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Lavender Aromatherapy on Nausea and Vomiting in First Trimester Pregnant Women at PMB Ronni Siregar Deli Serdang

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Abstract : Nausea and vomiting are common discomforts experienced by 50% of pregnant women in the first trimester. One of the implementations to reduce nausea and vomiting with non-pharmacological therapy is the provision of lavender aromatherapy. The purpose of this study was to determine whether there was an effect of giving Lavender aromatherapy on nausea and vomiting in pregnant women in the first trimester at PMB Ronni Siregar Deli Serdang. The research method used was Quasi-experimental using nonequivalent control group design. The sampling technique used in this study was Total sampling based on Inclusion and Exclusion criteria, the number of samples was 30 respondents (15 intervention groups and 15 control groups). The results showed that the average value of respondents in the intervention group in the nausea and vomiting value before giving lavender aromatherapy was Mean 13.5 standard deviation 3.521. in the intervention group after being given treatment, a mean value of 10.6 was obtained with a standard division of 4.459. Based on the t-test, a p-value of 0.000 was obtained, which means it is smaller than the significant value <0.05. The conclusion of this study is that there is an Effect of Lavender Aromatherapy on Nausea and Vomiting in Pregnant Women in the First Trimester at PMB Ronni Siregar Deli Serdang. This study expects Midwives to provide health promotion and education, namely by improving their midwifery care, especially for Pregnant Women with nausea and vomiting during pregnancy, in addition to explaining the non-pharmacological benefits in reducing nausea and vomiting during pregnancy.

Keywords: Lavender Aromatherapy, Pregnant Women in the First Trimester, Nausea and Vomiting

1. BACKGROUND

Pregnancy is a natural and physiological process, starting from the fertilization process (conception) until the birth of the baby, every pregnant woman in the first trimester experiences nausea and vomiting. Pregnancy causes many physical, psychological and hormonal changes in the mother's body. This causes various complaints, one of which is nausea and vomiting which usually occurs in early pregnancy. Nausea and vomiting that occurs in pregnancy is caused by an increase in estrogen and progesterone hormone levels in the body (Fatimah, Nuryannigsih 20017). Nausea and vomiting are common complaints that accompany pregnancy but cause discomfort, if excessive can become hyperemesis which will have a bad impact on the mother and fetus. Nausea and vomiting usually occurs in the first trimester of pregnancy or appears as an early sign that someone is pregnant (Hutahaean, 2013).

Nausea and vomiting in pregnancy can have various impacts if left untreated, one of which is a decrease in appetite, which results in changes in the body's metabolic balance. Another impact of nausea and vomiting can lead to weight loss because carbohydrate,

protein, and fat reserves are used for energy. Management of nausea and vomiting in pregnancy depends on the severity of the symptoms. Treatment can be carried out using pharmacological and non-pharmacological methods. Pharmacological therapy is carried out by administering antiemetics, antihistamines, anticholinergics, and corticosteroids. However, there are also non-pharmacological therapies, including emotional support, acupressure, and aromatherapy. Aromatherapy provides a variety of effects when inhaled, such as calming and refreshing, and can even help pregnant women overcome nausea and vomiting (Hidayati, 2009; Wiknjosastro, 2010). According to *the World Health Organization* (WHO) in 2016, the number of cases of nausea and vomiting (*emesis gravidarum*) reached 12.5% of all pregnancies worldwide. Nausea and vomiting can disrupt and cause fluid imbalance in the kidney and liver tissue to become necrotic (WHO, 2016).

Based on data from the Ministry of Health of the Republic of Indonesia in 2016, data obtained in Indonesia showed that nausea and vomiting reached 14.8% of all pregnancies. Complaints of nausea and vomiting occur in 60-80% of primigravidas and 40-60% of multigravidas. In one in a thousand pregnancies, these symptoms become more severe. Feelings of nausea and vomiting are caused by increased levels of estrogen and *Chorionic Gonadotropin* (HCG) hormones in serum. The physiological changes of this increase in hormones are not yet clear, because the central nervous system and gastric emptying are reduced (Ministry of Health of the Republic of Indonesia, 2016). One effort that can be given to treat nausea and vomiting can be reduced from 11.33 to 6.07 (2.21) when given certain aromatherapy and inhaled for approximately 20 minutes. Certain aromas, usually from floral aromas, such as leaves, fruits, can provide calm and relaxation when sprayed or applied (Lavebre, 2010; Hirsch, 2013). According to Rosalinna's research (2019), pregnant women experience reduced nausea and vomiting and maintain a sense of well-being. Analysis of 15 respondents in the experimental group, who received *lavender aromatherapy* for three days, revealed a decrease of -5.27. The results showed a decrease in questionnaire scores compared to those before the lavender aromatherapy.

