



Combined Pericardium P6 Acupressure & Peppermint Aromatherapy on Nausea in First-Trimester Pregnancy

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ABSTRACT

According to WHO, hyperemesis gravidarum affects 12.5% of pregnancies worldwide, with Indonesia reporting a 14.8% incidence. Nausea and vomiting occur in 50-70% of first-trimester pregnancies, caused by hormonal changes, particularly HCG, estrogen, and progesterone. Management includes pharmacological and non-pharmacological methods, such as acupressure at the pericardium point (P6) and peppermint aromatherapy. Acupressure increases cortisol and metabolism, while peppermint's menthol and methone help reduce nausea.

This study aimed to analyze the effect of combining acupressure (P6) and peppermint aromatherapy on nausea intensity in first-trimester pregnant women at the Wedi Klaten Health Center. Using a Quasi-Experimental One Group Time Series Design, 32 respondents received acupressure (7 minutes) and peppermint aromatherapy (3 drops for 15 minutes) every morning for 4 days. Data were collected using the PUQE-24 questionnaire and analyzed with a Paired T-test.

Results showed a decrease in nausea intensity from 7.00 to 5.69 on average. Statistical analysis confirmed a significant effect ($p = 0.000$, $p < 0.05$). The combination of acupressure and peppermint aromatherapy effectively reduced nausea and vomiting in first-trimester pregnant women.

Keywords: Pericardium point (P6) acupressure, peppermint aromatherapy, nausea and vomiting, pregnant women.

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INTRODUCTION

Pregnancy is a condition in which fertilization or union occurs between sperm cells and eggs, which is then followed by the process of nidation or implantation of fertilized eggs. The process from conception to birth of the baby takes about 40 weeks. During pregnancy, the mother experiences physiological changes that cause discomfort. These changes are caused by an imbalance of the hormones estrogen and progesterone, which can result in nausea and vomiting (Manuba, 2013; Prawirohardjo, 2016; Kementerian Kesehatan RI, 202).

According to *World Health Organization* (WHO), The number of cases of *hyperemesis gravidarum* is 12.5% of the total pregnancies. Nausea and vomiting are complained of by 50-70% of pregnant women in the first trimester. According to data from the Central Statistics Agency of Central Java Province (2021), of the 545,813 pregnant women who made K1 visits, 80% complained of nausea and vomiting. In Klaten Regency, 15,386 pregnant women made K1 visits, and 90% of them complained of emesis gravidarum. This nausea is caused by an increase in the hormones HCG, estrogen, progesterone, a history of hyperemesis gravidarum, as well as nutritional and psychological factors

(Prawirohardjo, 2016; Kresna Wati et al., 2021).

Nausea and vomiting during pregnancy are common symptoms that can occur at any time, not just in the morning. The level of nausea varies in each pregnant woman, but if nausea and vomiting persist, this condition is called *hyperemesis gravidarum*. This condition results in reduced appetite and electrolyte imbalance, which can lead to complications for the mother and fetus. Pregnant women can experience nutritional and fluid deficiencies, physical weakness, fatigue, acid-base balance disorders, aspirational pneumonia, damage to the esophageal mucous layer, and damage to the liver and kidneys. Impacts on the fetus include malformations, premature birth, *intrauterine growth retardation* (IUGR), and low birth weight (BBLR) (Handajani & Astuti, 2019; Khadijah, 2020; Nurrasyidah & Sari, 2023).

The majority of medical personnel currently provide pharmacological therapies such as Zinc, Pyridoxine (vitamin B6), and antiemetics to treat nausea and vomiting in pregnant women. However, the use of these medications can produce side effects such as fatigue, anxiety, stomach ulcers, dry mouth, and constipation. Alternatively, more effective and non-pharmacological therapies

without side effects include acupuncture, acupressure, as well as herbal treatments such as aromatherapy of peppermint, lemon, and ginger drinks (Kresna Wati et al., 2021; Ulya et al., 2023).

Complementary and Alternative Medicine (CAM) therapy uses the 6th point of the pericardium, which is located 3 cun from the wrist line, effective in reducing nausea and vomiting in pregnant women. Another alternative is aromatherapy, with essential oils such as peppermint, spearmint, lemon, and ginger. Peppermint oil, rich in menthol (50%) and methone (10-30%), helps reduce nausea, bloating, and cramps and improves circulation. Aromatherapy with peppermint essential oil is recommended because it is fast, easy to use, effective, economical and without side effects (Yantina et al., 2016; Hindratni, 2022).

