

# Effectiveness of Peppermint Aromatherapy and Pericardium Six Acupressure in Reducing Emesis Gravidarum Among First Trimester Pregnant Women

<sup>1\*</sup><sup>a</sup>Rina Ristawani Simamora Purba, <sup>2</sup>Hidayani, <sup>1b</sup>Fanni Hanifa

<sup>1 a,b</sup>Program Studi Pendidikan Profesi Bidan Program Profesi, Universitas Indonesia Maju, Indonesia

<sup>2</sup>Program Studi Kebidanan, Program Sarjana Terapan, Universitas Indonesia Maju, Indonesia

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### Correspondence :

Rina Ristawani  
Simamora Purba

### Email:

[niezzrina@gmail.com](mailto:niezzrina@gmail.com)

## ABSTRACT

**Background:**Emesis gravidarum, commonly characterized by nausea and occasional vomiting, affects many women during the first trimester of pregnancy. Although generally self-limiting, it can significantly reduce quality of life and daily functioning. **Objective:**This study aimed to assess the effectiveness of peppermint aromatherapy and Pericardium 6 (P6) acupressure in alleviating symptoms of emesis gravidarum in first-trimester pregnant women. **Methods:**A qualitative case study approach was employed. Two pregnant women in their first trimester experiencing emesis gravidarum were selected using purposive sampling. Data were collected through in-depth interviews and direct observation. The severity of nausea and vomiting was measured using the Pregnancy-Unique Quantification of Emesis (PUQE) score before and after the interventions. **Results:**Peppermint aromatherapy reduced PUQE scores from 9 (moderate) to 6 (mild), while Pericardium 6 acupressure reduced PUQE scores from 10 (moderate) to 3 (mild). This indicates that both interventions were effective in reducing nausea and vomiting, with Pericardium 6 acupressure showing greater effectiveness. **Conclusion:**Both peppermint aromatherapy and Pericardium 6 acupressure are effective non-pharmacological methods for reducing emesis gravidarum in the first trimester. Pericardium 6 acupressure demonstrated greater effectiveness and may be recommended as a complementary therapy for managing early pregnancy-related nausea and vomiting.

## INTRODUCTION

In the first trimester of pregnancy, emesis gravidarum commonly occurs—a condition characterized by nausea, sometimes accompanied by vomiting, with a vomiting frequency of no more than five times per day.(1) "According to the WHO in 2019, 78.5% of all pregnancies were accompanied by emesis gravidarum. In Indonesia, emesis gravidarum affects nearly 80% of pregnant women. In the early stages of pregnancy, 543 out of 2,203 pregnant women experienced emesis gravidarum. Thus, approximately 67.9% of pregnant women are expected to experience this condition. During the first trimester, the incidence rate ranges from 60% to 80%, and in subsequent pregnancies, it decreases to 40% to 60%.(2)

Among K1 pregnant women surveyed in October 2024 at UPT Gantung Public Health Center, East Belitung Regency, 29 out of 34 reported experiencing nausea and vomiting during their first trimester of pregnancy. Eight out of ten pregnant women who visited the health center during their first trimester reported experiencing nausea and vomiting, while the remaining two did not report such symptoms. The eight pregnant women studied exhibited varying degrees of nausea and vomiting due to several factors, including parity. Of this group, five were primigravida—meaning they were pregnant with their first child—and three were multigravida, indicating they were pregnant with their second or subsequent child. Emesis gravidarum was more commonly observed among pregnant women under the age of 20; four out of the eight who experienced it were below this age threshold. Furthermore, of the eight pregnant women who experienced nausea and vomiting in the first trimester, seven were unaware of the benefits of peppermint aromatherapy in managing these symptoms, and had never heard of or undergone Pericardium Six acupressure massage as an intervention for emesis gravidarum.(3,4) When symptoms of nausea and vomiting worsen during pregnancy, the condition is referred to as hyperemesis gravidarum. This can result in weight loss and dehydration in pregnant women. Loss of appetite due to persistent nausea and vomiting can disrupt electrolyte Balance especially levels of sodium, potassium, and calcium—and affect metabolism. For the fetus, insufficient intake of nutrients and fluids during pregnancy can lead to developmental delays and low birth weight. Without timely and appropriate medical intervention, this condition poses serious risks to both the mother and the fetus.

