

The Administration of Lemon and Paper Mint Aromatherapy towards Reduction of Emesis Gravidarum in Pregnant Women in Trimester I at Health Center Malangbong, Garut Regency in 2022

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Article Info:

Submitted:
16-03-2022
Revised:
26-04-2022
Accepted:
24-05-2022

DOI:
<https://doi.org/10.53713/nhs.v2i2.104>



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ABSTRACT

Nausea and vomiting occur in the first trimester of pregnancy. Nausea in early pregnancy can be overcome by using lemon and peppermint aromatherapy. This study aimed to find out the comparison between giving lemon and peppermint aromatherapy to reducing emesis gravidarum in first trimester pregnant women. The design used in this study was a quasi-experimental design with a two-group pretest-posttest design. The sample in this study amounted to 60 respondents consisting of 30 respondents with lemon aromatherapy and 30 respondents with peppermint aromatherapy with purposive sampling technique. Data were analyzed using paired T-Test and Independent T-Test. The results of the univariate analysis of the average difference of emesis gravidarum on the administration of lemon aromatherapy was 6.33 and on the administration of peppermint aromatherapy 3.18. The results of the bivariate analysis of the difference in emesis gravidarum of pregnant women in the first trimester between the administration of lemon aromatherapy and peppermint aromatherapy had a significance value of 0.000. Giving lemon aromatherapy to reduce emesis of gravidarum in pregnant women is more effective than giving peppermint aromatherapy. Health workers are expected in addition to providing counseling, giving lemon and peppermint aromatherapy can be applied to therapy for those who experience nausea and vomiting, especially for pregnant women so that mothers feel comfortable without experiencing side effects.

Keywords: lemon aromatherapy; peppermint; emesis gravidarum

INTRODUCTION

Pregnancy is a natural process for a woman, but during antenatal visits, she may complain that she will experience discomfort. Most of these complaints are normal. As a midwife, it is important to distinguish the common discomforts in pregnancy. Although the common discomforts of pregnancy do not threaten the life of the mother, they can be disturbing to the mother. As a midwife, she must be able to provide midwifery care to overcome these complaints, one of the discomforts experienced by pregnant women is nausea and vomiting. Nausea and vomiting occur in 60-80% of primigravida and 40-60% occur in multigravida. One in a thousand pregnancies other symptoms become severe, this feeling of nausea is caused by increased levels of the hormone estrogen HCG in serum. Most pregnant women 70-80% experience morning sickness and as much as 1-2% of all pregnant women experience extreme morning sickness (hyperemesis gravidarum) (Saifuddin, 2017; Azizah, Kundaryanti, & Novelia, 2022).

According to the World Health Organization (WHO), the incidence of hyperemesis gravidarum reaches 12.5% of all pregnancies in the world, 0.3% of all pregnancies in Sweden, 10%-15% in East Java Indonesia, 0.5% in California, 0.8% in Canada, 10.8% in China, 0.9% in Norway, 2.2% in Pakistan and 1.9% in Turkey. In the United States, the prevalence of hyperemesis gravidarum is 0.5-2 (WHO, 2018; Indah Sari & Wahyuningsih, 2021).

The incidence of hyperemesis gravidarum in the first trimester of pregnancy in Indonesia is from 1-3% or 5-20 cases per 1000 pregnancies. West Java Province in 2019 found 13% of pregnant women experiencing hyperemesis gravidarum, while according to data in Garut Regency in 2019, the number of cases of nausea and vomiting in pregnancy ranged from 14.2% of 2.9771 pregnant women (Dinkes Garut Regency, 2020). This is based on complaints submitted subjectively to health service agencies, generally, complaints of nausea and vomiting can occur in the morning so that it can cause disruption of the activities of pregnant women (Kemenkes RI, 2020).