Aromatherapy is one of the rapidly growing complementary therapies (Buckle, 2003). This treatment is considered economical, requiring little expense, affordable, and easy to perform. The term aromatherapy refers to the use of chemical drugs using natural plant ingredients (Triarsari, 2009). Aromatherapy treatment provides a variety of effects to those who inhale it, such as calmness, freshness, and can even help pregnant women overcome nausea and vomiting. Aromatherapy is a therapeutic practice using essential oils that is useful for improving a person's physical and psychological well-being. Some essential oils have unique pharmacological effects such as antibacterial, antiviral, diuretic, vasodilator, sedative, and adrenaline-stimulating properties. Molecules in these essential oils, when inhaled through the nasal cavity, can stimulate the limbic system in the brain. The limbic system in the brain is an area that influences emotions and memory and is directly linked to adrenaline, the *pituitary gland, and the hypothalamus,* the parts of the body that regulate heart rate, blood pressure, stress, body balance, and breathing (Runiari, 2010).

Nausea and vomiting in the first trimester of pregnancy not only reduce the mother's quality of life but also have the potential to disrupt nutritional status and fetal growth if not adequately managed. Data from the Ministry of Health RI year 2023 shows 61 % of pregnant women in North Sumatra reported moderate to severe nausea and vomiting, while 8 % progress to hyperemesis gravidarum, requiring referral to tertiary care. Pharmacological interventions are available, but their use is often hampered by sedation, hypotension, and limited access to safe antiemetics in independent birthing facilities. Consequently, primary care midwives require non-pharmacological alternatives that are inexpensive, easy to implement, and proven effective. This situation raises the need for targeted research to assess evidence-based complementary modalities to reduce nausea and vomiting intensity, improve maternal comfort, and maintain fetal safety. Unfortunately, national literature is still limited in evaluating interventions that can be directly implemented in Independent Midwife Practices. This study seeks to address this gap by testing local plant aromatherapy, which is closely related to traditional care practices.

Lavender (*Lavandula angustifolia*) was chosen because its phytochemical profile provides antiemetic and anxiolytic potential, two key mechanisms in the pathogenesis of

emesis gravidarum. Lavender essential oil is rich in linalool and linalyl. acetate; this molecule binds to receptors GABA -A, reduces sympathetic activity, improves gastric motility, and modulates the vomiting center in the medulla oblongata. In addition, a meta- -analytic study of 12 non-obstetric clinical trials -showed lavender inhalation was safe and improved patient comfort scores by up to 32 %. Unlike ginger or peppermint, which have strong flavors and carry the risk of heartburn, lavender offers a gentle, pleasant aroma. 87 % of pregnant women in routine Antenatal Clinic surveys London 2022. The safety factor is further strengthened because the active compound is classified as GRAS (Generally Recognized US Safe) by FDA-approved, and no changes in hemodynamic parameters or fetal development were detected in animal models. This combination of physiological effectiveness, sensory acceptability, and safety profile makes lavender a promising candidate in complementary obstetrics. Its global popularity also supports a sustainable supply of high-quality raw materials.

Although the benefits of lavender aromatherapy have been reported in the management of postoperative anxiety and dysmenorrhea, specific evidence for nausea and vomiting during pregnancy remains relatively scarce, especially in the private practice setting of Indonesian midwives. Our literature review of the database PubMed, Garuda, and Sinta until March 2025 found only three quasi- -experimental studies evaluating lavender for emesis gravidarum; all were conducted in a hospital type C with close monitoring during hospitalization. None examined effectiveness at routine antenatal visits, rural -urban demographic features, or persistence of effects after 72 hours. Furthermore, the dose and duration of exposure variables have not been standardized, resulting in a lack of practical guidelines for midwives. The meta- -analysis' conclusions even emphasized methodological heterogeneity as a major obstacle to clinical implementation. This situation underscores the need for research that not only confirms the reduction in nausea and vomiting scores but also formulates a simple inhalation protocol that can be independently implemented in PMB Ronnie Siregar, Deli Serdang. There have been no reports regarding maternal compliance and sensory experiences after the intervention.