This study uses a combination of acupressure at the pericardium point (P6) and peppermint aromatherapy as a nonpharmacological method to overcome nausea and vomiting in pregnant women. Acupressure on the Neiguan point (P6) is effective because it increases the hormone cortisol and speeds up the body's metabolism, reducing discomfort. Peppermint essential oil, which contains limonene compounds and is considered safe (GRAS), helps reduce nausea and vomiting without the effects of genetic allergies. The combination of these two

therapies provides optimal results in reducing symptoms of nausea and vomiting in pregnant women (Hindratni, 2022; Hasanah et al., 2023).

Based on a preliminary study conducted in December 2023 at the Wedi Klaten Health Center, of the 5 pregnant women in the first trimester who checked their pregnancy, 4 of them experienced nausea and vomiting and did not know how to deal with it.

This study aims to determine the effect of the combination of pericardium point acupressure (P6) and peppermint aromatherapy on the intensity of nausea and vomiting in pregnant women in the first trimester in the Wedi Klaten Health Center Working Area.

METHOD

This study uses a quantitative research method. Quantitative research is a type of research that provides answers to questions by adhering to scientific principles. The data obtained is in the form of numbers and analyzed using statistical methods (Harlan & Sutjiati, 2018) with the design of *One Group Time Series Design*. This research was conducted in January – June 2024 in the working area of the Wedi Klaten Health Center.

The subject group in this study consisted of pregnant women in the first trimester who experienced nausea and vomiting in

the Wedi Klaten Health Center area. The sampling method used is purposive sampling. The number of samples in this study was 32 pregnant women in the first trimester who experienced nausea and vomiting according to the established inclusion criteria.

The independent variables in this study included the combined use of acupressure at the pericardium point (P6) and peppermint aromatherapy. Meanwhile, the bound variable was the intensity of nausea and vomiting in pregnant women in the

first trimester. The data analyzed is primary data. The instrument used was the PUQE-24 questionnaire, and data analysis was carried out using the *Paired T-test*.

RESULTS AND DISCUSSION

A. Analisa univariat

1. The characteristics of the respondents in this study were explained based on age, education, occupation, gestational age, and parity. The details are presented in the following table:

Characteristic	Frequency (f)	Presented (%)
Age		
< 20 years	0	0
20-35 years	30	93.8
> 35 years	2	6.3
Total	32	100
Education		
SMP	7	21.9
SMA	21	65.6
Bachelor	4	12.5
Total	32	100
Work		
IRT	21	65.6
Private	5	15.6
Merchant	3	9.4
Teacher	2	6.3
Nurse	1	3.1
Total	32	100
Gestational Age		
< 6 weeks	2	6.3
6-12 weeks	30	93.8
Total	32	100
Parity		
Primipara	17	53.1
Multipara	15	46.9
Total	32	100

Table 1 Most respondents were between the ages of 20 and 35, which included 30 respondents (93.8%). The majority of respondents also had the last level of education at the high

school level, amounting to 21 respondents (65.6%). Majority responden working as a housewife (IRT), with the same number of 21 respondents (65.6%). The gestational

age of most respondents was in the range of 6-12 weeks, with 30 respondents (93.8%). Most of the respondents were primiparous, with a total of 17 respondents (53.1%).

2. Result of PUQE score of nausea and vomiting in pregnant women TM I before and after being given a combination of pericardium point acupressure (P6) and peppermint aromatherapy.

Nausea Vomiting	Score PUQE	Before		After	
		Amount	%	Amount	%
No nausea (Skor 3)	0	0	0	0	0
Light (4-6)	4	0	0	4	12.5
	5	5	15.6	11	34.4
	6	6	18.8	8	25.0
Keep (7-12)	7	10	31.3	9	28.1
	8	6	18.8		
	9	5	15.6		
	10	0	0		
	11	0	0		
	12	0	0		
Heavy (13-15)	13	0	0		
	14	0	0		
	15	0	0		
TOTAL		32	100	32	100

Table 2 states that prior to the combined intervention of acupressure at the pericardium (P6) point and peppermint aromatherapy, most pregnant Women in the first trimester experienced nausea and vomiting with a score of 7 (moderate category), consisting of 10 people (31.3%). After the intervention, the majority experienced a decrease in nausea and vomiting with a score of 5 (mild category) as many as 11 people (34.4%)

3. Descriptive statistics of reduction in nausea and vomiting before and after a combination of pericardium point acupressure (P6) and peppermint aromatherapy.

