ORIGINAL ARTICLE

Bali Medical Journal (*Bali MedJ)* 2023, Volume 12, Number 3: 2788-2791
P-ISSN.2089-1180, E-ISSN: 2302-2914

The aromatherapy relaxation effect of lavender (*Lavandula angustifolia*) and peppermint (*Mentha piperita*) against decreased stress in patients with pulmonary tuberculosis

Tety Enita Rudyana[1], Nunik Purwanti[2*], Firdaus[2], Riska Rohmawati[3]

[1]Student of Nursing, Department of Nursing, Faculty of Nursing and Midwifery, Universitas Nahdlatul Ulama Surabaya, Indonesia;
[2]Department of Nursing, Faculty of Nursing and Midwifery, Universitas Nahdlatul Ulama Surabaya, Indonesia;
[3]Department of Midwifery, Faculty of Nursing and Midwifery, Universitas Nahdlatul Ulama Surabaya, Indonesia.

*Corresponding author:
Nunik Purwanti;
Department of Nursing, Faculty of Nursing and Midwifery, Universitas Nahdlatul Ulama Surabaya, Indonesia;
noniek@unusa.ac.id

Received: 2023-04-17
Accepted: 2023-08-31
Published: 2023-09-20

ABSTRACT

Introduction: Pulmonary Tuberculosis is an infectious disease that can cause negative stigma in the community, causing stress because of the length of the treatment period and the side effects of drugs. Therefore, alternative therapies are needed, one of which is aromatherapy relaxation. The purpose of this study was to analyze the effect of relaxing aromatherapy Lavender (Lavandula Angustifolia) and Peppermint (*Mentha piperita*) on Stress Reduction in Pulmonary Tuberculosis Patients.
Method: The design of this study used the One group pre-post test design with a population of 31 people. Sampling technique with simple random sampling to obtain a sample of 29 people. The independent variable is lavender and peppermint aromatherapy relaxation. The dependent variable is stress reduction. The data collection technique was using the DASS questionnaire. This analysis uses the Wilcoxon Sign Rank test.
Result: Based on the Wilcoxon sign rank test, the results of sig (2-tailed) 0.000 <0.05 mean that there is a relaxing effect of Lavender (Lavandula Angustifolia) and Peppermint (*Mentha piperita*) aromatherapy on stress reduction.
Conclusion: Relaxation aromatherapy Lavender (Lavandula Angustifolia) and Peppermint (*Mentha piperita*) can be used as non-pharmacological therapy to reduce stress in patients with pulmonary TB. Nurses can use aromatherapy relaxation with a diffuser to reduce patient stress during treatment.

Keywords: Pulmonary Tuberculosis, Relaxation Aromatherapy, Stress.
Cite This Article: Rudyana, T.E., Purwanti, N., Firdaus., Rohmawati, R. 2023. The aromatherapy relaxation effect of lavender (*Lavandula angustifolia*) and peppermint (*Mentha piperita*) against decreased stress in patients with pulmonary tuberculosis. *Bali Medical Journal* 12(3): 2788-2791. DOI: 10.15562/bmj.v12i3.4376

INTRODUCTION

Until now, pulmonary TB has been a global concern, with various control efforts being carried out to reduce the incidence and mortality rate. Pulmonary TB is still one of the public health problems in the world, with mortality rates exceeding the Human Immunodeficiency Virus (HIV). Tuberculosis causes various health problems, namely decreased physiological abilities, limited social interaction, limitations in carrying out spiritual needs, decreased work productivity, and psychological changes.[1]

The high incidence of cases and deaths with pulmonary TB in Indonesia, according to WHO in the Global Tuberculosis Report (2016), made Indonesia the 33rd in the world with the most tuberculosis in 2015.[1]

The incidence of tuberculosis is reported to have increased drastically in the last decade throughout the world, including in Indonesia. Complaints felt by pulmonary TB patients can vary or even be found pulmonary TB without any complaints at all in their health examination. The pharmacological treatment for tuberculosis has been determined by the government, namely in accordance with the Directly Observed Treatment Short course (DOTS) strategy. Pulmonary TB treatment will be completed within 6 months. However, the conditions in the field, many TB patients fail to complete treatment because of the uncomfortable side effects of OAT and boredom on long treatment.[1]

According to previous research to reduce shortness of breath in pulmonary TB patients, apart from using medical drugs, peppermint aromatherapy can also be given with simple inhalation or evaporation methods.[2] Aromatherapy is a therapeutic action because it uses oils that are useful for improving physical and psychological states for relaxation therapy, relieving stress, and calming the mind.[3] One of the aromatherapy often used is lavender aromatherapy which is calming. According to Prima Dewi (2017), aromatherapy using lavender oil is believed to have a relaxing effect on nerves and muscles that are tense (carminative) after being tired from activities, in addition to having a drowsy (sedative) effect.[4] Based on the results of the description above, researchers are interested in knowing the effect of relaxing lavender (Lavandula Angustifolia) and peppermint (*Mentha piperita*) aromatherapy on reducing stress in pulmonary TB patients.