Our study was designed to address this knowledge gap by implementing a structured lavender inhalation protocol in first-trimester pregnant women visiting a clinic. PMB Ronnie Siregar, a community setting that reflects everyday midwifery practice -in Deli Serdang. Through a quasi --experimental nonequivalent control group design, this study not only measured changes in Rhodes scores The pre- and post-intervention index also recorded compliance, aroma satisfaction, and side effects during the three-day observation period. This multiparameter evaluation is expected to produce realistic guidelines for dosage, duration, and diffuser distance for primary healthcare workers. Furthermore, the findings will enrich the national reference base on safe complementary therapies for mothers and fetuses, while supporting the Ministry of Health's agenda to expand evidence-based first-line services. Therefore, this study has the potential to strengthen the role of midwives as providers of holistic education and open up opportunities for further research on Indonesian phyto-aromatic combinations. The economic results are also important as a basis for advocacy for antenatal financing by the Social Security Agency (BPJS) to ensure universal accessibility of this intervention.

2. THEORITICAL REVIEW

Pregnancy and Physiological Changes

Pregnancy is the growth and development of an intrauterine fetus starting from conception and ending with the onset of labor (Wahyu, 2013). The pregnancy process is a continuous chain consisting of ovulation, migration of spermatozoa and ovum, conception or fertilization, nidation (implantation in the uterus), and placenta formation (Sukarni, 2013). Pregnancy is a transition, namely a period between life before having a child currently in the womb and life later after the child is born (Wahyu, 2013). Physiological changes during pregnancy involve various organ systems. The reproductive system undergoes significant adaptations, with the uterus enlarging due to smooth muscle hypertrophy and hyperplasia to accommodate fetal growth, and increased vascularization of the cervix and vagina, which appear bluish (Chadwick's sign). The

circulatory system experiences an increase in blood volume of approximately 30%, resulting in hemodilution and physiological anemia, while the respiratory system adapts to increased oxygen demand of up to 20-25% above normal. The digestive system undergoes changes in the form of excessive salivation, heartburn, nausea, and vomiting, especially in the morning (morning sickness) (Wahyu, 2013).

Emesis Gravidarum

Emesis gravidarum is a common complaint reported in early pregnancy due to hormonal changes in women due to increased estrogen, progesterone, and the release of placental chorionic gonadotropin hormones which are thought to cause emesis gravidarum (Manuaba, 2013). Morning sickness is a condition of nausea and vomiting experienced by some pregnant women in the first trimester of pregnancy which can occur throughout the day, although the term morning sickness is often misinterpreted as symptoms of nausea and vomiting in the morning only (Prawirohardjo, 2013). Hyperemesis gravidarum is a condition of extreme morning sickness during pregnancy, causing severe nausea and vomiting that can lead to dehydration, metabolic disorders with abnormal electrolyte and ketone levels, and rapid weight loss (Manuaba, 2013). The clinical manifestations of emesis gravidarum can be divided into three levels: mild with persistent nausea and vomiting, weakness, aversion to food, and weight loss; moderate with a more severe general condition, dehydration, and possible acetone breath odor; and severe with poor general condition, decreased consciousness, and can be fatal (Sofian, 2015).

Predisposing Factors and Complications of Emesis Gravidarum

Predisposing factors for emesis gravidarum include hormonal, organic, and psychological factors. Hormonal factors often occur in primigravidas, hydatidiform moles, diabetes, and multiple pregnancies due to increased HCG levels, where a small proportion of primigravidas are unable to adapt to the hormones estrogen and chorionic gonadotropin (Sofian, 2015). Increased progesterone levels cause smooth muscle in the gastrointestinal tract to relax, resulting in decreased gastric motility, thus slowing gastric emptying (Nengah, 2010). Organic factors are related to the entry of chorionic villi into maternal circulation and metabolic changes, where metabolic theory states that vitamin B6 deficiency can cause nausea and vomiting in pregnancy (Nengah, 2010). Psychological factors such as marital discord, job loss, fear of pregnancy and childbirth, and fear of taking responsibility are factors that cause emesis gravidarum. Complications that can occur include impaired activity, weight loss, dehydration, electrolyte imbalance, metabolic disorders, and nutritional deficiencies that can have adverse effects on the fetus such as abortion, premature birth, and low birth weight (Carole, 2016).