It is essential for pregnant women to explore alternative treatments to manage nausea and vomiting to prevent complications.(5)

Peppermint aromatherapy and Pericardium Six acupressure are two effective non-pharmacological interventions for addressing nausea and vomiting during pregnancy. Several studies have found that pregnant women who received peppermint aromatherapy reported fewer nausea and vomiting episodes during the first trimester. Peppermint essential oil contains menthol, which has carminative and antispasmodic properties acting on the gastrointestinal tract, helping to relieve or eliminate nausea and vomiting.(6) Pericardium Six acupressure is highly efficient in managing nausea and vomiting among pregnant women. This technique involves manual pressure on the Pericardium Six point on the wrist, located three fingers from the wrist crease. It stimulates the release of beta-endorphins and adrenocorticotrophic hormone (ACTH) via the chemoreceptor trigger zone (CTZ), which can inhibit the vomiting center, thereby reducing nausea and vomiting.(7)

Researchers have found that acupressure at the Nei Guan point (Pericardium 6) can help pregnant women suffering from nausea and vomiting during the first trimester. The Pericardium 6 acupressure intervention involves manually applying pressure to the P6 point, located three finger-widths below the wrist crease. This stimulation of the Pericardium 6 point can increase the release of beta-endorphins in the pituitary gland and adrenocorticotrophic hormone (ACTH) along the chemoreceptor trigger zone (CTZ), which inhibits the vomiting center and helps reduce or alleviate nausea and vomiting during pregnancy.

Non-pharmacological interventions such as peppermint aromatherapy and Pericardium 6 acupressure for managing nausea and vomiting in pregnancy are still relatively unknown among pregnant women at UPT Gantung Health Center. Therefore, this study aims to determine the effectiveness of peppermint aromatherapy and Pericardium 6 acupressure in reducing emesis gravidarum among first trimester pregnant women at UPT Gantung Health Center, East Belitung Regency, in 2025.

## METHODS

This study employed a qualitative research method with a case study approach. The research was conducted in January 2025 at UPT Gantung Public Health Center, East Belitung Regency. The population in this study consisted of first trimester pregnant women who experienced emesis gravidarum in the working area of UPT Gantung Health Center. The sample consisted of two first trimester pregnant women who experienced emesis gravidarum. The sampling technique used in this study was purposive sampling. The inclusion criteria were: first trimester pregnant women registered in the working area of UPT Gantung Health Center; first trimester pregnant women who experienced emesis gravidarum; those without a history of chronic illnesses such as hypertension, diabetes, or heart disease; and those who were willing to participate in the study and signed the informed consent form. The exclusion criteria included: first trimester pregnant women with an allergy to peppermint; those who were taking vitamin B6 or antiemetic medications; those experiencing unstable health conditions such as hyperemesis, infections, bleeding, or hospitalization; those with wounds or swelling in the Pericardium Six (PC6) area where the intervention would be applied; those with fractures in the PC6 area; and those who were unable to follow the research procedures. The method used was qualitative research. Qualitative research employed open-ended interviews and observation to gain an in-depth understanding of individual attitudes, perspectives, feelings, and behaviors. The tools used for data collection included interviews and the Pregnancy-Unique Quantification of Emesis/Nausea (PUQE) questionnaire

## RESULT AND DISCUSSION

### RESULT

#### *Case 1*

The first client, Mrs. D. 30 year old, identified by the initial D, was visited on January 15, 2025, due to complaints of nausea and vomiting occurring 3–4 times in the morning and evening, along with a loss of appetite. Her last menstrual period began on November 4, 2024. Based on data analysis, it was concluded that Mrs. D, aged

30, G2P1A0, is 10 weeks pregnant and experiencing emesis gravidarum. The second visit was conducted on Januari 16, 2025. Based on data analysis, it was concluded that Mrs. D, aged 30, G2P1A0, is 10 weeks pregnant and experiencing emesis gravidarum. On the third visit, on January 17, 2025, Mrs. D reported that she was still experiencing nausea and vomiting once, but her appetite had improved that day.

## Case II

The second client, Mrs. R, aged 22, was visited at her home on January 15, 2025. She complained of dizziness, nausea, and vomiting occurring 3–4 times in the morning and evening, along with a lack of appetite. It was concluded that she was 10 weeks pregnant and experiencing emesis gravidarum. During the second visit on January 16, 2025, she still reported feeling nauseous, although the symptoms had decreased. She experienced nausea and vomiting only once, and her appetite had improved compared to the previous day. Based on data analysis, she was confirmed to be 10 weeks pregnant with emesis gravidarum. On the third visit, on January 17, 2025, she reported no longer experiencing any nausea or vomiting.