Variabel	N	Min	Max	Mean
<i>Pre Test</i>	32	5	9	7.00
<i>Post Test</i>	32	4	7	5.69
<i>Rata-rata</i>				

Table 3 shows that before the combined pericardium point acupressure (P6) and peppermint aromatherapy intervention, the minimum pretest value was 5 and the

maximum value was 9, with an average of 7.00 (moderate category). After the intervention, the minimum score decreased to 4, the maximum value to 7, and the average dropped to 5.69 (mild category).

B. Bivariate analysis

1. The results of the normality test of *Skewness* and *Kurtosis data*. The normality test in this study obtained the results :

Variabel	Skewness	
	Value	Standar Error
<i>Pre test</i>	0.000	0.414
<i>Post test</i>	-0.069	0.414

Table 4 shows that the results of the normality test using skewness and curtosis produce a Skewness Pretest value of 0 and Skewness Posttest -0.16, both <2. This shows that the data is normally distributed, so hypothesis testing is carried out with a *paired t test*.

2. Effect of Combination of Pericarium Point Acupressure (P6) and Peppermint Aromatherapy on the intensity of nausea and vomiting in pregnant women in the first trimester with a *statistical paired t-test* obtained the following results:

Variabel	Mean	SD	Std.Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Nilai <i>Pre test</i> <i>Post test</i>	1.313	0.592	0.105	1.099	1.526	12.535	31	0.000

Table 5 of the results of the Paired t-test shows a t-value of 12.535, while the t-table value with df = 31 is 1.696. Since t calculates > t table and p value 0.000 (<0.05), H₀ is rejected and H_a is accepted. This means that there is an effect of a combination of pericardial point

acupressure (P6) and peppermint aromatherapy on the intensity of nausea and vomiting in pregnant women in the first trimester.

DISCUSSION

Characteristics of Pregnant Women

1. Age of Respondents

In this study, most of them were 20-35 years old (93.8%). This shows that all respondents are at a healthy and safe reproductive age (not at risk). According to the theory Prawirohardjo, (2016), Most women are of healthy reproductive age.

According to the theory Rose-Neil (2013), Pregnancy under the age of 20 and over 35 is often associated with a high risk, as the safe reproductive age is between 20 and 35 years. Research Rosmadewi & Rudiyaniti, (2019) supporting this, it shows that mothers outside the 20-35 age range are more at risk of experiencing excessive nausea and vomiting. Ahmad et al., (2023) adding that the uterus of pregnant women under 20 years old is not yet functioning optimally and psychologically they are not ready to accept pregnancy or become parents.

2. Respondent Education

In this study, the majority of respondents had a high school education of 21 respondents (65.6%). According to Notoatmodjo, (2010). A person's level of knowledge is influenced by the education obtained both formally and informally. People who are highly educated tend to have better knowledge, which affects their thinking and thinking ability. Higher levels of education are linked to better

health status, because it facilitates the acceptance of the concept of healthy, independent, creative, and sustainable living Chandra et al., (2019).

Education influences lifestyles, motivating active participation in health changes. Low levels of education reduce the desire to obtain information and use health services, while high levels of education facilitate access and use of health services.

3. Respondent's Job

In this study, the majority of respondents had a high school education background, as many as 21 people (65.6%). The findings of the study showed that the average respondent experienced a decrease in nausea and vomiting symptoms from the moderate to mild category. According to Wesson (2002), pregnant women who work in the office tend to experience fewer pregnancy disorders such as nausea than housewives because the busyness of work helps to forget about nausea. According to Khayati et al., (2022) Women who take care of the household and do not work have more opportunities to reflect on the state of their pregnancy, and often rely on information from friends or neighbors rather than seeking advice from

medical professionals or trusted sources. This can cause additional concerns, which can lead to discomfort and nausea and vomiting during pregnancy.

4. Respondent's Gestational Age

In this study, most of the respondents were 6-12 weeks gestation, as many as 30 respondents (93.8%) Prawirohardjo, (2016).

During pregnancy, women undergo hormonal changes that include increased levels of the hormones estrogen, progesterone, and the release of chorionic gonadotropin hormone (HCG) (Manuaba, 2013). The HCG hormone peaks between 12-16 weeks of gestation and directly affects the digestive system, causing a decrease in digestion and intestinal peristalsis, as well as increased stomach acid production and decreased appetite.

5. Respondent Parity

In this study, the majority of respondent parity was primipara, with a total of 17 respondents (53.1%). In accordance with the theory put forward by Prawirohardjo, (2016). Pregnant women with primigravida tend to experience nausea and vomiting more often because they are not used to or have not been able to adjust to the changes in the hormone estrogen and chorionic gonadotropin

hormone (HCG). They also lack previous experience in dealing with pregnancy and the delivery process.