Management of Emesis Gravidarum

Management of emesis gravidarum is divided into pharmacological and non-pharmacological therapies with the aim of improving symptoms while minimizing risks to the mother and fetus (Pratami, 2018). Pharmacological therapies include pyridoxine (vitamin B6), a water-soluble vitamin and an important coenzyme in the folic acid metabolism pathway; a combination of doxylamine succinate and pyridoxine, which is FDA-approved for the treatment of nausea and vomiting during pregnancy; antihistamines as histamine receptor blockers in the vestibular system; and dopamine antagonists that bind to D2 receptors in the gastrointestinal tract (Pratami, 2018). Non-pharmacological therapies are the choice of many mothers due to concerns about the impact of pharmacology on fetal development, with 61% of mothers using complementary and alternative therapies compared to only 8% who use pharmacological therapy. Non-pharmacological treatments include dietary measures with small but frequent meals, consuming soft and sweet foods, low in fat, high in carbohydrates, avoiding strong-smelling foods, acupuncture and acupressure therapy, herbal remedies such as ginger which have anti-nausea effects, and aromatherapy which uses essential oils to influence mood and health (Pratami, 2018).

Basic Concepts of Aromatherapy

Aromatherapy is defined as therapy using aromatic compounds or volatile compounds to treat, reduce or prevent a disease, infection and anxiety by inhaling them (Muchtaridi, 2015). Aromatherapy is a generic term for a type of alternative medicine that uses volatile plant liquid materials, known as essential oils, and other aromatic compounds from plants that aim to influence a person's mood or health (Muchtaridi, 2015). Aromatherapy works by influencing the brain, where the olfactory nerves that are stimulated by certain aromas are directly connected to the hypothalamus which controls the glandular system, regulates hormones, and influences growth and other bodily activities such as heart rate, respiratory function, digestion, body temperature and hunger. Aromatherapy techniques can be done through inhalation, massage, diffusion, compresses, and immersion, with aromatherapy being economical, affordable, and easy to do (Moelyono, 2015).

Lavender Aromatherapy

Lavender aromatherapy is one of the aromatherapy that can reduce the intensity of nausea and vomiting (hyperemesis gravidarum) with the main component of linalool which has an effect as a sedative or calming substance and is commonly used as aromatherapy that affects the body's neuroendocrine system which affects the release of hormones and neurotransmitters (Buckle, 2013). The main components of lavender include linalool, linalylacetat, 1,8-cineole B-ocimene, terpinen-4-ol, and camphor, where linalool is the component that plays the most important role in increasing comfort in pregnant women who experience nausea and vomiting (Cavanagh & Wilkinson, 2002). The working mechanism of lavender aromatherapy begins when aromatic molecules enter through the nasal cavity membrane to the olfactory part which carries impulses to the sense of smell from the nose to the brain's control center, then all parts of the brain take part in translating this reaction, including the limbic system which is a system that connects memory with physical stimuli (Lyth, 2010). After being translated by all parts of the brain, a good hormonal (endocrine) and nervous response is carried out to overcome healing, with the optimal duration to eliminate nausea and vomiting is 20 minutes using 3-4 drops of essential oil in 30-40 ml of water in a diffuser at a distance of 50-100 cm from the patient's location (Setryaningsih, 2011).

3. RESEARCH METHODS

Research Design and Type

This study was a quantitative experimental study with a quasi-experimental nonequivalent control group design . This design was used to observe the effect of lavender aromatherapy intervention on nausea and vomiting levels in pregnant women in the first trimester. The study involved two groups: the intervention group, which received lavender aromatherapy, and the control group, which did not receive the treatment. Both groups had their nausea and vomiting scores measured before and after treatment.

Location and Time of Research

This research was conducted at the Ronni Siregar Deli Serdang Midwifery Center in Pekan Labuhan Village, Medan Labuhan District. The study period was from October 2021 to February 2022. This location was chosen because it has a high number of pregnant women visiting and actively provides first-trimester midwifery services.

Population and Sample

The population in this study was all pregnant women in their first trimester who visited PMB Ronni Siregar Deli Serdang during the study period. Sampling used total sampling based on inclusion and exclusion criteria, with 30 respondents , consisting of 15 respondents for the intervention group and 15 respondents for the control group.