METHODS

Study this including pre-experimental type with use design *One Group pre -post-test design* in one group object observed before

conducted intervention, then observed again after given intervention. Population study is patient Pulmonary TB at the Bhakti Dharma Husada Hospital was taken from the number of TB patients in the Sadewa Isolation Room on average every month from January to February 2022, with as many as 31 patients. The respondents of this study were pulmonary TB patients with 6 days of treatment. The technique of taking samples used is simple random sampling is the taking of sample members from the population, which is done randomly without regard to the existing strata in the population. The Independent variable of the study is aromatherapy relaxation lavender and peppermint. The research-dependent variable is stress reduction. Instruments used in the study are secondary data that record medical patient and contains demographic data, patient cover identity patient, age, type, gender and education. The researcher copies on sheet recapitulation. Only researchers know the data. The instrument on variable independent relaxation lavender and peppermint aromatherapy, namely SOP.[5] On variable dependent with use sheet observations and sheets DASS 42 questionnaire.

Relaxation aroma therapy given twice daily (day and night) for 30 minutes is repeated independently by the patient, who helped his family for 6 days. Concentration aromatherapy 1 lavender and peppermint provided with 2-3 drops of each oil essential lavender and peppermint in water as much as 100 ml in a diffuser, concentration gift aroma therapy based on previous research.[5] After the diffuser is connected to electricity, hold it close to the patient at a distance of 100 meters inside the room patient on the *bedside cabinet* (table) for each patient.

The questionnaire sheet (post-test) is given again in the following week to be filled in by the patient through interviews with patients and their families. After filling out the questionnaire, the researcher observed vital signs. During the research process, patients are expected not to take sedatives. This aims to determine the effectiveness of aromatherapy lavender and peppermint in reducing stress without the presence of other factors that affect, for example, medicine from a doctor. The patient's stress level is measured by the DASS scale (42), with a scale indicator of>14, categorized as stress. The R - details of the rating scale are Normal Score 1-14, Mild Score 15-18, Moderate Score 19-25, Severe Score 26-33, and Very Severe >33. Data analysis for ordinal data (stress level) using the Wilcoxon Signed Rank Test because study this for compare observation before and after treatment with level significance = 0.05.

RESULTS

General Data of Respondents

Based on Table 1, almost half of the respondents are aged 46-60 years, namely 11 people (38%). Most of them are male, as many as 19 people (66%). The education level of the respondents is mostly high school, with as many as 20 people (69%). In terms of work, almost half of them are 10 people (35%) do not work, and 10 people (35%) are self-employed. This is because most patients are no longer working due to declining health conditions and must receive 6 months of treatment. Some even respondents just got a job but had to stop working because of their illness.

Table 2 shows that of the 29 respondents before being given the intervention, it was found that most of the respondents were at moderate stress levels (19-25), namely 15 people (52%).

Table 3 shows that of the 29 respondents after the intervention, most experienced a change in normal stress levels, as many as 17 people (59%) and a small portion, as many as 1 person (3%), with moderate stress levels.

Table 4 shows that the results of the statistical analysis of the Wilcoxon sign rank test obtained a value of (α count) = 0.000 so that H1 is accepted, which means that there is a significant effect of providing interventions in the form of relaxing aromatherapy Lavender (*Lavandula angustafolia*) and peppermint

Table 1. Characteristics of respondents with pulmonary TB patients who are hospitalized in the Sadewa Room

Characteristics Data	Frequency (N)	Percentage (%)
Age		
15-30 years old	3	10%
31-45 years old	9	31%
46-60 years old	11	38%
> 60 years old	6	21%
Gender		
Man	19	66%
Woman	10	34%
Education Level		
Elementary School	3	10%
High School	20	69%
University	6	21%
Work		
Do not work	10	35%
Private employed	8	27%
self-employed	10	35%
PNS, TNI/Polri	1	3%

Table 2. Respondent's stress levels before being given relaxation aromatherapy lavender (*Lavandula angustafolia*) and Peppermint (*Mentha piperita*) in the Sadewa Room

No	Stress Level	Frequency (N)	Percentage (%)
1	Severe (26-33)	3	10
2	Moderate (19-25)	15	52
3	Mild (15-18)	11	38
4	Normal (0-14)	0	0
	Total	29	100

Table 3. **The stress levels of respondents after being given relaxation aromatherapy lavender (*Lavandula angustafolia*) and peppermint (*Mentha piperita*) in the sadewa room**

