

The Effects of Simple Inhalation using Mint (*Mentha Piperita*) Aromatherapy on Decreased Shortness of Breath in Lung Tuberculosis Patients

Siti Marlina, Novrika Silalahi, Septa Dwi Insani, Herri Novita Tarigan, Friska Ernita Sitorus

Institut Kesehatan DELI HUSADA Delitua
Alamat: Jalan Besar No.77 Delitua Deli Serdang

Keyword: Mint Leaf, Shortness of Breath, and Tuberculosis.

Abstract: According to the World Health Organization (WHO), tuberculosis is a disease of global concern. Pulmonary tuberculosis is estimated to still attack 9.6 million people and cause 1.2 million deaths in 2014. Pulmonary TB symptoms that have similarities with other diseases are shortness of breath. Efforts to reduce shortness of breath can use medical and non-medical drugs. One way that can reduce shortness of breath is by giving the aroma of mint leaf therapy with a simple inhalation or evaporation method. The most important ingredient in mint is menthol. Mint leaves contain 30-45% menthol, 17-35% menthone, 5-13% menthyl acetate, 2-5% limonene and 2.5-4% neomenthol. This type of research is analytic observation research, with case control design. The sampling technique in this study was consecutive sampling with a total of 29 respondents using the Wilcoxon statistical test. The results obtained p value $0.002 < (\alpha) 0.05$ then H_0 is rejected and H_1 is accepted, which means that there is a simple inhalation effect using aromatherapy mint leaves (*menthapiperita*) to decrease breathlessness in pulmonary tuberculosis patients. The results of this study can provide input for nurses in providing services to patients with tuberculosis in the community that the use of mint is one of the efforts to reduce shortness of breath without consuming pharmacological therapy.

1 INTRODUCTION

According to WHO (World Health Organization, 2015), tuberculosis is a disease of global concern. With the control efforts taken, the incidence of deaths from tuberculosis has decreased, but pulmonary tuberculosis is estimated to still attack 9.6 million people and cause 1.2 million deaths in 2014. Indonesia, India, and China are the countries with the most pulmonary tuberculosis sufferers, respectively 10%, 23%, and 10% of all patients in the world.

According to the *WHO Global Tuberculosis Report* (2016), it is estimated that Lung Tuberculosis in Indonesia in 2015 amounted to 395 cases / 100,000 population, the death rate was 40 / 100,000 population. In Indonesia in 2016 the number of cases of Pulmonary TB was 351,893 cases, an increase compared to 2015 which was found at 330,729 cases (Indonesian Ministry of Health, 2016). The prevalence of pulmonary TB in Indonesia is grouped into three regions namely Sumatra 33%, Java and Bali 23% and Eastern Indonesia 44% (Departement

Of Health). North Sumatra is one of the provinces in Indonesia where the TB incidence rate is quite high.

The definition of tuberculosis is a disease that can be transmitted directly caused by TB germs, namely *Mycobacterium Tuberculosis*. Diffusion of oxygen will be disrupted due to the presence of nodules or inflammation of the alveolar wall. If the attacked lung expands, the cells will die and the lungs will shrink. As a result, the patient's breath will be breathless. Symptoms of shortness of breath are found when the patient's lung parenchymal damage is widespread. In mild pulmonary TB patients have not felt any shortness of breath, shortness of breath suffered will occur if the infiltration has reached half. Pulmonary TB patients with symptoms experienced like this need to be taught a simple method with the method of evaporation or simple steam inhalation which can be done at any time at home at their respective homes.

According to Wahid (2013), complaints that are felt by pulmonary TB patients vary or are also found to be no complaints at all when a health check is

conducted. Pulmonary TB can also be called "*the great iminator*" which is a disease that has many similarities with other diseases that also give unclear symptoms. The clinical picture of pulmonary TB is divided into two groups namely respiratory symptoms such as coughing up blood, shortness of breath, coughing, chest pain. And systemic symptoms include malaise, fever, weight loss.

