results of the participants' Pre-Test and Post-Test(18).

Table 2. Pre-test and post-test results for counselling participants on the benefits of indoor air circulation as an effort to prevent TB disease

o	Knowledge	pre-test	post-test
	TB disease	56	84
	Causes of TB	70	81
	Environmental Health	74	93
	Air Circulation	65	92
	TB Prevention Hygiene	68	86

Conditions for a Healthy Home	64	88
Room Ventilation	68	83
Air Cleaning Methods	63	82
Spread of Germs	68	85
Infectious diseases	66	92
0		
Average	66.2	86.6

Table 3. *Paired Samples Statistics Pre-Test and Post-Test Participants*

Paired Samples Statistics	Mean	n	Std. Deviation
Pre_test	66.2	10	4,779
Post_test	86.6	10	4,427

Table 2 and Table 3 *Paired Samples Statistics* show the descriptive value of each variable in paired samples. Pre-Test I has a mean value of 66.2 from 10 data. The data distribution (Std. Deviation) obtained was 4.779 while the post-test had a mean value of 86.6 from 10 data. The data distribution (Std. Deviation) obtained was 4.42. This shows that the final test on the data is higher than the initial test. However, the range of distribution of the final test data is also becoming smaller, this shows that there is an increase in knowledge regarding the Extension of the Benefits of Air Circulation in the Home as an Effort to Prevent TB Disease. The following are the results of *Paired Samples Correlations*

Table 4. *Paired Samples Correlations*

Paired Samples Correlations	Correlation	Sig.	Sig 2 tailed
Pre_test & Post_test	10	0.256	0.00

Table 4 shows *Paired Samples Correlations* showing the correlation value which shows the relationship between the two variables in the paired samples. This is obtained from the bivariate Pearson correlation coefficient (with a two-sided significance test) for each pair of variables entered. The Paired Samples Test table is the main table of output that shows the results of the tests carried out. This can be seen from the significance value (2-tailed) in the table. The significance value (2-tailed) for this case example is 0.000 ($p < 0.05$). So the final pre-test and post-test results experienced significant (meaningful) changes. Based on descriptive statistics of the initial test and final test, it is proven that the final test is higher. Can be concluded *Counseling on the Benefits of Air Circulation in the Home as an Effort to Prevent TB Disease* increases participants' knowledge

4. Kesimpulan

The results of the community service can be concluded that the extension of the benefits of indoor air circulation as an effort to prevent TB disease can increase public knowledge about pulmonary tuberculosis in the work area of RW 07, Wonokromo Village. The results of implementing community service can significantly increase community knowledge about pulmonary tuberculosis by 86.6%. Suggestions: Regular education needs to be carried out as an effort to eliminate TB so that the morbidity rate for pulmonary tuberculosis in Wonokromo Village decreases..

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