

## Effects of Lavender Aromatherapy on Students' Anxiety during Emergency Maternal and Neonatal Final Exams

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### ABSTRACT

#### Article Info

#### Article History:

Received: 7 April 2025

Revised: 15 Juni 2025

Accepted: 20 August 2025

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#### DOI :

<https://doi.org/10.37362/chc.v9i2.15>

P- ISSN : [2722-1563](#)

E- ISSN : [2580-7137](#)



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**Background:** Anxiety in students is usually something that is considered threatening such as the implementation of the final semester exam (UAS). Approaching the UAS schedule, students begin to feel restless, especially in compulsory courses. Anxiety affects several organs such as visceral and motoric, as well as thoughts, perception, and learning. Therefore, anxiety can inhibit cognitive function which affects performance during exams. Complementary medicine is currently becoming a hype, because of a paradigm shift, namely treatment that prioritizes non-pharmacological therapy, to reduce the side effects of chemical drugs. **Objective:** Effects of Lavender Aromatherapy on Students' Anxiety during Emergency Maternal and Neonatal Assessments The study's goal was to examine the impact of using lavender aromatherapy on students' anxiety during the maternal and neonatal emergency health examination. **Methods:** Research method with a single group pre-test and post-test design, the research is a quasi-experiment. There were 38 students in the research sample who met the inclusion criteria. **Results:** The results of the Wilcoxon p-value test analysis 0.000 means parently students' anxiety levels before the maternity and neonatal emergency health exam are affected by the use of lavender aromatherapy. **Conclusions and Suggestion:** According to the study's findings, students' anxiety levels before final exams can be decreased by using lavender aromatherapy.

**Keywords:** Lavender Aromatherapy, Anxiety, Complementary Therapy

### INTRODUCTION

Midwifery education is the start of creating professional midwives. It is the beginning and key part that affects the quality of midwives and midwifery services in Indonesia (Mutmainnah, 2024b). In every learning activity process, there is an evaluation. The purpose of evaluation is to check how much progress students have made or what they have learned. When evaluation is done properly and accurately, it can help improve the quality of learning and the results students achieve. This is because evaluation helps students understand how to learn better (Ananda Maha Putri, 2024). Students frequently face demands in a variety of contexts in their daily lives. Students' evaluations of these expectations vary some view them as challenges, while others see them as potential

sources of conflict. When a person's circumstances change, they may feel anxious, afraid, worried, and restless because they perceive dangers from both inside and outside of themselves (Sugiharno et al., 2022). Besides that More women are likely to experience anxiety because of emotional issues and they tend to be more sensitive than men. It is also known that all midwifery students are women (Sulistiyani & Hertinjung, 2024). So this is one of the reasons why midwifery students often feel very anxious.

Anxiety is a state of emotional condition of a person who is feeling uncomfortable which arises because someone feels worried, which affects physical conditions such as increased blood pressure, cold sweat, increased pulse rate, to a fast beating heart (Riska, 2021). The emergence of anxiety in students is usually something that is considered threatening such as the implementation of the final semester exam (UAS). Approaching the UAS schedule, students begin to feel restless, especially in the compulsory courses for their study program because this will have an impact on the output of student performance later. Maternal and neonatal emergency courses are a required part of the midwifery program. Midwifery students must complete this course. In addition to these emergency courses, there is another course that focuses on complex situations that happen during pregnancy, labor, after childbirth, and in newborns and young children. These situations need quick and careful handling (Amellia Sylvi Wafda Nur, 2019).

Anxiety affects several organs such as visceral and motoric, as well as thoughts, perception, and learning. Therefore, anxiety can inhibit cognitive functions that affect performance during exams. (According to Valerie, 2014) The prevalence of anxiety itself is 6%-66.5%, many studies have shown that anxiety will increase if students are at a higher level (Al, 2019). Prevalence of anxiety events (According to WHO, 2021) Anxiety increased drastically in 2021 from 53.2 million to 76.2 million cases of anxiety with 51.8 million cases experienced by women and 24.4 million cases experienced by men. Younger ages are also more affected by anxiety disorders than older ages. The age group of 20 to 24 years old has the highest prevalence of this anxiety illness, with 1,331 new instances per 100,000 people (Gustina et al., 2023).

One effort that can be made to reduce anxiety in students is to provide complementary therapy, therapy that applies non-pharmacological treatment, namely lavender aromatherapy. Aromatherapy is a method of treating illness by using smells, which are usually taken from plants and have a pleasant, nice scent. These smells are called essential oils. Lavender is a flower that is pinkish purple in color and has a special,

gentle smell that can help people feel calm when they breathe in its fragrance (Siti Salma Nur Anisya et al., 2023).