Pulmonary TB is a disease that can be transmitted through the air (airborne disease). TB germs are spread from person to person through sputum sprays (droplets) when active pulmonary TB sufferers cough, sneeze, talk or laugh. TB germs die quickly with direct sunlight, but can survive several hours in a dark and damp place. In body tissues, these germs can sleep for a long time (domaint) for several years (RI Ministry of Health, 2012).

Pulmonary tuberculosis is a direct infectious disease caused by TB (*Mycobacterium Tuberculosis*) bacteria. Most TB germs attack the lungs but also affect other organs (MOH, 2007). Factors that influence the occurrence of pulmonary TB disease include socioeconomic conditions, age, sex, nutritional status and smoking habits. Although smoking is not a major cause of pulmonary TB disease, smoking can damage the pulmonary defense mechanism thereby facilitating the entry of germs such as TB germs.

Plus, the phenomenon of smoking in Indonesia is still considered normal, even considered a lifestyle. Smoking behavior is common for most Indonesian people, especially adult men. In the last ten years, cigarette consumption in Indonesia has increased by 44.1% and the number of smokers reaches 70% of Indonesia's population. (Fatmawati, 2006).

Tuberculosis (TB), is a lung disease caused by the attack of the bacterium *Mycobacterium Tuberculosis*. Diffusion of oxygen will be disrupted due to the presence of nodules or inflammation of the alveolar wall. If the attacked lung expands, the cells will die and the lungs will shrink. As a result, the patient's breath will be breathless. Shortness of breath this symptom is found when the damage to the lung parenchyma sufferer has spread.

In mild pulmonary TB patients have not felt any shortness of breath, shortness of breath suffered will occur if the infiltration has reached half a part, in pulmonary TB patients with symptoms experienced like this need to be taught a simple way with the method of evaporation or simple inhalation of steam which when time can relapse can be done at their respective homes. Boiled water vapors that are inhaled to reduce shortness of breath usually use natural ingredients such as mint leaves which will

produce menthol vapors for the inhalation process (Yessie&Andra, 2013)

Efforts to reduce shortness of breath can use medical drugs and use non-medical drugs. One way that can reduce shortness of breath is by giving the aroma of mint leaf therapy with a simple inhalation or evaporation method. The most important ingredient in mint is menthol. Mint leaves contain 30-45% menthol, 17-35% menthone, 5-13% menthyl acetate, 2-5% limonene and 2.5-4% neomenthol (Elshabrina, 2015). Mint leaves contain menthol so they are often used as raw materials for cold medicines (Jefry, 2014). The aroma of menthol found in mint leaves has anti-inflammatory properties, so that later it will open the respiratory tract.

In addition, mint leaves will also help treat infections caused by bacterial attacks. Because mint leaves have antibacterial properties. Mint leaves will loosen the bronchi so that it will launch breathing.

To relieve breathing can be to inhale mint leaves directly. Whereas a simple inhalation is to breathe warm steam from boiling water mixed with aromatherapy as a warmer, for example mint leaves. Essential oil diffuser is a tool to convert essential oil into small granules to then blend (spread / diffuse) throughout the room.

In patients with pulmonary TB who experience clinical symptoms is one of shortness of breath, usually the patient's family panic in what ways to do or reduce shortness of breath symptoms other than using oxygen when at home with pulmonary TB patients do not have oxygen equipment then these patients need to be taught simple ways with a simple evaporation or inhalation method.

The benefits of aromatherapy include overcoming insomnia and depression, relieve anxiety, reduce feelings of tension, improve the health and well-being of the body, mind, and soul that are often combined with alternative medical practices. Aromatherapy does not only work when there is only interference, but also can maintain the stability and balance of the system contained in the body so that the body becomes attractive. Therefore, aromatherapy is a holistic treatment to balance all bodily functions used was the American Thoracic Society (ATS) shortness of breath scale, using an observation sheet. While the independent variable instrument uses a diffuser, and is carried out only in the treatment group. Simple inhalation research procedure using aromatherapy of mint leaves (*menthapiperita*) to reduce shortness of breath in pulmonary tuberculosis patients the data collected must first apply for a research permit at the Pon Village Health Center in Sei Bamban District.

