

Management Of Nausea, Vomiting With Peppermint Aromatherapy In 1st Trimester Pregnant Women

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Abstract. Written Nausea and vomiting are experienced by many pregnant women, especially pregnant women in the first trimester of pregnancy. However, if the nausea and vomiting occur continuously and excessively, it can be a sign of danger during pregnancy. This is because it can cause malnutrition, dehydration and decreased consciousness. See a doctor immediately if this happens to get treatment quickly. Aromatherapy is a therapeutic action using essential oils which is useful for improving physical and psychological conditions so that they become better when the essential oils are inhaled. helps pregnant women overcome nausea. Hadimulyo Health Center has the MAMA MUDA PILU Innovation aimed at managing nausea and vomiting in pregnant women using peppermint aromatherapy. The type of research is quantitative with a one sample group pretest and posttest experimental design. The research sample used all pregnant women who experienced nausea and vomiting in the Hadimulyo Community Health Center working area in 2023, totaling 53 pregnant women. The instrument used was the 24-hour Pregnancy-Unique Quantification of Emesis and Nausea (PUQE) observation sheet. Statistical tests using a paired sample test obtained a p value of $0.000 < 0.05$, which means that there is an effect of peppermint aromatherapy on nausea and vomiting in pregnant women at the Hadimulyo Community Health Center. Suggestions for health workers can apply management of nausea and vomiting with peppermint aromatherapy in pregnant women as a non-pharmacological therapy and can reduce the use of chemical effects of drugs.

Key words: Peppermint aromatherapy, pregnant women, nausea, vomiting

INTRODUCTION

Changes in the system in the mother's body during the pregnancy process require adaptation, both physical and psychological, so that it is not uncommon for mothers to experience discomfort during these changes, so prevention and treatment needs to be provided (Rahmawati, 2016). Nausea and vomiting (emesis gravidarum) are normal for pregnant women in the first trimester. This condition will change if nausea and vomiting occurs >10 times a day, so it can disrupt the balance of nutrition, electrolyte fluids, and can affect the general condition and disrupt daily life (Putri, 2018). If emesis is not treated immediately, it will escalate into hyperemesis and can result in impaired fetal growth, the fetus dies in the womb and the fetus can experience congenital abnormalities (Aryanti, 2020). About 12% to 15% of women become pregnant in developing countries experiencing serious, life-threatening complications. The incidence of hyperemesis gravidarum is 1.5-3% of pregnant women (Putri, 2018).

Nausea and vomiting in pregnancy or what can be called *Nausea Vomiting in Pregnancy* (NVP) is one of the most common complaints during pregnancy, morning sickness affects around 70-80% of all pregnant women. About 60% of women experience vomiting (Afriyanti, 2020). Nausea and vomiting occur in around 60-80% of primigravida mothers and 40% of multigravida mothers (Veri, 2020). According to the *World Health Organization* (WHO), in 2015 the number of cases of emesis gravidarum reached 12.5% of the number of pregnancies in the world (Lubis, 2019).

The incidence of *emesis gravidarum* in pregnant women is 50-90%, while *hyperemesis gravidarum* reaches 10-15% in Lampung Province out of the number of pregnant women, namely 182,815 people in the first trimester of pregnancy (Ariyanti, 2020). Lampung Province itself has an emesis gravidarum rate of 50-90% of pregnancies, while the emesis rate develops into hyperemesis around 10.6/1000 pregnancies (Haryanti, 2020).

Based on nausea and vomiting data in the Hadimulyo Community Health Center working area, in 2022 there were 354 pregnant women (76.9%) out of the total K1 460 pregnant women. According to the cohort of pregnant women in the working area of the Hadimulyo Community Health Center, there were 115 pregnant women (32.4%) who experienced nausea and vomiting in the first trimester. Interviews were conducted with 10 village midwives in the working area of the Hadimulyo Community Health Center to treat nausea and vomiting based on the midwife's authority to provide thiamin vitamins, pyridoxine, and drugs such as *metoclopramide* and on the recommendation of a doctor.