Meanwhile, based on data at the Malangbong Health Center which is part of Garut Regency in 2019, from 2,286 first trimester pregnant women, it was found that 13.8% (315 mothers) hyperemesis gravidarum, while those who experienced emesis gravidarum reached 66.5% (1,520 mothers). Furthermore, in 2020 from 1,524 first trimester pregnant women, it was found that 13.3% (203 mothers) hyperemesis gravidarum, while those experiencing emesis gravidarum reached 45.4% (692 mothers). Meanwhile, in 2021 out of 2,398 first trimester pregnant women, 15.6% (374 mothers) hyperemesis gravidarum, while emesis gravidarum 68.1% (1,633 mothers)

Management of nausea and vomiting in pregnancy depends on the severity of the symptoms. Treatment can be done by pharmacological or non-pharmacological. Pharmacological therapy can be done by giving antiemetics, antihistamines, anticholinergics, and corticosteroids. Non-pharmacological therapy is done by way of diet and emotional support. Nausea in early pregnancy can also be overcome by using aromatherapy. Aromatherapy provides a variety of effects for the inhaler, such as calmness, freshness, and can even help pregnant women overcome nausea (Poerwadi, 2016; Sri Wahyuningsih, Hayati, & Adi Safitri, 2021).

Lemon essential oil (Citrus lemon) is one of the most widely used herbal oils in pregnancy and is considered a safe drug in pregnancy. A drop or two of lemon essential oil in an oil stove or diffuser in the bedroom helps to calm and relieve emesis of gravidarum. According to a study, 40% of women have used the scent of lemon to relieve emesis of gravidarum (Sharma, 2018).

In addition to using lemon aromatherapy, it turns out that peppermint aromatherapy (*Mentha Piperita*) is also often used to treat nausea and vomiting. Peppermint belongs to the labiate family, which has a very high level of fragrance, and has a cool, refreshing, strong aroma, a deep menthol smell, peppermint essential oil is the best remedy for digestive problems. This oil contains anti-seizure and healing properties that are reliable for cases of nausea, indigestion, difficulty passing gas in the stomach, diarrhea, constipation, as well as being equally effective in treating headaches, migraines, and fainting. and antispasmodic, which specifically acts on the smooth muscles of the gastrointestinal tract and throughout the bile (Sari, 2018).

Peppermint aromatherapy contains menthol (35-45%) and menthone (10%-30%) so that it can be useful as an antiemetic and antispasmodic in the lining of the stomach and intestines by inhibiting muscle contractions caused by serotonin and other substances (Lubis, et al., 2019). The results of Fajrin's research (2019) were carried out by dripping 2-3 drops of peppermint essential oil on a tissue and then inhaling the aroma for 5-10 minutes. Do this procedure for 3 days, with a frequency of 2 times/day in the morning and evening, the results obtained on the first day of the assessment the mother said nausea and vomiting 3 To 4 times a day, and on the third day the mother said nausea and vomiting had decreased because the mother applied the care provided, there were no side effects during the administration of therapy, the condition improved and the appetite improved. This indicates that there is an effect of peppermint aromatherapy on the gravidarum in first-trimester pregnant women.

METHOD

The design of this study is a quasi-experimental used a two-group pretest and posttest design. The population in this study were all pregnant women who experienced emesis gravidarum at the Malangbong Health Center, Garut Regency in the period October-December 2021 as many as 63 people. With a sample of 60 respondents for each of 30 respondents in group A and 30 respondents in group B. The sampling technique used was purposive sampling. The research instrument used the Pregnancy Unique Quantification of Emesis and Nausea (PUQE)-24 scoring system. Data were analyzed using Independent T-test which was previously tested for Shapiro-Wilk and homogeneity.

RESULT

Univariate Analysis

Table 1. Average Emesis Gravidarum in First Trimester Pregnant Women Before and After Giving Lemon Aromatherapy at Malangbong Health Center, Garut Regency in 2022

	Giving Lemon Aromatherapy			
	Mean	Difference Mean	Min	Max
Pretest	10.09	6.33	9.00	11.33
Posttest	3.76		2.33	5.00

Based on table 1 it is known that emesis gravidarum pregnant women in the intervention group before being given lemon aromatherapy obtained an average value of = 10.09 an effective decrease was obtained on the 7th day with an average value of 3.76 so that the difference in the average value of emesis gravidarum before and after being given lemon aromatherapy was obtained of 6.33.