After obtaining permission, data collection is carried out by first explaining to respondents about the objectives and benefits as well as the procedures for conducting research, ask respondents to sign an informed consent. Taking data in this study is an observation sheet. For respondents, the technique of giving mint aroma therapy with a simple inhalation or using a diffuser is done by inserting into the device 2-3 drops of essential oil containing mint leaves for 3 times a day within 15 minutes in 1 week is placed not far from the patient approximately effective for inhalation.

2 RESEARCH METHODS

The type of research design used is Pre Experimental with the design of One Pretest-Posttest Design Group, namely the type of research that aims to determine the effect of an action on the group before training (pretest) and handling (posttest).

The sampling technique in this study was consecutive sampling of 29 respondents. This study aims to discuss how to use mint leaf aromatherapy (*menthapiperita*) to reduce shortness of breath in pulmonary tuberculosis patients in Puskesmas Desa Pon, Sei Bamban District. In the dependent variable, the measuring instrument used is the American Thoracic Society (ATS) shortness of breath scale, using an observation sheet. While the independent variable instrument uses a diffuser tool, and is carried out only on the manager group.

Simple inhalation research procedure using mint leaf aromatherapy (*menthapiperita*) for reduction of shortness of breath in pulmonary tuberculosis patients, data collected in advance apply for permission to conduct research at Puskesmas Desa Pon Desa Sei Bamban District.

After obtaining permission, data collection is carried out by first explaining to the respondent the purpose and benefits and procedures for conducting research, asking respondents to sign informed consent.

Retrieval of data in this study is the observation sheet. For respondents, the therapeutic treatment of mint leaves with a simple inhalation or using a diffuser is done by inserting into the device 2-3 drops of essential oil containing mint leaves for 3 times a day within 15 minutes in 1 week placed not far from the patient which is roughly effective for inhalation.

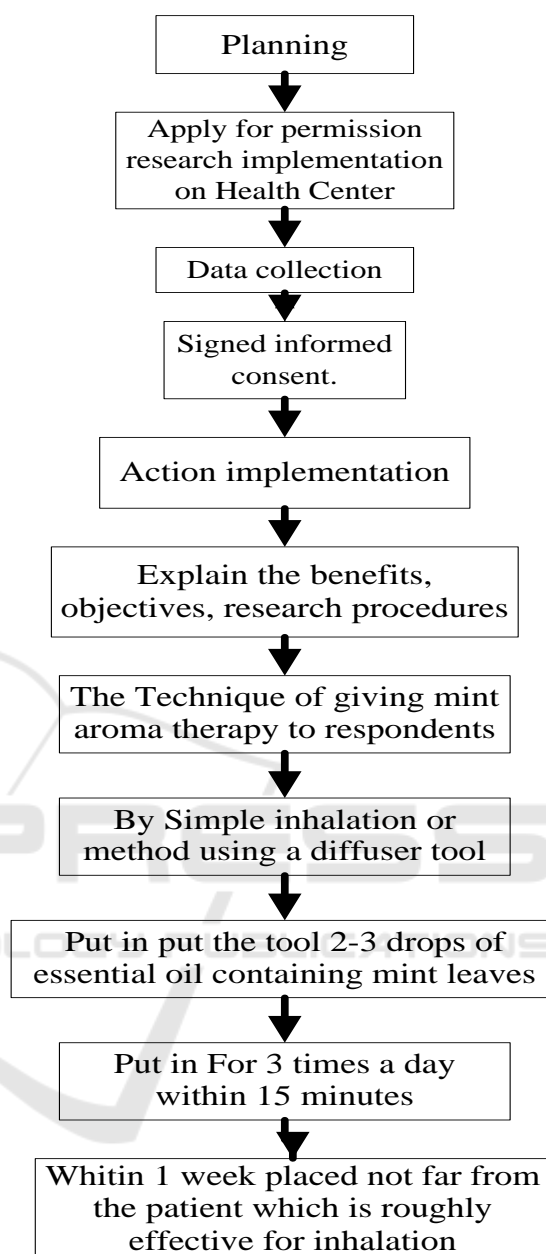


Figure 1: Flowchart of the Research.



