

INSOMNIA LEVELS IN ELDERLY AT GRIYA SANTO YOSEF AND PANTI SURYA BEFORE AND AFTER THE LAVENDER AROMATHERAPY TREATMENT

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ABSTRACT

Introduction: The process of aging that occurs in elders will decrease their physiology functions, such as their lack of sleep, both timewise and quality-wise. This situation will cause sleep problems in elders, such as insomnia. Insomnia could be treated by using both pharmacology and non-pharmacology. Lavender aromatherapy treatment is one of the non-pharmacology relaxation therapies that could help manage insomnia in older adults.

Aim: Knowing the difference of insomnia levels before and after the lavender aromatherapy treatment in elders.

Methods: This examination is using Quasi Experiment of the treatment group and the control group. Furthermore, the idea of this experiment is to use a pre-test and post-test control group design approach. For sample earnings, consecutive sampling technique is used by picking a sample that is qualified for inclusion criteria, and that is not included in the exclusion criteria. Thus, the minimum sample could be fulfilled. The statistics test is using a Chi-Square test.

Result: The result of insomnia level before and after aromatherapy treatment using the Chi-Square analysis ($p=0,000$) shows that there is a difference that is due to the intervention. In the treatment group, there were 14 participants with mild insomnia and seven participants with severe insomnia. The result shows that 14 participants did not have insomnia, and seven other participants have mild insomnia. Meanwhile, the control group shows no difference in their insomnia, but decreasing in their score.

Conclusion: Elders with lavender aromatherapy treatment for one week have shown declining insomnia level from severe to mild, and for the mild level of insomnia problems become cured, However, those who were given placebo shows no difference.

Keywords: Elders, Insomnia, Lavender Aromatherapy

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INTRODUCTION

Aging is a natural condition in every person's life that indicates that the person has passed through three stages of life. This is a life-long process that will continue from the beginning to the end of the life phase. This process will cause a decrease in the physical, psychological, or social function of aging people; thus, the elderly became codependent ⁽¹⁾. The definition of the elderly according to Government Regulation of the Republic of Indonesia Number 43 of 2004 is a person who has reached the age of 60 (sixty) years old and above. The percentage of the elderly population in 2018 is 8.53% in Surabaya ⁽²⁾.

The aging process causes declining of many functions in the elderly. One of these functions is a physiological function. One of the declines in physiological function that occurs in the elderly is a decrease in the need and quality of sleep ⁽³⁾. At the age that is getting older, there will be changes in the sleep quality that causes the sleep phase of the Rapid Eye Movement (REM) to start shortening. The decrease in sleep quality and quantity of sleep that occurs in the elderly will cause sleep disturbance problems, namely insomnia. The insomnia is a sleep disorder commonly found and can be interpreted as a subjective perception of difficulties in starting sleep, staying asleep, waking

earlier, and excessive drowsiness. People living with insomnia in getting good quality and quantity of sleep will cause a decrease in their quality of life ⁽⁵⁾.

Various therapies can be sought in dealing with insomnia problems that occur, either in the elderly or the community in general. Treatment can be given in the form of pharmacological and non-pharmacological therapies that can improve the quality and quantity of sleep in patients with insomnia ⁽⁶⁾. One of the non-pharmacological approaches is using aromatherapy lavender flowers (*Lavandula angustifolia*), which can provide a relaxing effect. The main content of aromatherapy lavender flowers (*Lavandula angustifolia*), which serves as a sedative effect in reducing the risk of insomnia is linalool ⁽⁷⁾.

Previous studies conducted by Sari D. in 2018 stated that there was an influence of lavender aromatherapy on the sleep quality of the elderly with p-value of 0,000⁽⁸⁾. This study will be made different from the previous studies as listed in the originality Table 2.4 in terms of the method of providing lavender aromatherapy and the location of samplings, such as Griya Santo Yosef and Panti Surya. Based on the results of a survey conducted by writers, there were no similar studies that have been conducted there. The purpose of this study

determined whether there was a change in the degree of insomnia in the elderly before and after the administration of lavender aromatherapy in the elderly at Griya Santo Yosef and the Panti Surya Nursing Home.

METHODS

This study used a Quasi Experiment research design (quasi-experimental) by treatment and control groups. The treatment group would be given lavender aromatherapy (*Lavandula angustifolia*), while the control group would not be given aromatherapy but a placebo. The design of this study used a pre-test and post-test control group design approach in providing lavender aromatherapy treatment (*Lavandula angustifolia*). The purpose of this study is to determine the effect of lavender aromatherapy (*Lavandula angustifolia*) on the degree of elderly insomnia before and after treatment. The data collection was conducted by measurement before being given lavender aromatherapy (*Lavandula angustifolia*) and after being given lavender aromatherapy (*Lavandula angustifolia*) for a week.