Table 2. Average Emesis Gravidarum in First Trimester Pregnant Women Before and After Giving Peppermint Aromatherapy at Malangbong Health Center, Garut Regency in 2022

	Giving Peppermint Aromatherapy			
	Mean	Difference Mean	Min	Max
Pretest	9.97	3.18	9.00	11.00
Posttest	6.79		6.00	8.00

Based on table 2 it is known that emesis gravidarum of pregnant women in the intervention group before being given peppermint aromatherapy obtained an average value of = 9.97 an effective decrease was obtained on the 7th day with an average value of 6.79 so that the difference in the average value of emesis gravidarum before and after being given peppermint aromatherapy was 3.18.

Bivariate Analysis

Table 3 Changes in Emesis Gravidarum for in the First Trimester between Giving Lemon Aromatherapy and Peppermint at Malangbong Health Center, Garut Regency in 2022

Aromatherapy	Pretest	Posttest	Difference Mean	p value
Lemon Aromatherapy	10.09	3.76	6.33	0.000
Peppermint	9.97	6.79	3.18	0.000

Based on the change in emesis gravidarum pregnant women in the first trimester by giving lemon aromatherapy using the paired sample t-test, the results obtained have a significant value of 0.000 (< 0.05). These results mean that there is a change in the emesis of gravidarum of pregnant women in the first trimester before and after being given lemon aromatherapy at the Malangbong Health Center, Garut Regency in 2022.

Based on the results of the test for changes in emesis gravidarum pregnant women in the first trimester by giving peppermint aromatherapy using the paired sample t-test test The results obtained have a significant value of 0.000 (<0.05) meaning that there is a change in the emesis gravidarum of pregnant women in the first trimester before and after being given peppermint aromatherapy at the Malangbong Health Center, Garut Regency in 2022.

Table 4 Differences in Effect of Giving Lemon Aromatherapy Compared with Peppermint Aromatherapy on Emesis Gravidarum Pregnant Women First Trimester at Malangbong Health Center, Garut Regency in 2022

Emesis Gravidarum Pregnant Women Trimester I	Lemon Aromatherapy	Peppermint Aromatherapy	Mean Difference	p value
	Mean	Mean		
Pretest	10.09	9.97	0.12	0.384
Posttest	3.76	6.79	3.03	0.000

Calculation of the difference mean (average) pretest Emesis gravidarum of pregnant women in the first trimester on giving lemon aromatherapy and giving peppermint aromatherapy is 0.12. The results of the Independent T-test showed a significance value of 0.384 > 0.05, so it was concluded that before being given treatment there was no difference in the effect of giving lemon aromatherapy and giving peppermint aromatherapy to emesis gravidarum of pregnant women in the first trimester at Malangbong Health Center, Garut Regency in 2022.

Based on table 4 results from the calculation of the difference in the mean (average) post-test emesis gravidarum of pregnant women in the first trimester on giving lemon aromatherapy and giving peppermint aromatherapy was 3.03. The results of the Independent T-test showed a significance value of 0.000 < 0.05, so it was concluded that after treatment there was a difference in the effect of giving lemon aromatherapy and peppermint aromatherapy on emesis gravidarum of pregnant women in the first trimester at Malangbong Health Center, Garut Regency in 2022.

DISCUSSION

Based on the results in the study, it was found that emesis gravidarum pregnant women in the intervention group before being given lemon aromatherapy obtained an average value of = 10.09 an effective decrease was obtained on the 7th day with an average value of 3.76 so that the difference in the average value of emesis gravidarum before and after being given lemon aromatherapy was obtained of 6.33.