No	Stress Level	Frequency (N)	Percentage (%)
1	Severe (26-33)	0	0
2	Moderate (19-25)	1	3
3	Mild (15-18)	11	38
4	Normal (0-14)	17	59
	Total	29	100

Table 4. **Effect of relaxation aromatherapy lavender (*Lavandula angustafolia*) and peppermint (*Mentha piperita*) on stress reduction in the sadewa room**

Stress Level	Before intervention		After intervention	
	N	%	N	%
Severe (26-33)	3	10	0	10
Moderate (19-25)	15	52	1	3
Mild (15-18)	11	38	11	38
Normal (0-14)	0	0	17	59
Total	29	100	29	100

*note: Result Test Wilcoxon Sign Rank Test nilai Asymp. Sig (2-tailed) = <0,001

(*Mentha piperita*) on reducing stress in patients with pulmonary TB.

DISCUSSION

Respondent's stress level before being given relaxation aromatherapy lavender (*Lavandula angustafolia*) and peppermint (*Mentha piperita*)

The results showed that the stress levels of 29 respondents before being given relaxation were 3 people (10%) with severe stress levels (26-33), 15 people (52%) moderate stress (19-25) and 11 people (38%) with moderate stress. Mild stress (15-18). Stress is a variety of physical, chemical, or emotional factors that can cause physical or mental anxiety and can be one of the factors causing disease.[6]

The results showed that most of the respondents at moderate stress levels were even found to be at severe stress levels. Based on general data, almost half of the respondents aged 31-45 years were 9 people (31%) and aged 46-60 years were 11 people (38%), so almost all respondents, 20 people (69%), were aged <60 years.

This is in accordance with the theory put forward by Yusuf et al., 2015 the stress predisposing factor is age. In the 2015 Mandaknalli study, it was found that stress in TB patients was experienced by patients aged 24-60 years. The older a person with tuberculosis is, the higher the stress level.[6]

Sick conditions, especially in pulmonary TB patients who require very long healing therapy. This can affect the psychological state of the patient. One of them is that the patient's emotional status will be disturbed due to chronic illness conditions that can cause severe stress.[7] Pulmonary TB is a classic example of a disease that not only affects the patient's physical, biological, psychological, social and spiritual changes.[8] Pulmonary TB as an infectious disease causes negative stigma in the community, so patients experience discrimination due to neglect and public reluctance to interact with pulmonary TB patients. This causes the patient to become more stressed and even depressed and afraid to interact with the community.

The stress level of respondents after being given relaxation aromatherapy lavender (*Lavandula angustafolia*) and peppermint (*Mentha piperita*)

The results showed that from 29 respondents after being given aromatherapy relaxation, 17 people (59%) did not experience stress or normal (0-14) while 11 people (38%) had mild stress (15-18), and 1 person (3%) in moderate stress levels (19-25). There is still 1 person at a moderate stress level after being given aromatherapy relaxation. Based on general data, it was found that most of the respondents, namely 20 people (69%) had a high school education level and in terms of work, almost half of them were 10 people (35%), did not work and 10 people (35%) were self-employed.

According to the theory of stress predisposing factors, namely the level of education and work. According to previous study, a person's level of education can affect his level of understanding of information obtained from various sources, the higher the level of education received, the better one's understanding and knowledge.[9] Meanwhile, according to another study, said work problems are a source of stress that many people experience.[10] Many people suffer from depression, anxiety because of this work problem, for example, too much work, promotion, job loss (PHK) and so on.

Effect of relaxation aromatherapy lavender (*Lavandula angustafolia*) and peppermint (*Mentha piperita*) on stress reduction in pulmonary TB patients

Based on the results of statistical analysis of the Wilcoxon sign rank test, it was found that there was an effect of giving lavender and peppermint aromatherapy on reducing stress in pulmonary TB patients. This is obtained based on the research results before the intervention, it was found that most of the respondents were at moderate stress levels (19-25), namely 15 people (52%). The data after the intervention showed there was a decrease in stress, namely, most of the normal stress levels (0-14), as many as 17 people (59%). The content of linalyl acetate and linalool in lavender and pure menthol in peppermint as anti-anxiety. According to a previous study, peppermint with menthol can reduce stress, anxiety, negative thoughts and fear.[11] This is because after the respondent inhales peppermint, the molecules and aromatherapy particles will enter through the respiratory tract (nose), which will then be forwarded by nerve receptors to be received as a good signal and then presented as a pleasant aroma and the final stage the odor stimulation will enter and affects the limbic system as a person's emotional center so that feelings become more relaxed.