Table 1. Comparison of Midwifery Care Outcomes Between Case 1 and Case 2

Intervention	Visit 1 (Pre Intervention)	Visit 2	Visit 3	Reduction Score Kuesioner Pregnancy- Unique Quantification Of Emesis/Nausea PUQE
	Questionnaire score Pregnancy-Unique Quantification Of Emesis/Nausea PUQE	Questionnaire score Pregnancy-Unique Quantification Of Emesis/Nausea PUQE	Questionnaire score Pregnancy-Unique Quantification Of Emesis/Nausea PUQE	
Peppermint Aromatherapy (Respondent 1)	9	8	6	3
Pericardial 6 Acupressure (Respondent 2)	10	7	3	7

Based on Table 1, the PUQE index scores for both the first and second respondents can be observed. The first respondent, who received peppermint aromatherapy, had a PUQE index score of 9 during the first visit before the intervention categorized as moderate nausea and vomiting. After the peppermint aromatherapy was administered, by the third visit, the respondent's PUQE score had decreased to 6, indicating mild nausea and vomiting. This represents a reduction of 3 points in the PUQE score. The second respondent, who received the Pericardium Six acupressure intervention, had a PUQE score of 10 at the first visit prior to the intervention also categorized as moderate nausea and vomiting. Following the Pericardium Six acupressure given by the third visit, the PUQE score decreased to 3, categorized as mild nausea and vomiting. This indicates a reduction of 7 points in the PUQE score.

## DISCUSSION

### *Nausea and Vomiting Levels of the Respondent Before and After Peppermint Aromatherapy Administration in First Trimester Pregnant Women with Emesis Gravidarum*

The results of the study on Respondent 1 showed that before being given peppermint aromatherapy, the mother complained of nausea and vomiting 3–4 times in the morning and evening, along with a lack of appetite. The Pregnancy-Unique Quantification of Emesis/Nausea (PUQE) index score was 9, categorized as moderate nausea and vomiting. After receiving peppermint aromatherapy for three consecutive days, the mother reported experiencing nausea and vomiting only once, with a good appetite on that day. The PUQE index score was recorded as 6, indicating mild nausea and vomiting. It can thus be concluded that the administration of peppermint aromatherapy intervention can reduce the intensity of nausea and vomiting in first trimester pregnant women. This finding is consistent with the study by Agustini et al., which also reported a decrease in the frequency of nausea

and vomiting from severe and moderate categories to mild or no nausea after the use of peppermint aromatherapy.(8,9) This indicates a significant effect of peppermint aromatherapy in reducing emesis gravidarum among first trimester pregnant women. Furthermore, the study by Marliani et al. also demonstrated a significant influence of peppermint aromatherapy in reducing emesis gravidarum in first trimester pregnant women. (10,11) Peppermint aromatherapy is widely used to relieve morning sickness or nausea and vomiting during pregnancy. A dose of 2–3 drops over a period of 3–5 days, inhaled during episodes of nausea, can serve as first aid. Regular inhalation of peppermint aromatherapy at the prescribed dose interacts with the compounds in peppermint and the digestive system of the pregnant woman. The anti-nausea properties in peppermint aromatherapy produce a calming, soothing, and refreshing sensation, which helps reduce autonomic stimulation by decreasing saliva production and minimizing nausea, thereby preventing the progression to vomiting in pregnant women.(12,13)

According to the researcher's assumption, based on the theory, there is no gap between theory and practice in this study; emesis gravidarum can be managed non-pharmacologically using peppermint aromatherapy. Peppermint aromatherapy has a very strong fragrance, a cool and refreshing scent, and a distinct menthol aroma. Based on the research findings above, the researcher believes that emesis gravidarum can be alleviated by inhaling peppermint aromatherapy. The advantage of peppermint lies in its essential oils, menthol and menthone, which are effective in reducing or eliminating nausea and vomiting.

### ***Nausea and Vomiting Levels of the Respondent Before and After the Pericardium Six Acupressure Intervention***

The results of the study on Respondent 2 showed that before receiving the Pericardium Six acupressure intervention, the mother reported dizziness, nausea, and vomiting occurring 3–4 times in the morning and evening, along with a lack of appetite. Her PUQE index score was 10, categorized as moderate nausea and vomiting. After receiving Pericardium Six acupressure for three consecutive days, she reported no longer experiencing nausea or vomiting, and her PUQE index score dropped to 3, categorized as mild nausea and vomiting. It can be concluded that the Pericardium Six acupressure intervention effectively reduced the intensity of nausea and vomiting in first trimester pregnant women. This is consistent with the study by Wardani entitled *The Effect of Acupressure at the Pericardium 6 Point on the Intensity of Nausea and Vomiting in First Trimester Pregnant Women*, which showed that acupressure at the Pericardium 6 point has an effect on reducing the intensity of nausea and vomiting in first trimester pregnant women.(15)