According to Koesoemardiyah (2018), lemon aromatherapy provides various effects for the inhaler, such as calmness, freshness, and can even help pregnant women overcome nausea. Each essential oil has a unique pharmacological effect, such as antibacterial, antiviral, diuretic, vasodilator, sedative, and adrenal stimulation. Nurulicha (2020) stated that lemon aromatherapy can reduce nausea and vomiting because it contains limonene. Limonene is the main component in lemon aromatherapy chemical compounds that can inhibit the work of prostaglandins so that they can reduce pain, control cyclooxygenase I and II, prevent prostaglandin activity, and reduce pain including nausea and vomiting.

Sharma (2018) explains that when essential oils are inhaled, they enter the nose and treat eyelash receptors associated with the olfactory bulge at the end of the olfactory tract. The end of the olfactory tract is connected to the brain. The smell is converted by the eyelashes into electrical impulses which are transmitted to the brain by the olfactory system, all impulses reach the limbic system. The limbic system is the part of the brain that is associated with our moods, emotions, memory, and learning. All odors that reach the limbic system have a direct chemical influence on our mood. When all the aromatherapy impulses reach the limbic system, the impulses block serotonin (the feeling of wanting to vomit) so that nausea can be suppressed because lemon itself has the advantage of blocking serotonin.

In accordance with the results of Ningsih's research (2020) by giving 3 drops of lemon aromatherapy oil poured with a tissue placed on the mother's chest, then inhaled for 10 minutes. The results before giving lemon inhalation aromatherapy average nausea and vomiting were 16.30 and after 12 hours of giving lemon inhalation aromatherapy, further observations were made using the INVR instrument, average nausea and vomiting were 7.55, thus a decrease after giving lemon inhalation aromatherapy was 8,75. Another study conducted by Sophiasari (2020) showed a significance value of $0.000 < 0.05$. There was a significant effect of giving lemon aromatherapy on reducing emesis of gravidarum in first-trimester pregnant women.

Likewise, with the results of Afriyanti & Rahendza's (2020) research, there are analysis results that the difference in the average frequency of nausea and vomiting before being given electric lemon aromatherapy to pregnant women who have nausea and vomiting and after being given electric lemon aromatherapy to pregnant women who have nausea and vomiting is 2,000 and the p-value is 0.0005, it means that there is a difference in the average frequency of nausea and vomiting in pregnant women significantly between before and after being given electric lemon aromatherapy. Aromatherapy is given as many as 5 drops dissolved in 300 ml of water.

Researchers assume that there is a decrease in emesis of gravidarum in first-trimester pregnant women by giving lemon aromatherapy because when inhaled aromatherapy inhibits serotonin secretion so that serotonin in the blood does not decrease if serotonin in the blood does not decrease, nausea and vomiting will not increase. The smell/aroma produced stimulates the work of brain neurochemical cells and can stabilize the nervous system which then causes a calming effect on first-trimester pregnant women who experience emesis of gravidarum.

Based on the results of the study, it was found that emesis gravidarum pregnant women in the intervention group before being given peppermint aromatherapy obtained an average value of = 9.97, an effective decrease was obtained on the 7th day with an average value of 6.79 so that the difference in the average value was obtained. the mean of emesis gravidarum before and after being given peppermint aromatherapy was 3.18.

According to Sari (2018) Peppermint (*Mentha Piperita*) belongs to the labiate genus, which has a very high level of fragrance and has a cold, refreshing, strong aroma, a deep menthol smell, peppermint essential oil is the best remedy for digestive problems. This oil contains anti-spasmodic and healing properties that are reliable for cases of nausea, indigestion, difficulty passing gas in the stomach, diarrhea, constipation, it is also equally effective for treating headaches, migraines, and also fainting, peppermint has long been known to have a carminative and anti-inflammatory effect. antispasmodic that specifically acts on the smooth muscles of the gastrointestinal tract and throughout the biliary tract.

Nuryanti (2016) added that peppermint aromatherapy essential oil can overcome physical and psychological complaints, the simplest is through the sense of smell by smelling the aroma of the essential oil. The sense of smell stimulates emotional memory by providing physical reactions in the form of behavior. The very soft and pleasant aroma can uplift as well as feelings of calm and relaxation.