Figure 2: Image of a diffuser tool and how to open it.



Figure 3: The stage of using a diffuser.

3 RESULT

The results of observations of research respondents before being given treatment are known to show their breath short and short of breath and the use of

respiratory muscles in respondents who are too short of breath when leaving the house or take off and dress or shortness of breath with a very heavy degree. Shortness of breath experienced by respondents resulted in psychological changes such as anxiety, fear and feeling very uncomfortable because of the ineffectiveness of breathing patterns. while shortness of breath.

In patients with pulmonary tuberculosis that are not treated immediately, the impact will be caused by the extent of lung parenchymal damage and can cause several complications. Given the severity of lung parenchymal damage and complications that will occur, patients should be treated to treat shortness of breath. With this treatment it is hoped that it will reduce the shortness of breath.

Based on the univariate table below, it can be seen that in the pre-test or before the administration of simple inhalation using mint leaf aromatherapy (menthapiperita) to decrease breathlessness in pulmonary tuberculosis patients, it shows that the number of respondents before being carried out in the experimental group found that most experienced shortness of breath with a degree of severe shortness of breath that is as many as 14 respondents or around 48.3% and minor minorities as many as 3 people or around 10.3%, in the post-test majority of minor people as many as 16 people or around 55.2% and severe minority 1 person or around 3.4%.

Table 1: Pre_Test and Post_Test Data Distribution in the Treatment Group of Lung Tuberculosis Patients.

Shortness Of breath		Frequency		Percentage %	
Pre	Post	Pre	Post	Pre	Post
Mild	Mild	3	16	10,3	55.2
Moderate	Moderate	8	8	27.6	27.6
Heavy	Heavy	14	1	48.3	3.4
Intense	Intense	4	4	13.8	13.8
Heavy	Heavy				
Total	Total	29	29	100	100

Based on the table above after simple inhalation administration using mint leaf aromatherapy for decreased breathlessness in pulmonary tuberculosis patients, showed that of the 29 respondents in the experimental group it was found that most of them experienced mild shortness of breath scale values of 16 respondents, with very heavy degrees of 4 respondents, with a moderate degree of 8 respondents, and those who experienced a severe degree of 1 respondent.

There is a difference in the value of the shortness of breath scale before being given a simple inhalation and after being given a simple inhalation

using mint aromatherapy (MenthaPiperita). Simple inhalation is a steam of warm water from boiling water that has been mixed with aromatherapy as a warmer, for example mint leaves.

After being given a simple inhalation using mint leaf aromatherapy (menthapiperita) in the experimental group, the respondent showed that their breathing was not wheezing because the aroma of menthol found in mint leaves has anti-inflammatory properties, so it will open the respiratory tract.

Table 2: The Influence of Simple Inhalation Using Mint (MenthaPiperita) Aromatherapy Against Decreased Shortness of Breath in Lung Tuberculosis Patients in Puskesmas DesaDesaPon District of SeiBamban in 2019.