The sample in this study was all the elderly in the Griya Santo Yosef and Panti Surya in 2019 who fulfilled the inclusion criteria and were not included in the exclusion criteria. The sampling technique

used in this study was Consecutive Sampling, which was taking samples that fit or fulfill the inclusion criteria and were not included in the exclusion criteria until the minimum sample size was met.

The inclusion criteria set by the writers in this study were older people aged 60-85 who have insomnia were able to communicate well (able to speak fluently and answer questions), such as the aromatherapy lavender (*Lavandula angustifolia*) given, willing, and able to follow the lavender (*Lavandula angustifolia*) aromatherapy administration program for one week. The exclusion criteria were the elderly experiencing insomnia but were not willing to be the respondents and did not prefer the aroma of lavender aromatherapy, the elderly who were experiencing respiratory disorders or had a history of respiratory disease, and the elderly who took sleeping pills or drugs that caused the sedative effects.

RESULTS

Table 1. Basic Characteristics of Research Subject based on Age

Age	Frequency (n)	Percentage (%)
Elderly (60-74 y/o)	22	52.3%
Old (75-90 y/o)	20	47.7%
Total	42	100%

Table 1 showed the basic characteristics of research subject based on age according

to the age classification from World Health Organization (WHO).

Table 2. Basic Characteristics of Research Subject based on Sex

Sex	Frequency (n)	Percentage (%)
Male	25	83.3%
Female	7	16.7%
Total	42	100%

Table 2 showed the basic characteristics of study subject based on sex in the elderly both on the treatment and control group.

Table 3. Distribution Table of Insomnia Degree

Insomnia Degree	Frequency (n)	Percentage (%)
Moderate	28	66.7%
Severe	14	33.3%
Total	42	100%

Table 3 showed the respondents' distribution in the treatment and control group based on the distribution of insomnia degrees according to the KSPBJ questionnaire.

Table 4. Respondents Distribution based on Age according to WHO Classification and Insomnia Degree

Age	Frequency (n)		Total
	Moderate	Severe	
Elderly (60-74 y/o)	19	3	22
Old (75-90 y/o)	9	11	20
Total	28	14	42

Table 4 showed the respondents' distribution based on age and insomnia

degree, which was experienced by the treatment and control group.

Table 5. Respondents Distribution based on Sex and Insomnia Degree

Sex	Moderate	Severe	Total
Male	21	14	35
Female	7	0	7
Total	28	14	42

Table 5 showed the respondents' distribution based on sex and insomnia degree, which was experienced by the elderly on the treatment and control group.

Table 6. The Result of Aromatherapy Administration on the Treatment Group

Treatment Group	Pre-Test		Post-Test	
	Score	Degree	Score	Degree
1A	23	Moderate	17	No
2A	27	Moderate	19	No
3A	21	Moderate	15	No
4A	26	Moderate	19	No
5A	21	Moderate	14	No
6A	21	Moderate	14	No
7A	21	Moderate	15	No
8A	23	Moderate	18	No
9A	20	Moderate	13	No
10A	23	Moderate	18	No
11A	30	Severe	22	Moderate
12A	31	Severe	24	Moderate
13A	29	Severe	21	Moderate
14A	29	Severe	21	Moderate
15A	28	Severe	20	Moderate
16A	25	Severe	19	No
17A	23	Moderate	18	No
18A	24	Moderate	19	No
19A	20	Moderate	14	No
20A	29	Severe	21	Moderate

21A	30	Severe	21	Moderate
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Table 6 showed the result of insomnia degree, which was acquired by the treatment group after and before the administration of lavender aromatherapy during a week and measured by using insomnia questionnaire, namely KSPBJ-IRS

Table 7. The Result of Aromatherapy Administration on the Control Group

Control Group	Pre-Test		Post-Test	
	Score	Degree	Score	Degree
1B	21	Moderate	20	Moderate
2B	27	Moderate	25	Moderate
3B	23	Severe	22	Moderate
4B	29	Severe	28	Severe
5B	30	Moderate	28	Severe
6B	23	Moderate	21	Moderate
7B	23	Moderate	22	Moderate
8B	25	Moderate	23	Moderate
9B	21	Moderate	20	Moderate
10B	22	Moderate	20	Moderate
11B	27	Moderate	24	Moderate
12B	22	Moderate	20	Moderate
13B	21	Moderate	20	Moderate
14B	25	Moderate	22	Moderate
15B	23	Moderate	20	Moderate
16B	21	Moderate	20	Moderate
17B	27	Severe	24	Severe
18B	22	Severe	20	Severe
19B	26	Severe	25	Severe
20B	34	Severe	31	Severe
21B	28	Severe	26	Severe

Table 7 showed the result of insomnia degree, which was acquired by the control group before and after treatment (only given placebo without lavender essential oil) during a week and measured by using insomnia questionnaire, namely KSPBJ-IRS.

Table 8. The Result Analysis of Pre-test and Post-test.