In accordance with the research results Hodijah, et al. (2021) obtained a p-value = 0.000 (p-value ≤ 0.05) which means that there is an effect of peppermint inhalation with nausea and vomiting in pregnant women with TM I. The

results of the same study conducted by Andriani (2017) found that there was an effect of aromatherapy peppermint on nausea and vomiting in first-trimester pregnant women. Lubis, et al. (2019) in his research, the average (mean) score for nausea and vomiting of pregnant women before being given peppermint oil aromatherapy by inhalation (pretest) was 9.80, after being given peppermint oil aromatherapy by inhalation (posttest) the average (mean) was 3,67. There was a decrease in the average score of nausea and vomiting before and after administration of peppermint oil aromatherapy by inhalation of 6.13. The results of the Wilcoxon Sign Rank Test showed that there was a difference in the mean score for nausea and vomiting of pregnant women before and after administration of peppermint oil aromatherapy by inhalation. Peppermint has various therapeutic benefits namely analgesic, anesthetic, antiseptic, astringent, carminative, decongestant, expectorant, soothing, stimulant, stomach, inflammatory disease, ulcers, and stomach problems such as nausea and vomiting.

Researchers assume that there is a decrease in gravidarum emissions in first-trimester pregnant women, this is because peppermint contains essential oil, namely menthol which has a mild anesthetic effect to relieve stomach spasms or cramps, has carminative and antispasmodic effects that work in the small intestine on the gastrointestinal tract so that it can overcome or eliminate nausea and vomiting and facilitate the digestive system, accelerate circulation, relieve bloating, nausea and cramps.

Based on the test of changes in levels. Based on the test of changes in emesis gravidarum of pregnant women in the first trimester by giving lemon aromatherapy using the paired sample t-test, the results obtained have a significant value of 0.000 (<0.05). These results mean that there is a change in the emesis of gravidarum of pregnant women in the first trimester before and after being given lemon aromatherapy at the Malangbong Health Center, Garut Regency in 2022. Based on the results of the test for changes in emesis gravidarum pregnant women in the first trimester by giving peppermint aromatherapy using the paired sample t-test test The results obtained have a significant value of 0.000 (<0.05) meaning that there is a change in the emesis gravidarum of pregnant women in the first trimester before and after being given peppermint aromatherapy at the Malangbong Health Center, Garut Regency in 2022.

The results of the calculation of the difference in the mean (average) pretest Emesis gravidarum of pregnant women in the first trimester on giving lemon aromatherapy and giving peppermint aromatherapy is 0.12. The results of the Independent T-test showed that the significance value was $0.384 > 0.05$, so it was concluded that before treatment there was no difference in the effect of giving lemon aromatherapy and peppermint aromatherapy on emesis gravidarum of pregnant women in the first trimester at Malangbong Public Health Center, Garut Regency in 2022.

Afriyanti & Rahendza (2020) states that the substance contained in lemon is linalool which is useful for stabilizing the nervous system so that it can cause a calming effect for anyone who inhales it. When inhaling aromatic substances or essential oils emits biomolecules, receptor cells in the nose to send direct olfactory impulses to the brain, this area is closely linked to other systems that control memory, emotion, hormones, sex, and heart rate. Immediately the impulse stimulates the release of hormones that are able to reassure and cause a feeling of calm and cause physical and mental changes in a person so that it can reduce nausea and vomiting. Park et al. (2011) in Koesoemardiyah (2018), found that limonene can bind directly to the adenosine A24 receptor which has a sedative effect, from radioligand tests in vitro which showed that limonene can act as a ligand and agonist for adenosine A24 receptors. Research on citrus essential oil in rats as an object has revealed that citrus fruit is a strong anti-anxiety anxiolytic agent wherein essential oil can increase serotonin in the prefrontal cortex and dopamine (DA) in the hippocampus mediated by 5HT1A. Komori et al also showed that depressed patients who inhaled the citrus scent had normal scores on the Hamilton depression score. Limonene also produced significant results in reducing nausea and vomiting in breast cancer patients after chemotherapy.