According to research by Sarah (2020) entitled the effect of peppermint aromatherapy inhalation on nausea and vomiting in first trimester pregnant women in the working area of the Hadimulyo

Community Health Center using a *quasi-experimental* or quasi-experimental research design. The subjects in this research were all pregnant women in the Hadimulyo Community Health Center working area with the object TM I pregnant women who experienced nausea and vomiting with a total research sample of 20 pregnant women with nausea and vomiting in the first trimester. The research results obtained a *P value* of 0.000, which means that there is an effect of *peppermint inhalation* on nausea and vomiting in pregnant women in the first trimester in the Puskesmas Work Area. Hadimulyo.

The phenomenon in society says that nausea and vomiting that occurs in pregnant women in the first trimester is the influence of pregnancy and can be overcome by administering an infusion. Apart from that, pregnant women with complaints of nausea and vomiting can overcome it by consuming anti-emetic drugs obtained from midwives, doctors or Public health center. Furthermore, the Hadimulyo Community Health Center has program staff for pregnant women, so the results of research in the Hadimulyo Community Health Center work area show that nausea and vomiting in first trimester pregnant women can be treated with peppermint aromatherapy. Based on *evidence based*, the head of the Community Health Center wants to replicate care for pregnant women with nausea and vomiting. Then a person responsible for innovation was formed for handling nausea and vomiting in pregnant women at the Hadimulyo Community Health Center.

Nausea and vomiting are experienced by many pregnant women, especially pregnant women in the first trimester of pregnancy. However, if the nausea and vomiting occur continuously and excessively, it can be a sign of danger during pregnancy. This is because it can cause malnutrition, dehydration and decreased consciousness. See a doctor immediately if this happens to get treatment quickly (KIA Book, 2020).

Based on the Republic of Indonesia Minister of Health Number 21 of 2021, it is stated that integrated and comprehensive antenatal care meets standards during pregnancy namely a minimum of 6 times with time distribution: 1 time in the 1st trimester (0-12 weeks), 2 times in the 2nd trimester (>12 weeks – 24 weeks), and 3 times in 3rd trimester (>24 weeks until delivery). More visits can be made from 6 times according to needs and if there are complaints, illnesses or disorders pregnancy. The mother must contact the doctor at least 2 times, once in the 1st trimester and once in the 3rd trimester (RI Ministry of Health, 2021).

Based on the book Maternal and Child Health (2020), midwifery services which must be given to pregnant women to monitor the condition of the mother and fetus as well development of the mother's pregnancy, namely measuring body height, measuring blood pressure, measuring upper arm circumference (LILA), measuring uterine height, determining fetal position and fetal heart rate (DJJ), determining tetanus toxoid (TT) immunization status, administering blood-boosting tablets, laboratory examinations, interviews and management or treatment.

The Talk Meeting is an effort by health workers to provide explanations regarding pregnancy care, prevention of congenital abnormalities, childbirth and early initiation of breastfeeding (IMD), postpartum, newborn care, exclusive breastfeeding, family planning (KB), and immunization in babies, as well as birth planning and prevention of complications (P4K), appropriate and fast decision making if complications occur during pregnancy, childbirth and postpartum. This explanation is given in stages according to the mother's problems and needs. Based on treatment management if the results of antenatal examinations and laboratory examination results, If abnormalities or problems are found in pregnant women, they must be treated accordingly with the standards and authority of health workers. Cases that can't handled can be referred according to the referral system (KIA Book, 2020).

Nausea in pregnancy can be overcome by using complementary therapies, including aromatherapy (Vitrianingsih, 2019) Aromatherapy is a treatment or treatment technique using odors that uses *essential oils* (Maesaroh, 2019). The main principle of aromatherapy is the use of smells from plants or flowers to change feelings, psychology, spiritual status and influence a person's physical condition through the connection between the patient's mind and body (Cholifah, 2019).

Aromatherapy is a therapeutic action using essential oils which are useful for improving physical and psychological conditions so that they become better when the essential oils are inhaled. Then the molecules will enter the nasal cavity and stimulate the limbic system, which is an area that influences emotions and memory and is directly related to the adrenals, pituitary gland, hypothalamus, parts of the body that regulate heart rate, blood pressure, stress, memory, hormonal balance and breathing. (Sari, 2018) Aromatherapy provides a variety of effects for the inhaler. Such as calmness, freshness, and can even help pregnant women overcome nausea.