According to the Theory O'brien 1995 in the Retnowati, (2019). Nausea and vomiting are rare in women who have had previous pregnancy and childbirth. This is thought to be caused by changes in the production of the hormone estrogen and changes in the metabolism of the woman's body during the first pregnancy.

According to Rosmadewi & Rudiyaniti, (2019) Vomiting in primigravida mothers is caused by the body's inability to adapt to estrogen and Chorionic Gonadotropin Hormone (HCG), so emesis gravidarum occurs more frequently. Meanwhile, in multi-gravida mothers, the body has adapted to these hormones because it has previous experience in pregnancy and childbirth.

Average intensity of pregnant women in the first trimester before being given a combination of pericardium point acupressure (P6) and peppermint aromatherapy

The results showed that the average nausea and vomiting of respondents before the intervention was 7.00 (moderate category), with a minimum value of 5 and a maximum of 9. Although the cause of vomiting during

pregnancy is not known for sure, it is related to high levels of the hormone HCG. It is thought that the spike in HCG hormone during pregnancy is the cause of nausea and vomiting by affecting the central nervous system, especially the medulla oblongata. The production of this hormone begins at the beginning of pregnancy, around the time of implantation, and then the levels of HCG in the mother's plasma and urine increase rapidly (Huliana, 2010). Prior to the combination of pericardial point acupressure (P6) and peppermint aromatherapy, the high incidence of nausea and vomiting was caused by increased levels of estrogen in the blood that interfered with digestion. Tyrant Theory (2013) confirms that nausea and vomiting are a common problem in early pregnancy. Hormonal changes that occur due to pregnancy, such as the release of the hormones estrogen, progesterone, and human chorionic gonadotropin (HCG) from the placenta, also play a role in causing nausea and vomiting (Tiran, 2013).

1. Average intensity of pregnant women in the first trimester after a combination of pericardial point acupressure (P6) and peppermint aromatherapy

The results showed that the combination intervention of pericardium point acupressure (P6) and peppermint aromatherapy was effective in reducing nausea and vomiting in pregnant women in the first trimester. Acupressure at pericardium point 6 (PC 6) along with aromatherapy peppermint, which contains limonene compounds, stimulates the release of the hormones ACTH, beta endorphins, and CTZ, which affect the hormone cortisol and accelerate the body's metabolism, reducing discomfort such as nausea and vomiting. Peppermint aromatherapy also provides a refreshing, calming, and soothing effect on stomach cramps, helping to reduce nausea and vomiting in pregnant women in the first trimester. Based on research, the intensity of nausea and vomiting in pregnant women in the first trimester decreased after the intervention of a combination of pericardial point acupressure (P6) and peppermint aromatherapy for 4 days. The results of the posttest showed a decrease in the intensity of nausea and vomiting because the mother had felt comfortable and was able to adapt to the aroma that caused a sense of relaxation. Factors such as dietary regulation, adequate rest,

avoiding nausea triggers, and psychological support are also thought to play a role in reducing nausea and vomiting in pregnant women (Mariza & Ayuningtias, 2019; Hernandini, 2023).

2. Effect of combination of pericardium point acupressure (P6) and peppermint aromatherapy
3. This study was conducted at the Wedi Klaten Health Center to assess the impact of combined acupressure at the pericardium point (P6) and peppermint aromatherapy on the severity of nausea and vomiting in pregnant women in the first trimester. By involving 32 participants who met the inclusion criteria, the results showed that the combination was effective in reducing the severity of nausea and vomiting. Before the intervention, the average severity of nausea and vomiting was 7.00 (moderate category), while after the intervention, it dropped to 5.69 (mild category), with a difference of 1.31, indicating a significant decrease after the intervention.

Based on the results of the study on pregnant women in the first trimester, the statistical test using *the Paired t-test* showed a p-value = 0.000 ($p < 0.05$). This proves that the combination of pericardium point

acupressure (P6) and peppermint aromatherapy has a significant effect on reducing the intensity of nausea and vomiting in pregnant women in the first trimester at the Wedi Klaten Health Center. The results of this study are in line with the research conducted by Hasanah et al., (2023) The frequency of nausea and vomiting in the group of pregnant women in the first trimester before the intervention, who received a combination of Meridian point acupressure P6 and peppermint aromatherapy inhalation, had an average of 11.33. After the intervention, this frequency decreased to 2.00. It was found that this combination had an effect on reducing the frequency of nausea and vomiting in pregnant women in the first trimester at Aji Batara Agung Dewa Sakti Samboja Hospital, with a p-value of 0.012.