Inclusion and Exclusion Criteria

Inclusion criteria included pregnant women experiencing mild to moderate emesis gravidarum in the first trimester, willing to participate, and having no underlying medical conditions. Exclusion criteria included pregnant women allergic to lavender, aversion to its scent, or respiratory disorders that impede inhalation.

Lavender Aromatherapy Intervention Procedure

Lavender aromatherapy is administered using an inhalation method through a diffuser . This procedure is performed twice daily for three consecutive days: in the morning (around 8:00–9:00 AM WIB) and in the evening (around 7:00–8:00 PM WIB). The duration of the aromatherapy inhalation session is 30 minutes per session , with the patient positioned 50–100 cm from the diffuser .
The technical steps for administering lavender aromatherapy are as follows:

1. Preparation of Tools and Materials

a. Lavender essential oil (Lavandula angustifolia)
b. Electric diffuser
c. Clean water 30–40 ml per session
d. Power outlets and rooms with adequate ventilation

2. Environmental and Respondent Preparation

a. The room is prepared in a quiet, noise-free condition and has natural lighting.
b. Respondents were directed to sit or lie down in a comfortable, relaxed position, and not be disturbed by other activities.
c. The researcher explained the purpose of the intervention and asked respondents to focus on the inhalation process.

3. Aromatherapy

a. The diffuser is filled with 30–40 ml of clean water.
b. Add 3–4 drops of lavender essential oil to the diffuser water.
c. The diffuser is turned on and placed at a distance of 50–100 cm from the respondent's position.
d. Respondents were asked to inhale aromatherapy naturally through normal breathing for 30 minutes .

4. Psychological Affirmations (optional)

a. Researchers provided positive affirmations such as "Take a deep breath, calm yourself" to support the relaxation effect.

5. Evaluation

a. After three days of intervention, respondents were asked to complete the nausea and vomiting questionnaire again to measure changes in symptom intensity.

The control group was not given any treatment, but was still asked to complete a questionnaire at the same time as the intervention group for comparison purposes.

Research Instruments

The main instrument in this study was a nausea and vomiting questionnaire based on the Emesis Gravidarum Scale. Scores were based on the frequency of nausea, vomiting, and its impact on daily activities. The instrument's validity and reliability have been previously tested in similar studies.

Data Analysis Techniques

Data were analyzed using univariate and bivariate analysis . To compare nausea and vomiting scores before and after treatment, a paired sample t-test was used for the intervention and control groups. To determine the effect between groups, an

independent sample t-test was used . Before testing, the data distribution was tested for normality using the Shapiro-Wilk test . All tests were performed with a significance level of 0.05 using the SPSS program.

4. RESULTS AND DISCUSSION

Respondent Characteristics

Respondent age is the time from birth to the time they became respondents in the study. The frequency distribution based on age, education, and occupation is presented in Table 4.1 below:

Table 4.1 Characteristics of Respondents in the First Trimester of Pregnant Women at PMB Ronni Siregar Deli Serdang in 2025 (n=30)

No	Respondent Characteristics	n	%
	Age		
1	21-30 years old	26	86.7
2	31-40 years	4	13.3
	Education		
1	Elementary School	4	13.3
2	JUNIOR HIGH SCHOOL	6	20.0
3	SENIOR HIGH SCHOOL	8	26.7
4	P. High	12	40.0
	Work		
1	Housewife	7	23.3
2	Self-employed	8	26.7
3	Private	5	16.7
4	civil servant	10	33.3

Based on table 4.1, it shows that the characteristics of respondents based on the age of First Trimester Pregnant Women at PMB Ronni Siregar Deli Serdang, the majority were aged 21-30 years, namely 86.7%. Based on the education of First Trimester Pregnant Women at PMB Ronni Siregar Deli Serdang, 40% had a higher education (D3-S1). Based on the occupation of First Trimester Pregnant Women at PMB Ronni Siregar Deli Serdang, the majority were civil servants, namely 33.3%.