The aroma therapy that is often used is peppermint (*mentha piperita*) peppermint is included in the *labiate genus* , that is, it has a very high level of fragrance, and has a cool, refreshing, strong aroma, a deep menthol smell, peppermint essential oil is the best treatment for digestive problems. This oil contains anti-seizure properties and is a reliable cure for cases of nausea, indigestion, difficulty getting rid of gas in the stomach, diarrhea, constipation, it is also equally effective for healing headaches, migraines and fainting, besides that, peppermint has long been known to have an effect. Carnimative and antispasmodic, which specifically works on the smooth muscles of the gastrointestinal tract and the entire gallbladder (Sari, 2018).

Peppermint aromatherapy contains menthol (35-45%) and menthone (10%-30%) so 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, 2019). Research results Kartikasari (2017) showed that before being given peppermint aromatherapy, more than half (70%) of respondents experienced moderate levels of nausea. After being given peppermint aromatherapy, almost all (95%) of respondents experienced mild levels of nausea. Likewise, Andriani (2017) showed levels of nausea and vomiting before The majority of pregnant women given peppermint aromatherapy in the first trimester were in the heavy category (60%). The level of nausea and vomiting after being given peppermint aromatherapy to pregnant women in the first trimester was mostly in the mild category (53.3%).

Yantina (2016) concluded that there is a significant influence between the administration of peppermint essential oil and the incidence of nausea and vomiting in pregnant women in the first trimester, so it can be expected that pregnant women and the public will use appropriate non-pharmacological treatment to reduce nausea and vomiting because it does not cause detrimental side effects. for maternal and fetal health. Veri's research (2020) The average intensity of nausea and vomiting in the peppermint group at pretest was 2.38 and decreased at posttest to 1 with a P-value of 0.004.

Research conducted by Sari (2017) showed that the group given the aroma of peppermint essential oil also experienced increased air circulation to the lungs, because peppermint essential oil also contains 50% menthol which has a clearing effect on the throat and facilitates breathing, thereby increasing oxygen intake to the lungs. can be improved and this condition will further increase relaxation and body comfort, so giving peppermint essential oil aroma is more effective in reducing the intensity of nausea and vomiting in first trimester pregnant women when compared to giving lavender aroma therapy.

METHODS

The research method used an experimental research design using one group pretest and posttest samples using a total sample of 53 respondents from pregnant women who experienced nausea and vomiting in the first trimester in the Hadimulyo Community Health Center Working Area. The administration of peppermint aromatherapy is given by inhaling 3-4 drops using cotton wool, inhaling using a tissue/cotton ball for 5-10 minutes at a distance of 3-5 cm from the nose with the peppermint aroma and observing for 24 hours using Pregnancy-Unique Quantification. of emesis and nausea (PUQE). Before the intervention was given, measurements were taken after 7 days of the intervention and the degree of nausea was measured within 24 hours.

RESULTS AND DISCUSSION

1. Univariate Analysis

a. Average Nausea and Vomiting in TM I Pregnant Women in the Hadimuly Community Health Center working area in 2023 before being given peppermint aromatherapy intervention.

Table 1. Average Nausea and Vomiting in TM I Pregnant Women Before Intervention in the Hadimulyo Health Center Work Area in 2023.

Variable	Mean	elementary school	Min	Max	N
Nausea and Vomiting Before Intervention	8.47	2,053	5	15	53

Based on table 1, the average is known nausea and vomiting before being given aromatherapy intervention p peppermint is the mean value of 8.47 with a *standard deviation value* of 2.053 , the minimum value 5 and a maximum value of 15.

b. Average Nausea and Vomiting in TM I Pregnant Women in the Hadimuly Community Health Center working area in 2023 after being given peppermint aromatherapy intervention.

Table 2. The average rate of nausea and vomiting in TM I Se pregnant women has been intervened in the Hadimulyo Community Health Center work area in 2023.