In addition to lemon aromatherapy according to Balakrishnan (2015), the ability of peppermint leaves to reduce nausea and vomiting in pregnancy is thought to be related to the volatile oil content in it, namely the type of -, - pinenelimonenecineole. Menthol is the main essential oil component in peppermint. The oil and menthol contained in peppermint have antibacterial activity for both gram-negative and gram-positive bacteria. Peppermint plays a role in the relaxation of gastrointestinal smooth muscle spasms due to calcium deficiency in the large intestine and small intestine. Lubis, et al. (2019) states that nausea and vomiting in pregnant women will decrease because peppermint contains menthol and menthone which can be useful as antiemetics and antispasmodics in the lining of the stomach and intestines so as to overcome or eliminate nausea and vomiting in pregnant women.

In accordance with the results of research Nuryanti, et al. (2016) the intensity of nausea after being given peppermint had an average difference of 3.313 while after being given lemon ingestion aromatherapy had an average difference of 3.75 nausea. This shows that ingestion of lemon is more effective in reducing nausea in pregnant women than inhalation of peppermint. A different study was obtained from Khadijah et al. (2020) the intensity of nausea after being given lemon ingestion aromatherapy was on average 6.90 while after being given peppermint inhalation

aromatherapy the average nausea was 7.00. This shows that peppermint inhalation aromatherapy is more effective in reducing nausea in pregnant women than lemon ingestion aromatherapy.

The researcher assumes that there is a difference between giving lemon aromatherapy and peppermint aromatherapy to emesis gravidarum, this is because it emits a distinctive aroma so that the response to the smell/aroma is soothing and provides a freshness effect that will stimulate the work of the brain neurochemical cells and can stabilize the nervous system which then causes a calm aroma effect. Inhaled lemon therapy emits biomolecules, receptor cells in the nose to send direct olfactory impulses to the brain, stimulating impulses to secrete hormones that are able to calm and cause feelings of calm and affect a person's physical and mental changes so as to reduce nausea and vomiting.

However, giving peppermint aromatherapy is also able to overcome or eliminate nausea and vomiting. An important ingredient in mint leaves is menthol (a natural decongestant). Peppermint has a cold taste contains menthol with a cold taste, is able to provide a cool feeling on the surface of the skin that is applied or evaporated by aromatherapy, by inhaling peppermint aromatherapy regularly with a specified dose will interact with the compounds present in peppermint with the digestive system of pregnant women. The anti-nausea content in peppermint aromatherapy provides a relaxed, calm, and refreshing sensation so that it can reduce autonomic production saliva and reduce nausea and vomiting reactions in pregnant women. if you look at the difference based on observations between peppermint aromatherapy and lemon, it turns out that lemon has a very strong aroma when compared to peppermint aromatherapy so that through giving lemon aromatherapy feels more soothing and gives a fresh effect.

CONCLUSION

Emesis gravidarum of pregnant women in the first trimester before being given lemon aromatherapy an average of 10.09 and after being given lemon aromatherapy an average of 3.76 with an average difference of 6.33. Emesis gravidarum pregnant women in the first trimester before being given peppermint aromatherapy an average of 9.97 and after being given peppermint aromatherapy an average of 6.79 with an average difference of 3.18. There is a difference in emesis gravidarum of in pregnant women in the first trimester between giving lemon aromatherapy and giving peppermint aromatherapy at Malangbong Health Center, Garut Regency in 2022 with a significance value of 0.000.

It is hoped that after the mother knows the results that the recommendation from the midwife, lemon and peppermint aromatherapy can reduce nausea and vomiting in pregnancy, the mother routinely does one of them so that the mother feels better without experiencing side effects. Health workers are expected in addition to providing counseling, giving lemon and peppermint aromatherapy can be applied to therapy for those who experience nausea and vomiting, especially for pregnant women so that mothers feel comfortable without experiencing side effects. Adding information for health students, especially midwifery students, and as a reference in further research, so as to increase knowledge about giving lemon and peppermint aromatherapy to nausea and vomiting. It is hoped that future researchers can conduct further research related to reducing emesis gravidarum with different research innovations.

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