A feeling of calm will allow a person to think calmly to overcome stressors so

that adaptive coping will be created. This is reinforced by research. According to another study, the benefits of aromatherapy include helping to relieve stress.[12-15]

CONCLUSION

Based on the results of the research and discussion that have been described, it can be concluded that there is an effect of giving relaxation aromatherapy Lavender (*Lavandula angustafolia*) and Peppermint (*Mentha piperita*) on reducing stress in pulmonary TB patients.

ACKNOWLEDGMENT

We would like to express our gratitude to the Universitas Nahdlatul Ulama Surabaya, which has supported the funding and facilities for the completion of this research.

CONFLICT OF INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

ETHICAL CLEARANCE

The study received ethical approval from Universitas Nahdlatul Ulama Surabaya with number 085/EC/KEPK/UNUSA/2022

FUNDINGS

This research used independent funds.

AUTHOR CONTRIBUTIONS

All authors work equally in doing this research and writing this research article. Similarly, contribute from the investigative concepts, information acquisitions, information investigation, and factual studies, changing the paper until detailing the consideration comes about through publication.

REFERENCES

1. Riset Kesehatan Dasar (Riskesdas). Badan Penelitian dan Pengembangan Kesehatan Kementerian RI. [Internet]. 2018. Available on: http://www.depkes.go.id/resources/download/infoterkini/materi_rakorpop_2018/Hasil%20Riskesdas%202018.pdf
2. Siswantoro, E. Effect of aromatherapy mint leaves with simple inhalation on decreasing shortness of breath in pulmonary tuberculosis patients. Journal of Nursing and Midwifery Stikes Dian Husada Mojokerto. 2018;12(2): 49–56
3. Agustina, D. D. Stress Measuring Tool Validity. JP3I (Indonesian Journal of Psychology and Education Measurement). 2019;*2*(7): 474–480. https://doi.org/10.15408/jp3i.v2i7.10763. 2019.
4. Prima, I. G. A., and Ap, D. Lavender aromatherapy as a relaxation medium. Jurnal Medika Udayana. 2013: 1–17.
5. Fransiska Kakuhese, F., and Angreni Rambi, C. Application of lavender aromatherapy relaxation techniques on clients with post sectio caesarea pain. Jurnal Ilmiah Sesebanua 2019; 3(2): 52–58.
6. Febriyanti, M., Pertiwi, E., & Hakam, M. The effect of jasmine aromatherapy relaxation towards sleeping quality for elderly at elderly association. e-Jurnal Pustaka Kesehatan. 2018; 6(3).
7. Ramadhan, M. R., and Zettira, O. Z. Lavender flower *(Lavandula angustifolia)* aromatherapy in lowering the risk of insomnia. Majority. 2017; 6: 60–63.
8. Setianto, D., Indhit Tri Utami, and Ayubbana, S. Effect aromatherapy essential oil pappermint against reduction of respiratory rate in patient with pulmonary tuberkulosis. Jurnal Cendikia. 2021; 1(2):223–230).
9. Katil, D. N. O., & Aisya, M. W. Application of the role of aromatherapy variations in reducing pain and anxiety levels in maternity. Jurnal ilmiah umum dan kesehatan, 4(2); 97–109. 2019.
10. Fadhilah, N., & Madiyanti, D. A. Fadhilah, Madiyanti, Yaralika. Stress coping mechanisms in tuberculosis patients. E-journal UMRI. 2014:15-23
11. Zanita. Pulmonary TB Management. *Jurnal Kesehatan*. 2019; *53*(9): 1689–1699.
12. Syah, A., Pujiyanti, D., & Widyantoro, T. The effectiveness of peppermint oil in toddlers with ineffective airway problems. Universitas Muhammadiyah Magelang. 2019: 4–11.
13. Yunik Windarti, Fitria Dwi Anggraini, Hinda Novianti. The effect of lavender aromatherapy on the incidence of dyspareunia in post partum mothers. Bali Med J. [Internet]. 2023 Apr. 26 [cited 2023 Apr. 30];12(2):1316-9. Available from: https://balimedicaljournal.org/index.php/bmj/article/view/4313.
14. Purnama Y, Dewiani K, Rahmawati S, Yusanti L, Yulyani L. The effectiveness of roll-on aromatherapy of calamansi orange peel essential oil (Citrofortunella microcarpa) on reducing anxiety and pain in labor. Bali Med J. [Internet]. 2023 Feb. 13 [cited 2023 Apr. 30];12(1):699-703. Available from: https://balimedicaljournal.org/index.php/bmj/article/view/4047.
15. Anggraini FD, Abidah SN, Rahayu EP, Nisa F. Effect of aromatherapy blend essential oils (lemongrass and lemon) on sleep quality in pregnant women's third trimester. Bali Med J. [Internet]. 2022 Sep. 9 [cited 2023 Apr. 30];11(3):1099-102. Available from: https://balimedicaljournal.org/index.php/bmj/article/view/3453