Aromatherapy is a complementary treatment technique using pure essential oils extracted from plants. The effects of aromatherapy can increase calmness, reduce anxiety, and provide a relaxing effect for its users (Mutmainnah, St. Malka, Musni, 2024). It because lavender oil has a compound called linalool, which is used in aromatherapy, Most methods of using it involve inhaling the scent (Sari et al., 2023). Students frequently face demands in a variety of contexts in their daily lives. Students' evaluations of these expectations vary some view them as challenges, while others see them as potential sources of conflict. When a person's circumstances change, they may feel anxious, afraid, worried, and restless because they perceive dangers from both inside and outside of themselves (Untari Sri, Nurul Kodiyah, 2022). A study conducted related to this problem conducted by (Susanti et al., 2023) indicated a drop from 57.75 to 51.31 ( $p = 0.001 < 0.05$ ) in the intervention group prior to aromatherapy. Lavender aromatherapy helps nursing students feel more relaxed when they have to take the OSCE. The decrease in anxiety occurs because one of the contents of lavender, namely linalool, has an anxyolitic (anti-anxiety) effect (Susanti et al., 2023). The purpose of this study was to analyze the effect of lavender aromatherapy on students' anxiety in facing maternal and neonatal emergency nursing exams.

## **MATERIAL AND METHOD**

The type of Quasi Experiment research with a design (One group pre-test and post-test design) on midwifery students at the Batari Toja Institute From October 2024-Februari 2025. Quasi-experimental is a way to study how a certain treatment affects a variable without randomly assigning participants. It is commonly used when it's hard to control all outside factors, like in schools, social programs, or healthcare. This type of research uses two groups one that gets the treatment and one that doesn't but the people in both groups aren't chosen by chance (Anantasia & Rindrayani, 2025).

The sampling technique uses the Purposive sampling technique, the Purposive sampling technique is a sampling technique used by researchers if researchers have certain considerations in taking their samples or determining samples for certain purposes (Santina et al., 2021). The sample in this study were students who met the inclusion criteria of the study, namely: Students who were willing to be research respondents were 38 students. The tool used to collect data in this study was the

respondent data identification sheet. At the same time, the TAI-G Anxiety questionnaire was used to measure anxiety levels, and it has been shown to be valid and reliable with an alpha score of 0.907 (Nayu, 2020).

The data that has been collected will then be analyzed using SPSS with the Wilcoxon test to see impact of lavender aromatherapy on students' test-taking anxiety. The study began by conducting observations and interviews to obtain information on what problems are often faced by fifth-semester students, after which a literature study was conducted to find scientific evidence and problem solving that could be done. Submitting proposals, planning research and conducting research on anxiety in fifth-semester students in facing the final exam by providing lavender aromatherapy.

## RESULTS

Table 1 shows that the majority of respondents in this study were 20 years old, namely 23 respondents (60.5%). Meanwhile, there were 12 respondents aged 21 years (31.6%), aged 19 years were 2 people (5.3%) and respondents aged 22 years were 1 respondents person (1%).

**Table 1. Distribution of respondents by age**

Age	Frequency (f)	Percentage %
19	2	5.3
20	28	60.5
21	12	31.6
22	1	2.6
<b>Total</b>	<b>38</b>	<b>100</b>

Table 2 shows that 38 respondents (100%) in this study were female. This is because midwifery education, especially in Indonesia, is only intended for women.

**Table 2. Distribution of respondents based on gender**

Gender	Frequency (f)	Percentage %
Female	38	100
Male	-	0
<b>Total</b>	<b>38</b>	<b>100</b>

Table 3 shows that before giving lavender aromatherapy, there were 2 students with a high anxiety level (5.3%) and 36 students with a moderate anxiety level (94.7%). Meanwhile, the anxiety level of students after being given lavender aromatherapy was 21 people (55.3%) with moderate anxiety levels, and 17 people (44.7) with low anxiety levels.

**Tabel 3. Frequency distribution of students' anxiety levels before and after being given lavender aromatherapy**

No	Anxiety Level	Frequency (f)	Percentage %
1	<b>Pre Test</b>		
	High	2	5.3
	Medium	36	94.7
	<b>Total</b>	<b>38</b>	<b>100</b>
2	<b>Post Test</b>		
	Medium	21	55.3
	Low	17	44.7
	<b>Total</b>	<b>38</b>	<b>100</b>

Table 4, after analyzing the Wilcoxon test, showed a p-value of 0.000, which means that  $H_0$  was rejected, so there was an effect of giving lavender aromatherapy on students' anxiety levels facing the ASKEB UAS for Maternal and Neonatal Emergencies.