In addition, the study by Mariza and Ayuningtias on the application of acupressure at the P6 point for emesis gravidarum in first trimester pregnant women demonstrated that acupressure applied to the Pericardium 6 point—located three fingers below the wrist—was administered for seven minutes in the morning over a period of three days. Manual pressure on the P6 point stimulates regulatory systems and activates both endocrine and neurological mechanisms by stimulating the hypothalamus to release endorphins, which induce relaxation and thereby help reduce nausea and vomiting during pregnancy. This supports the conclusion that P6 acupressure therapy is effective in reducing nausea and vomiting in first trimester pregnant women.(7)

Acupressure (at the Pericardium Six point) is a technique used to reduce nausea and vomiting during pregnancy by applying pressure to the Pericardium Six point, which is located three finger-widths below the wrist. Acupressure is a massage-based technique derived from acupuncture, also known as needle-free acupuncture. It is a non-pharmacological therapy applied to the Pericardium Six point, which is connected to internal organs, to help alleviate emesis. In general, acupressure is similar to massage and does not require specialized skills to perform.(7) Acupressure is a complementary and non-pharmacological intervention that can help reduce nausea and vomiting.(16)

According to the researcher's assumption, based on the theory, there is no gap between theory and practice in this study. The non-pharmacological approach using Pericardium Six acupressure is easy to perform, cost-free, and has been shown to be effective in reducing nausea and vomiting during pregnancy. Performing acupressure at the Pericardium Six point helps improve blood circulation throughout the body and restores reversed meridian pathways. As a result, after receiving therapy at this point, the nausea and vomiting experienced by the mother can be alleviated.

### ***Comparison of Nausea and Vomiting Levels in Respondents Before and After Administration of Peppermint Aromatherapy and Pericardium Six Acupressure***

Based on the study results for Respondents 1 and 2, it was found that the PUQE score for Respondent 1 before the peppermint aromatherapy intervention was 9. After the intervention, the PUQE score decreased to 6, indicating a 3-point reduction. In Respondent 2, the initial PUQE score was 10, which decreased to 3 after the Pericardium Six acupressure intervention, showing a 7-point reduction. These data demonstrate a difference between the effects of peppermint aromatherapy and Pericardium Six acupressure interventions. It can therefore be concluded that both peppermint aromatherapy and Pericardium Six acupressure interventions are effective in reducing the level of nausea and vomiting in first trimester pregnant women. Initially, both respondents were categorized as having moderate nausea and vomiting, but after the interventions, both were classified as having mild symptoms. Additionally, it can be concluded that the Pericardium Six acupressure intervention was more effective than peppermint aromatherapy. This finding aligns with the study by Manulu, which involved respondents divided into two treatment groups: first trimester pregnant women experiencing nausea and vomiting who received peppermint aromatherapy, and those who received Pericardium Six acupressure therapy. The treatments were given over three days for 15 minutes each session. Following the interventions, observations were made regarding the average frequency of nausea and vomiting in both groups. The results showed that Pericardium Six acupressure therapy was more effective than peppermint aromatherapy in reducing nausea and vomiting among first trimester pregnant women.

According to the researcher's assumption and based on the relevant theory, there was no gap between theory and practice in this study. The use of non-pharmacological therapy with Pericardium Six acupressure was found to be more effective in managing nausea and vomiting in first trimester pregnant women compared to peppermint aromatherapy, although both interventions ultimately resulted in the same final PUQE category—mild nausea and vomiting

### **CONCLUSION**

Based on the research findings regarding the effectiveness of peppermint aromatherapy and Pericardium Six acupressure in reducing emesis gravidarum among first trimester pregnant women at UPT Gantung Health Center, East Belitung Regency, it can be concluded that the level of nausea and vomiting decreased after the administration of both interventions. For peppermint aromatherapy, the PUQE score before the intervention was 9, categorized as moderate nausea and vomiting. After receiving peppermint aromatherapy for three consecutive days, the PUQE score decreased to 6, categorized as mild. For the Pericardium Six acupressure intervention, the PUQE score before the intervention was 10, also categorized as moderate. After the intervention, the score dropped to 3, categorized as mild nausea and vomiting. A comparison of the PUQE score reductions before and after the interventions showed that Respondent 1, who received peppermint aromatherapy, had a 3-point reduction, while Respondent 2, who received Pericardium Six acupressure, had a 7-point reduction. This indicates that Pericardium Six acupressure is more effective in reducing nausea and vomiting in first trimester pregnant women compared to peppermint aromatherapy, although both interventions ultimately resulted in the same PUQE category of mild nausea and vomiting.

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