Insomnia Degree	Pre-Test Result				P Value
	Control		Treatment		
No Insomnia	0	0%	0	0%	1.000
Moderate Insomnia	14	66.7%	14	66.7%	
Severe Insomnia	7	33.3%	7	33.3%	
Total	21	100%	21	100%	
Insomnia Degree	Post-Test Result				P Value
	Control		Treatment		
No Insomnia	0	0%	14	66.7%	0.000
Moderate Insomnia	14	66.7%	7	33.3%	
Severe Insomnia	7	33.3%	0	0%	
Total	21	100%	21	100%	

Table 8 showed the result analysis of the pre-test and post-test.

Table 9. The Result Analysis of Pre-test and Post-test.

Insomnia Score	Group				P Value	OR Value
	Control		Treatment			
Above 19	21	100%	11	52.4%	0.000	0.3444 C195% 0.213-0.555
Under 19	0	0%	10	47.6%		
Total	21	100%	21	100%		

Table 9 showed the result analysis of lavender aromatherapy administration that was measured by the Chi-Square Test.

DISCUSSION

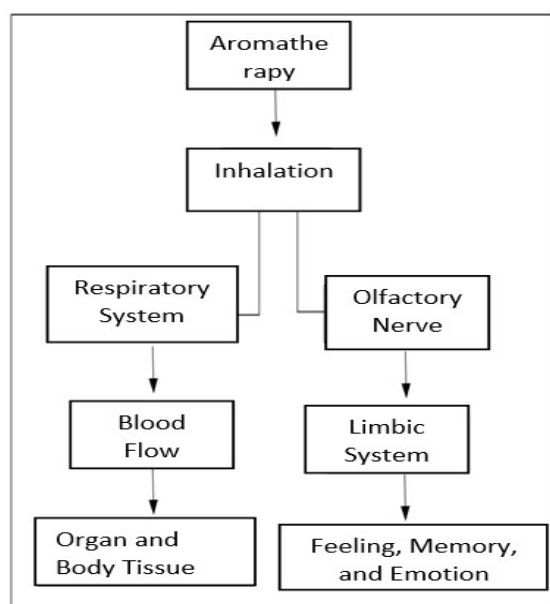
This study is divided into two groups, namely the treatment group consisting of 21 respondents and the control group consisting of 21 respondents; thus, the total respondents in this study were 42 respondents. The treatment group was given treatment in the form of lavender aromatherapy for a week to each respondent. In contrast, the control group was not given lavender aromatherapy only for a week for each respondent. After a week of treatment, the degree of insomnia was measured again with the same questionnaire at the beginning before the treatment, such as the KSPBJ questionnaire in both groups.

In the treatment group, it was found that there was a decrease in the degree of insomnia from initially mild to mild and mild to insomnia. In the control group, which also numbered 21 people, it was found that there was a decrease in insomnia score, but still in the same degree as at the beginning before being treated for a week. This phenomenon can occur due to the control group was given only water in the diffuser; thus, there were no active substances that help in providing a sedative effect. In the treatment group, there was a decrease in degree because the diffuser was contained not only water but also given lavender essential oil, which has an active substance that can help in improving sleep quality.

From the results of the study, it was found that the value of $p = 0,000$, which was tested by using the Chi-Square Test, indicated a significant result. There was a decrease in the degree of insomnia in each respondent in the treatment group.

Lavender has an active ingredient; one of them is linalool. Lavender aromatherapy inhaled by people with insomnia will deliver the active substance from lavender in the form of linalool to enter the nose. The mechanism of action of aromatherapy inhalation, when inhaled by the nose,

will pass two processes in the body through the respiratory system and olfactory nerves^{6,7,8}.



When lavender aromatherapy is inhaled, the active ingredient of linalool will partly enter the respiratory system, which will then be absorbed by blood vessels and circulate in the blood, they will be distributed to organs, and body tissues, one of them is the brain. After that, it passed into the hypothalamus-thalamus and worked on the GABA receptor, which has the effect of increasing the activation of GABA (Gamma Amino Butyric Acid) by its neurotransmitters which in turn causes an increase in the frequency of the Cl-channel operation. The open Cl-channel causes many Cl-ions to enter the cell; hence, the cell will become more negative. Conditions that occur in cells will further inhibit the delivery of action

potentials, which in turn will cause a relaxing and sedating effect. After that, some of the other active substances that are inhaled will also be processed into the olfactory nerve that is passed on to the limbic system as a center for feelings, emotions, and memories; thus, the perception of calm and relaxation can arise that can improve sleep quality. This explanation is why lavender aromatherapy can play a role in improving sleep quality; it can also handle the condition of insomnia and reduce the degree of insomnia that occurs in the elderly⁹.

CONCLUSION

There is a significant difference in the elderly who are treated by lavender aromatherapy for a week, naturally decreasing the degree of insomnia from severe to mild and mild to not insomnia. In contrast, in the elderly who are only given a placebo, there is no natural reduction in the degree of insomnia score.

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