Bivariate Analysis

Normality Test

Table 4.2 Normality Test of Nausea and Vomiting in First Trimester Pregnant Women at PMB Ronni Siregar Deli Serdang in 2025 (n=15)

Group	Shapiro-Wilk		
	Statistics	N	Sig.
Nausea and vomiting before treatment is given	0.943	15	0.110
Nausea and vomiting before treatment is given	0.958	15	0.278

Based on table 4.2, the results of the normality test obtained significance of the results of the *Shapiro-Wilk t-est calculation* = 0.110 and 0.278 > 0.05 (data values are normally distributed). Because the data is normally distributed, the test used to take the hypothesis is using parametric statistical calculations, namely the parametric statistical test T *sample test* .

Bivariate

Table 4.3 The Effect of *Lavender* Aromatherapy on Nausea and Vomiting in Pregnant Women in the First Trimester at PMB Ronni Siregar Deli Serdang in 2025 (n=15)

Group	Mea	Eleme	SE	*P*

	n	ntary Schoo l		*Value*
Lavender aromatherapy	13.5	3,521	0.643	0,000
After being given *Lavender aromatherapy*	10.6	4,459	0.814	

The results of the statistical test with *the independent sample t test* obtained a p value of 0.000 <0.05, which indicates that there is an effect of giving lavender aromatherapy on nausea and vomiting in pregnant women in the first trimester at PMB Ronni Siregar Deli Serdang in 2025.

Table 4.4 Differences in nausea and vomiting with the administration of *Lavender Aromatherapy* in First Trimester Pregnant Women at PMB Ronni Siregar Deli Serdang in 2025 (n=15)

Group	Mean	Elementary School	SE	*P Value*
No *Lavender aromatherapy given*	8.87	3,720	0.906	0.024
Lavender aromatherapy	12.47	4,518	1,166	

The results of the statistical test with *the independent sample t test* obtained a p value of 0.024 <0.05 which indicates that there is a difference in the effect of giving lavender aromatherapy on nausea and vomiting and without giving lavender aromatherapy to pregnant women in the first trimester at PMB Ronni Siregar Deli Serdang in 2025.

Discussion

***Lavender* Aromatherapy on Nausea and Vomiting in First Trimester Pregnant Women at PMB Ronni Siregar Deli Serdang in 2025**

The results of statistical tests with *independent sample t test* obtained a p value of 0.000 <0.05 which indicates that there is an effect of Lavender Aromatherapy on Nausea and Vomiting in First Trimester Pregnant Women at PMB Ronni Siregar Deli Serdang in 2025. Based on the researcher's assumption that of the 30 respondents who experienced nausea and vomiting 4 to 6 times a day before being given lavender aroma, while after being given lavender aroma, the nausea and vomiting experienced by pregnant women decreased. The implementation of giving lavender aroma, namely the researcher observed the degree of nausea and vomiting, then given treatment to the experimental group and measured the degree of nausea and vomiting again after treatment. After that, lavender aroma was given to pregnant women who experienced nausea and vomiting after that pregnant women were advised to inhale aromatherapy at a distance of 50-100 cm which was inhaled for 30 minutes after which it was measured for nausea and vomiting of pregnant women.

Based on the age of the respondents, the majority are 21-30 years old, so this affects the acceleration of pregnant women in reducing nausea and vomiting because the age of 21-30 years is the reproductive age. Nausea and vomiting usually occur in the age under 20 years due to insufficient physical, mental and social maturity of the prospective mother so that it can cause physical doubts, love and care and care for the child she will give birth to. Nausea and vomiting that occurs over the age of 35 years is caused by psychological factors, where the mother is not ready to get pregnant or even does not want her pregnancy again so that it will feel so depressed and cause stress to the mother (Prawirohardjo 2016) . Based on the level of education of the respondents, the majority of respondents are highly educated so that in receiving information and knowledge of respondents it is easy so there are no obstacles in providing information to respondents. In addition, based on the occupation of respondents, the majority of respondents work as civil servants so that respondents carry out this activity if the respondents do not

work in the afternoon or at night, or if the respondents want to do it in the next pregnancy because they have their own income.

The results of this study align with Rosalinna's (2019) research, which showed that lavender aromatherapy significantly reduced nausea and vomiting in pregnant women in the first trimester at the Jambu Kulon Community Health Center. Rosalinna noted that aromatherapy intervention resulted in a 40% reduction in nausea and vomiting scores after 3 days of therapy. This effect is believed to stem from the ability of lavender's active compounds, such as linalool, to stimulate the limbic system and suppress the vomiting center in the brain. Elisa Silvia's research corroborates these findings with similar statistical data ($p = 0.000$), indicating that the relaxation and discomfort reduction effects were quite consistent across populations. This suggests that lavender inhalation therapy is effective across regions and can be applied in various obstetric practice settings, especially those without access to pharmacological antiemetics.