The results of this study are also in line with Mariza & Ayuningtias, (2019) In a study of 30 pregnant women who experienced nausea and vomiting in the first trimester at BPM Wirahayu Panjang, the sample method used was purposive sampling. Before the intervention, the mean vomiting frequency was 10.53, with a minimum value of 9 and a maximum of 13, as well as a standard deviation of 1.408

and a standard error of 0.257. After the application of acupressure, the average vomiting frequency decreased to 7.30, with a minimum value of 5 and a maximum of 10, as well as a standard deviation of 1.317 and a standard error of 0.240. The results of statistical analysis showed that the value of P-value = 0.000, which showed a significant effect of acupressure at the P6 point on nausea and vomiting in pregnant women in the first trimester at BPM Wirahayu Panjang.

According to Hernandini, (2023) conducted a case study on 2 pregnant women in the first trimester who experienced nausea and vomiting using purposive sampling. This research method involved interviews and observations using PUQE-12 observation sheets, before and after the administration of peppermint aromatherapy intervention for 4 days. The results showed that the average PUQE-12 score before the intervention was 5.75, which indicates the rate of nausea and vomiting in the mild category in both subjects. After 12 hours of intervention, Mrs. N's PUQE-12 score dropped to 4.75, while Mrs. R's score dropped to 4, which was still in the mild category. Based on the results of this study, it

was concluded that the administration of peppermint aromatherapy intervention had an effect on nausea and vomiting in pregnant women in the first trimester.

The use of a combination of pericardium point acupressure (P6) and peppermint aromatherapy for 4 days was shown to be effective based on research. This process gives the body enough time to adapt, balance the nervous system, and form a more effective response to nausea and vomiting. This adaptation involves reduced sensitivity to nausea triggers, the formation of calming habits, and a sustained balance of neurotransmitters.

Pharmacological treatment for nausea and vomiting includes the use of pyridoxine (vitamin B6), phenodiazine, metoclopramide, and ondansetron. Meanwhile, non-pharmacological treatment includes dietary regulation, emotional support, acupressure, acupuncture, lifestyle changes, relaxation, and the administration of peppermint aromatherapy, lemon, as well as ginger herbal remedies. Studies show that acupressure at the pericardium (P6) point and peppermint aromatherapy are effective for

relieving nausea and vomiting during pregnancy.

Acupressure at the pericardium (P6) stimulates the release of the hormones ACTH, beta endorphins, and CTZ, which trigger the hormone cortisol and increase the body's metabolism, reducing nausea and vomiting. The combination with aromatherapy peppermint, which is safe and contains limonene, menthol, and methone, has a refreshing, calming, and soothing effect on indigestion. It helps reduce nausea and vomiting in pregnant women in the first trimester (Khayati et al., 2022; (Hernandini, 2023).

Pericardium point acupressure (P6) and peppermint aromatherapy can be an alternative to treat nausea and vomiting in pregnancy before using antiemetics. The acupressure technique can be applied at home, does not cause pain, is easy to do, and can be done by anyone regardless of gender and age. Peppermint aromatherapy is also easy to find, available in various physical stores, and can be purchased online at affordable prices.

CONCLUSION

From the findings of the study on the combined impact of acupressure on the pericardium (P6) point and

peppermint aromatherapy on the level of nausea and vomiting in pregnant women in the first trimester in the work area of the Wedi Klaten Health Center, the following conclusions can be drawn:

1. The characteristics of the 32 respondents, the majority of whom were aged 20-35 years, were 30 respondents (93.8%). The majority of respondents had a high school education of 21 respondents (65.6%). Most of the jobs are housewives (IRT) as many as 21 respondents (65.6%). The majority of mothers' gestational age at the age of 6-12 weeks was 30 respondents (93.8%). The majority of primipara mothers parity was 17 respondents (53.1%).
2. The intensity of nausea and vomiting in pregnant women before being given a combination of pericardial point acupressure (P6) and peppermint aromatherapy averaged 7.00 (moderate category).
3. The intensity of nausea and vomiting in pregnant women after being given a combination of pericardial point acupressure (P6) and peppermint aromatherapy averaged 5.69 (mild category).
4. There was a combination of pericardium point acupressure (P6) and peppermint aromatherapy on

reducing the intensity of nausea and vomiting in pregnant women in the first trimester at the Wedi Klaten Health Center, with a p value = 0.000 ($p > 0.05$).

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