**Table 4. Analysis of the effect of Lavender Aromatherapy on students' anxiety levels**

Anxiety Level	Frequency (f)	p-Value
Pre and Post test	38	0.000

## DISCUSSION

The results of this study show that the majority of respondents in this study were 20 years old, so based on the study, young people are on average more susceptible to anxiety. This is caused by many psychological influencing factors that are still developing and are exacerbated by the individual's poor way of dealing with problems, especially at the age of 20-25 years. This age is an adult phase where emotions are unstable, thoughts are still fluctuating, and there is fear of one's own thoughts (Amalia et al., 2023). As people get older, their maturity level increases, and this can affect how anxiety is experienced. You will develop a more mature mindset as you grow older (Sumiatun, 2018).

All respondents are female, this is because midwifery education in Indonesia is only intended for women. Apart from that, gender is one of the causes of anxiety. The estrogen hormone in women is higher than in men. It is known that the hormone estrogen increases 5-HT, which is responsible for mood disorders, as well as stopping GABA receptors, which is the main inhibitory system of the brain that functions to suppress unpleasant stimuli (Assyifa et al., 2023).

From the research results, there was a decrease in anxiety levels in students after being given lavender aromatherapy. It was proven that before being given lavender aromatherapy, 2 students had anxiety levels in the category of high or excessive anxiety and 32 of them experienced moderate levels of anxiety. However, after being given lavender aromatherapy, there were no more students who experienced excessive anxiety

and 17 of them were in the low anxiety level category. And from the results of the Wilcoxon test analysis, the p-value is 0.000, which means that there is a significant effect of giving lavender aromatherapy on students' anxiety in facing the maternal and neonatal emergency medical examination final exam. This research has important implications as an effort to prevent or reduce the anxiety faced by students when facing UAS which will of course affect student learning outcomes. Lavender aromatherapy is given 3 times with a duration of 10-15 minutes each time.

Lavender aromatherapy is a complementary therapy that applies aromatherapy therapy containing essential oils. Complementary therapy is a non-pharmacological treatment method as a companion to medical treatment, for example yoga, acupressure, Ayurveda, and aromatherapy (Siti Nurkhasanah, 2023). Several types of aromatherapy include roman chamomile, ginger, nutmeg, orange and lavender. The working mechanism of aromatherapy itself begins with the olfactory process. When inhaling aromatherapy, it begins with aroma molecules being received by the olfactory receptors. Then the scent is sent a message to the olfactory center behind the nose. From there, the aroma molecules are processed by neurons in the limbic system and then sent to the hypothalamus for processing. There, all the components of the aromatherapy compound are delivered to the forcing organs of the body (Siti Safaah, et.al; (Mutmainnah, 2024a)). The lavender plant used is the *Lavandula angustifolia* type which contains the active compound linalool which is the main ingredient to provide a relaxing effect so that it can overcome anxiety (Motulo et al., 2023). This research is in line with (Aris Setyawan, 2020) who found that lavender aromatherapy was effective in reducing anxiety facing the OSCE in nursing students. The reduction in anxiety occurred because one of lavender's ingredients, namely linalool, has an anxyolitic (anti-anxiety) effect (Setyawan & Oktavianto, 2020). Based on the results of research (Veronica & Dwiningrum, 2023), it was concluded that there was an effect of giving lavender aromatherapy on anxiety levels in DIII mid-level midwifery students at Aisyah Pringsewu University in 2021. Research done three times a week shows that using lavender aromatherapy therapy helped reduce anxiety levels, as seen in the HARS-A score. This suggests that lavender aromatherapy can be a useful way to help students manage their anxiety (Nur et al., 2024). The results obtained were a p-value of 0.000 or p-value <0.05. So it can be concluded that lavender aromatherapy is one of the complementary therapies that can be given to students to overcome anxiety.

## CONCLUSIONS

From the results of research that has been carried out, there is an effect of giving lavender aromatherapy on student anxiety in facing the ASKEB UAS maternal and neonatal emergencies among students at the Batari Toja Bone Institute (IBB). It is suggested that this research still requires a lot of further research, it is hoped that future researchers can research different variables

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