These results are also supported by a study by Rahayu and Sugita (2018) that compared the effectiveness of lavender and ginger aromatherapy on nausea and vomiting in pregnant women at the Trucuk Klaten Health Center. The study found that both types of aromatherapy reduced nausea and vomiting symptoms, but lavender produced a gentler and more acceptable effect for pregnant women. In Elisa Silvia's study, the decrease in Rhodes scores occurred not only due to the chemical effects of lavender, but also due to the psychological comfort felt during inhalation. Lavender's advantage over ginger also lies in its sensory tolerance and minimal irritant effects. This emphasizes the importance of selecting aromatherapy that suits the preferences and physical condition of pregnant women, so that the intervention is more likely to be adhered to and successful both clinically and emotionally.

Difference The Effect of ***Lavender*** **Aromatherapy on Nausea and Vomiting and Without** ***Lavender Aromatherapy*** **in First Trimester Pregnant Women at PMB Ronni Siregar Deli Serdang in 2025**

The results of the statistical test with *the independent sample t test* obtained a p value of 0.024 <0.05 which indicates that there is a difference in the effect of giving *lavender aromatherapy* on nausea and vomiting and without giving *lavender aromatherapy* to pregnant women in the first trimester at PMB Ronni Siregar Deli Serdang in 2025. According to the researcher's analysis, it is explained that the content contained in lavender aromatherapy can affect nausea and vomiting in pregnant women in the first trimester. This is because when inhaled through the nose, lavender content affects the work of the brain, the olfactory nerves are stimulated by certain aromas, directly connected to the Hypothalamus which is able to provide relaxation and reduce nausea in pregnant women. And Based on the results of the study, there are differences in nausea and vomiting in pregnant women who were given *Lavender* Aromatherapy with pregnant women who were not given *Lavender Aromatherapy* . This can be seen from the nausea and vomiting that some respondents in the control group experienced increasing, while pregnant women who were given *Lavender Aromatherapy* experienced decreasing nausea and vomiting.

Significant differences between the intervention and control groups were also seen in a study by Sari et al. (2021) examining the effects of lavender aromatherapy on first-trimester pregnant women at the Telaga Dewa Community Health Center in Bengkulu. The study noted that the group given aromatherapy experienced a decrease in the frequency of nausea episodes, up to three times daily, while the control group experienced an increase in nausea. Sari explained that lavender aromatherapy works not only biologically but also induces positive psychological effects such as feelings of comfort and relaxation. This finding aligns with Elisa Silvia's study, where respondents in the control group experienced an increase in vomiting due to not receiving any relaxation treatment. This comparison strengthens the argument that the absence of complementary interventions can exacerbate emesis gravidarum, especially in the midwife's private practice environment where medication is limited.

Furthermore, research by Sitihaniyah (2021) also provided in-depth findings in a literature review regarding the effectiveness of lavender aromatherapy. She found that lavender aromatherapy can reduce sympathetic activity, which contributes to increased vagus nerve sensitivity, which is the primary trigger for the gag reflex in the first trimester. In Elisa Silvia's study, this effect was reflected in the p value. = A $p<0.024$ between-group comparisons indicated a clear and significant treatment effect. Sitihaniyah also emphasized that pregnant women with anxious psychological backgrounds responded more quickly to aroma-based relaxation therapy. Therefore, the control group in this study likely experienced an increase in symptoms because they did not receive interventions that reduced their emotional responses. This emphasizes the need for complementary approaches such as aromatherapy to be an integral part of modern, holistic antenatal care.

5. CONCLUSION AND SUGGESTIONS

Based on the results of the study, it can be concluded as follows: Respondents aged 21-30 years were 86.7%, had higher education as much as 40%, civil servants as much as 33.3%. There is an effect of giving lavender aromatherapy on nausea and vomiting in pregnant women in the first trimester at PMB Ronni Siregar Deli Serdang in 2025. There is a difference in nausea and vomiting in pregnant women in the first trimester who were given *lavender aromatherapy* compared to pregnant women in the first trimester who were not given *lavender aromatherapy* at PMB Ronni Siregar Deli Serdang in 2025.

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