Variable	Mean	elementary school	Min	Max	N
Nausea and Vomiting Before Intervention	5.96	1,775	2	10	53

Based on table 2, the average is known nausea and vomiting after given aromatherapy intervention p peppermint is a mean value of 5.96 with a *standard deviation value* of 1.775 , the minimum value 2 and the maximum value is 10.

c. Normality test

Table 3. Research Data Normality Test

Variable	Shapiro-Wilk	Note
Before carrying out the intervention	0.007	Normal
After the intervention has been carried out	0.34	Normal

Based on table 3, each variable has a Shapiro-Wilk value, if the Shapiro-Wilk value produces a number > 0.05 , then the distribution is normal, if the data is normally distributed then it can be continued for testing (Paired-samples *test*).

2. Bivariate Test

Table 4. The Effect of Peppermint Aromatherapy on First Trimester Pregnant Women in the Hadimulyo Community Health Center Work Area in 2023.

	N	Different Means	elementary school	t-test	P-Value	Information
Effect of Peppermint Inhalation on Nausea and Vomiting in Pregnant Women TM I	53	2.51	1,867	9,785	0,000	There is influence

Based on table 4, the statistical test results show that $t_{-test} > t_{table}$, $9,785 > 2.006$, $p-value = 0.000$ ($p-value < \alpha = 0.05$) which means there is an effect of peppermint aromatherapy on nausea and vomiting in mothers. first trimester of pregnancy in the Hadimulyo Community Health Center Working Area.

DISCUSSION

1. Univariate Analysis

a. Average Nausea and Vomiting Before Giving Peppermint Inhalation

Known average nausea and vomiting before being given peppermint inhalation intervention is 8.47 with a *standard deviation value* of 2.053 Minimum score is 5 and maximum score is 15.

Yantina's research (2016) revealed that the results of measuring the average intensity of nausea and vomiting before giving Peppermint Essential Oil to 35 respondents in East Way Harong village Way Lima District, Pesawaran Regency in 2016, namely 15.60.

Based on Lubis (2019) in the journal, inhalation of *peppermint* oil aromatherapy had an effect on reducing nausea and vomiting in pregnant women at PMB Linda Silalahi Pancur Batu. The results showed that before being given peppermint oil aromatherapy by inhalation, the majority of pregnant women experienced moderate nausea and vomiting, 12 people (80%).

Andriani's research (2017) entitled *The Effect of Peppermint Aromatherapy on the Occurrence of Nausea and Vomiting in Pregnant Women in the First Trimester at the Mlati I I Community Health Center Sleman Yogyakarta*. Research Results: The level of nausea and vomiting before being given *peppermint aromatherapy* to pregnant women in the first trimester at the Mlati II Community Health Center was mostly in the severe category, 9 people (60%).

In line with the theory expressed by Winkjosastro (2007), nausea and vomiting during pregnancy are usually caused by changes in pregnancy hormones such as the *Human Chorionic Gonadotropin* (HCG) hormone which is produced in the bloodstream to maintain the supply of estrogen and progesterone. *Human Chorionic Gonadotrophin* (HCG) will reach its highest levels at 12-16 weeks of gestation and will directly affect the digestive system such as decreased digestive power and intestinal peristalsis accompanied by increased stomach acid and decreased appetite. A sudden increase in hormone levels can cause a painful effect on the stomach and this effect is in the form of nausea. These hormones can also cause a loss of sugar in the blood which can cause feelings of extreme hunger (Varney, 2006). If the stomach is empty and there is an increase in stomach acid, this will aggravate the mother's nausea and vomiting (Laksmi, 2008).

In pregnant women there is an increase in kynurenic and xanturenic acid in the urine. These two acids are excreted if the pathway for converting tryptophan to niacin is blocked. This can also occur due to vitamin B6 deficiency. High levels of the hormone estrogen in pregnant women also inhibit the work of the kynureninase enzyme which is a catalyst for changing tryptophan to niacin, where a lack of niacin can also trigger nausea and vomiting. Ginger contains two important digestive enzymes. First, protease which functions to break down proteins. Second, lipase which functions to break down fat. These two enzymes help the body digest and absorb food and inhibit serotonin as a chemical messenger that causes the stomach to contract and causes nausea.