No.	Responden	Gender	Occupation	Pre Test	Post Test
	t's Name				
1	Tn.K	2	1	1	3
2	Tn.L	2	1	3	1
3	Tn.M	3	1	2	2
4	Tn.L	1	1	3	1
5	Tn.J	3	2	3	4
6	Tn.N	4	1	2	1
7	Tn.A	2	1	1	2
8	Tn.R	3	1	3	1
9	Ny.P	1	2	2	2
10	Ny.O	2	2	3	4
11	Ny.K	2	2	4	2
12	Tn.L	2	1	3	1
13	Tn.L	1	1	1	1
14	Tn.B	2	1	4	2
15	Tn.M	3	1	3	1
16	Tn.P	1	1	2	2
17	Tn.D	2	1	2	1
18	Tn.S	3	1	3	1
19	Tn.N	4	1	4	1
20	Ny.L	2	2	3	1
21	Ny.E	2	2	3	2
22	Tn.M	2	1	2	1
23	Tn.R	2	1	3	2
24	Tn.M	3	1	4	1
25	Ny.U	1	2	3	4
26	Tn.I	2	1	3	1
27	Ny.U	2	2	2	4
28	Tn.C	4	1	3	1
29	Tn.P	2	1	2	1

Evidence:

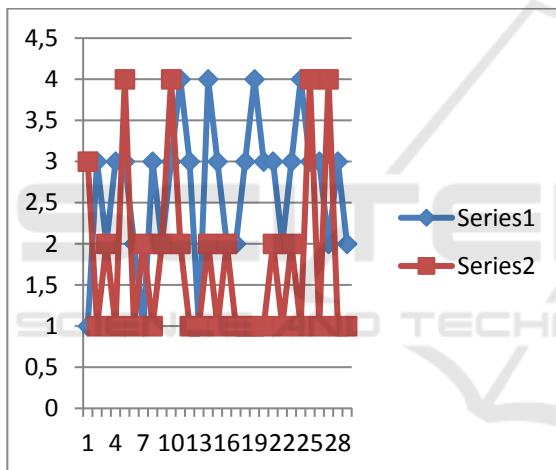
Pre-Post Test:
 1. Mild
 2. Moderate
 3. Heavy
 4. Intense

Gender:
 1. Male
 2. Female

Occupation:
 1. Farmer
 2. Government Employees
 3. Entrepreneur

Age:
 1. 26 Old- 30 Old
 2. 31 Old- 35 Old
 3. 36 Old- 40 Old
 4. > 40 Old

Chart 1: Distribution of Pre_Test and Post_Test Datain Groups Treatment of patients Lung Tuberculosis.



The Wilcoxon Test results show aromatherapy of mint leaves (*menthapiperita*) on decreased breathlessness in pulmonary tuberculosis patients in the treatment group shows that H0 is rejected and H1 is accepted, meaning that there is a significant effect of decrease in shortness of breath in the experimental group between before and after intervention.

In the experimental group before being given a simple inhalation using mint leaves aromatherapy obtained a mild degree of 3 respondents, a heavy degree of 14 respondents, a moderate degree of 8 respondents, and a very heavy degree of 4 respondents. Then after being given a simple inhalation using aromatherapy mint leaves, 16 respondents experienced mild shortness of breath, 1 respondent with severe degree, 8 respondents with

moderate degree, 4 respondents with very severe degree.

4 CONCLUSIONS

Shortness of breath scale values before being given a simple inhalation using mint leaf aromatherapy in the experimental group found 14 respondents experienced shortness of breath with a severe degree. Whereas in the dick group, it was found that 6 respondents experienced shortness of breath with a very heavy degree. Shortness of breath scale value after being given a simple inhalation using mint leaf aromatherapy in the experimental group found 4 respondents experienced severe shortness of breath. Whereas in the dick group, it was found that 6 respondents experienced shortness of breath with a very heavy degree.

From the Wilcoxon Test results showed a simple inhalation effect using aromatherapy of mint leaves (*menthapiperita*), the technique of giving mint aroma therapy with a simple inhalation or using a *diffuser* device is done by inserting into the tool 2-3 drops of essential oil containing mint leaves for 3 times a day within 15 minutes a week is placed not far from the patient which is approximately effective for inhaled against decreased breathlessness in patients with pulmonary tuberculosis .

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