According to researchers, nausea and vomiting are often ignored because they are considered a normal consequence of early pregnancy without recognizing the devastating impact it has on women and their families. For some women, symptoms may last throughout the day or may not occur at all when they wake up in the morning. Nausea and vomiting during pregnancy is usually caused by changes in the endocrine system that occur during pregnancy, mainly caused by high fluctuations in HCG levels, especially because the most common period of gestational nausea and vomiting is in the first 12-16 weeks, at which time HCG reaches its highest levels.

b. Average Nausea and Vomiting After Being Given Peppermint Inhalation

It is known that the average rate of nausea and vomiting after inhalation is given Peppermint is a mean value of 5.96 with a *standard deviation value* of 1.775, the minimum value is 2 and the maximum value is 10.

Based on L ubis (2019) in the journal, inhalation of *peppermint* oil aromatherapy had an effect on reducing nausea and vomiting in pregnant women at PMB Linda Silalahi Pancur Batu. The results of the study showed that after being given peppermint oil aromatherapy by inhalation, the majority of pregnant women did not experience nausea and vomiting, 12 people (80%).

Yantina's research (2016) revealed that the results of measuring the intensity of nausea and vomiting after being given Peppermint Essential Oil to 35 respondents in Way Harong Timur village, Way Lima district, Pesawaran district in 2016 were 11.66.

In line with research by Andriani (2017) with results, the level of nausea and vomiting before being given *peppermint* aromatherapy to pregnant women in the first trimester at the Mlati II Community Health Center was mostly in the severe category, 9 people (60%). The level of nausea and vomiting after being given *peppermint aromatherapy* to pregnant women in the first trimester at the Mlati II Community Health Center was mostly in the mild category, 8 people (53.3%).

According to the theory expressed by Cunningham (2005), nausea and vomiting during pregnancy is a digestive system disorder during pregnancy which usually occurs in the morning caused by an increase in pregnancy hormones such as the *Human Chorionic Gonadotropin* (HCG), estrogen and progesterone hormones. The theory also supports the fact that peak hCG levels occur in the 6th to 12th week of pregnancy, at the same time as hyperemesis generally occurs. Other factors associated with hyperemesis are autonomic dysfunction, abnormal gastric emptying, and psychological factors (Laksmi, 2008).

Estrogen and progesterone both have a relaxing effect on gastrointestinal smooth muscle. Steroid hormones, especially progesterone, cause gastric emptying time *and* intestinal transit time to lengthen, so they are predisposing factors for nausea and vomiting. Pregnant women with nausea and vomiting have slow wave dysrhythmias *such as tachygastria and bradygastria* as well as unstable fasting electrical activity and impaired electrical response to food digestion.

Based on research by Lubis (2019), the results showed that before being given peppermint oil aromatherapy by inhalation, the majority of pregnant women experienced moderate nausea and vomiting, 12 people (80%) and after being given peppermint oil aromatherapy by inhalation, the majority of pregnant women did not experience nausea and vomiting, 12 people (80%).

According to researchers' assumptions, after administering peppermint oil aromatherapy by inhalation, the nausea and vomiting score in pregnant women will decrease because peppermint contains menthol and menthone which can be useful as an antiemetic and antispasmodic in the lining of the stomach and intestines so that it can overcome or eliminate nausea and vomiting in pregnant women. Pregnant women who do not use peppermint oil aromatherapy by inhalation will experience nausea and vomiting more often. Where nausea and vomiting is caused by changes in the endocrine system that occur during pregnancy, mainly caused by high fluctuations in HCG levels, especially in the period of gestational nausea and vomiting which most commonly occurs in the first 12-16 weeks.

c. Bivariate Analysis

The Effect of Peppermint Aromatherapy on Nausea and Vomiting in TM I Pregnant Women in the Hadimulyo Health Center Working Area in 2023.

Results of statistical tests obtained $t_{test} > t_{table}$, $9,785 > 2.006$, $p\text{-value} = 0.000$ ($p\text{-value} < \alpha=0.05$) which means there is an effect of peppermint aromatherapy on nausea and vomiting in trimester pregnant women I in the Hadimulyo Community Health Center Working Area.

Lubis' research (2019) where the results of the Wilcoxon sign rank test obtained a p value of 0.001, which means that there was an effect of inhaling peppermint oil aromatherapy on reducing nausea and vomiting in pregnant women at PMB Linda Silalahi Pancur Batu. In Andriani's (2017) research, the results of the Wilcoxon Sign Rank Test obtained a p -value of 0.001. Meanwhile, Yantina's (2016) research, where the results of statistical tests concluded that there was a significant influence between the administration of Peppermint Essential Oil and the incidence of nausea and vomiting in trimester pregnant women I in Way Harong Timur village, Way Lima District, Pesawaran Regency in 2016 with a p -value of 0.000 ($p = 0.05$).

According to the theory expressed by Cunningham (2005), nausea and vomiting during pregnancy is a digestive system disorder during pregnancy which usually occurs in the morning caused by an increase in pregnancy hormones such as the *Human Chorionic Gonadotropin* (HCG), estrogen and progesterone hormones. The theory also supports the fact that peak hCG levels occur in the 6th to 12th week of pregnancy, at the same time as hyperemesis generally occurs. Other factors associated with hyperemesis are autonomic dysfunction, abnormal gastric emptying, and psychological factors (Laksmi, 2008). The ability of peppermint leaves to reduce nausea and vomiting in pregnancy is thought to be related to the essential oil content contained in it, namely the α -, β -pinenelimonene 1,8-cineole. Menthol is the main essential oil component contained in peppermint, in addition to other essential oils such as limonene (1.0-5.0%), cineole (3.5-14.0%), menthone (14.0-32.0%), menthofuran (1.0-9.0%), isomenthone (1.5-10.0%), menthyl acetate (2.8-10.0%), isopulegol (0.2%), menthol (55.0%), pulegone (4.0%) and carvone (max. 1.0%) (Balakrishnan, 2015). One of the incidents of hyperemesis in pregnant women is triggered by the growth of *Helicobacter pylori* bacteria (Li, Li, Zhou, Xiao, Gu, & Zhang, 2015).

The oil and menthol contained in peppermint also have antibacterial activity for gram-negative and gram-positive bacteria. Other in vitro studies on guinea pigs and rabbits stated that peppermint plays a role in relaxing gastrointestinal smooth muscle spasm due to calcium deficiency in the large intestine and small intestine (Balakrishnan, 2015).

According to researchers, the results of this study showed that there was a decrease in the intensity of nausea and vomiting before and after being given peppermint. Complementary therapy using herbal plants that can be used to reduce nausea and vomiting during pregnancy, namely peppermint. Peppermint is also known to be a safe and effective medicine for treating nausea and vomiting in pregnant women. Mint leaves contain essential oil, namely menthol, which has a mild

anesthetic effect to relieve stomach spasms or cramps. Mint leaves also have carminative and antispasmodic effects which work in the small intestine in the gastrointestinal tract so that they can overcome or eliminate nausea, vomiting and improve the digestive system. Mint leaves contain menthol which can speed up circulation, relieve bloating, nausea and cramps. Mint leaves contain essential oil, namely menthol, which has the potential to facilitate the digestive system and relieve stomach spasms or cramps because it has a mild anesthetic effect and contains carminative and antispasmodic effects which work in the small intestine in the gastrointestinal tract so that it can overcome or eliminate nausea and vomiting.

CONCLUSION

One of the innovative programs at the Hadimulyo Community Health Center is Management of nausea and vomiting with peppermint aromatherapy for pregnant women in the first trimester (MAMA MUDA PILU) at the Hadimulyo Community Health Center. before and after giving aromatherapy with a p value of $0.000 < 0.05$, which means there is an effect of giving peppermint aromatherapy on nausea and vomiting in first trimester pregnant women at the Hadimulyo Health Center in 2024. So this innovation will continue in 2024 and is ongoing.

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