



Evaluating the effectiveness of Red Ginger Aromatherapy Essential Oil (*Zingiber Officinale Var Rubrum*) in treating Emesis Gravidarum in Pregnant Women

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ARTICLE INFORMATION

Received: July 9, 2024

Revised: July 15, 2025

Available online: August 2025

KEYWORDS

Emesis gravidarum; Nausea; Red ginger aromatherapy essential oil; Pregnant women; Vomit

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ABSTRACT

Emesis gravidarum is vomiting during pregnancy, mainly caused by increased Human Chorionic Gonadotropin (hCG) in the endocrine system. This paper evaluates the effectiveness of red ginger aromatherapy essential oil (*Zingiber Officinale var Rubrum*) in treating *emesis gravidarum* among pregnant Women in the first trimester. The research was quasi-experimental using a one-group Pretest-Posttest design. The sample was 30 respondents using purposive sampling. Pregnant women in the 1st trimester who experienced emesis gravidarum inhaled red ginger essential oil aromatherapy using a diffuser once a day for 7 days. The instrument used was the Pregnancy Unique Questionnaire of Emesis (PUQE) to determine the severity of nausea and vomiting in pregnant women. Data were analyzed using the dependent t-test with $\alpha=0.05$. The results showed that before giving red ginger essential oil aromatherapy, 30 respondents (100%) had mild nausea and vomiting. After intervention, 28 (80%) respondents had no nausea and vomiting, and 2 (20%) had mild nausea and vomiting. In addition, the average PUQE score in respondents before giving red ginger essential oil aromatherapy was 9.13, while after intervention, the mean PUQE score was 5.80. The dependent t-test obtained $p=0.000$ ($p<\alpha$), indicating that red ginger essential oil aromatherapy significantly affected the severity of nausea and vomiting in pregnant women. In conclusion, red ginger essential oil aromatherapy can significantly reduce the severity of nausea and vomiting in pregnant women. Thus, it can be used as a non-pharmacological therapy to treat emesis gravidarum in pregnant women.

INTRODUCTION

Pregnancy is a conception process, which is also known as fertilization. Fertilization is the union of male sperm with female ovum (Pramesti, Surtikanti and Puspita, 2020). In the first trimester of pregnancy, nausea and vomiting often occur, which is usually called emesis gravidarum (Sriyani and Utami, 2021). Emesis gravidarum is vomiting during pregnancy, mainly caused by increased Human Chorionic Gonadotropin (hCG) in the endocrine system during pregnancy in the gestational period of 12 – 16 weeks. The increased hCG hormone production maintains the corpus luteum during the early stages of pregnancy and produces estrogen and progesterone. The first week of pregnancy is when hCG levels reach their highest levels. Emesis Gravidarum that cannot be treated will cause hyperemesis gravidarum. Hyperemesis gravidarum can result in an increased risk of low birth weight, premature birth, dysmaturity, and even perinatal death (Nithiyasri *et al.*, 2020).

Pregnancy with emesis gravidarum according to the World Health Organization (WHO) reaches 12.5% of all pregnancies in the world with varying incidence rates, starting from 0.3% in Sweden, 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.

Meanwhile, the incidence of emesis gravidarum in Indonesia in 2015, out of 2,203 pregnancies, was 543 pregnant women who experienced emesis gravidarum (Sriyani and Utami, 2021).

Treatment for Emesis gravidarum depends on the severity of the symptoms. Treatment can be carried out using pharmacological or non-pharmacological methods. Ginger is a traditional medicinal plant with a million benefits known for a long time. Rhizome has many benefits, including being used as a cooking spice, drink, and candy, and it is also used in traditional medicinal ingredients. The chemical ingredients in ginger that can treat nausea and vomiting include essential oils, which have a refreshing effect and produce an aroma that blocks the gag reflex. Ginger makes a spicy taste that warms the body and promotes sweat. The antiemetic effect is also caused by diterpentinoid components, namely gingerol, shogaol, galanolactone. In addition, it can be used as ginger powder extract, ginger candy, or ginger essential extract for aromatherapy (Putri *et al.*, 2017).

Aromatherapy is a therapeutic modality or alternative treatment using pure aromatherapy plant extracts from volatile plant fluids and other aromatherapy compounds from plants. Aromatherapy provides a calming, refreshing effect and can help pregnant women overcome nausea. It can be used as a solution to treat nausea and vomiting in pregnant women, especially in the first trimester (Rahayu and Sugita, 2018). Ginger (*Zingiber Officinale var Rubrum*) contains essential oils, vitamin A, and bitter resin. The essential oil content has a refreshing effect and blocks the effects of vomiting. It can also improve blood circulation, and the nerves work well, so that the head feels light, and nausea and vomiting can be suppressed. According to research Pramesti *et al.*, ginger can be used as aromatherapy to relieve nausea and vomiting in chemotherapy patients. The results showed decreased vomiting levels after giving ginger aromatherapy to post-chemotherapy patients. Before intervention, 28 (87.5%) of respondents experienced moderate nausea, and after giving ginger aromatherapy, 28 (87.5%) experienced mild nausea and vomiting (Pramesti, Surtikanti and Puspita, 2020). This paper evaluates the effectiveness of red ginger aromatherapy essential oil (*Zingiber Officinale var Rubrum*) in treating Emesis Gravidarum among pregnant Women in the first trimester.

METHOD

The research was quasi-experimental using a one-group Pretest-Posttest design. It was conducted at the Abepura Jayapura Papua Regional Hospital from October 2022 to December 2022. The sample was 30 respondents using purposive sampling. Pregnant women in the 1st trimester who experienced emesis gravidarum inhaled red ginger essential oil aromatherapy using a diffuser once a day for 7 days. The instrument used was the Pregnancy Unique Questionnaire of Emesis (PUQE) to determine the severity of nausea and vomiting in pregnant women. Data were analyzed using the dependent t-test with $\alpha=0.05$.

RESULT

Table 1 shows that 25 respondents (83%) are 21-35. In addition, 23 (77%) have low levels of education (elementary school), 27 (90%) are non-working mothers, and 14 (47%) are primigravida.

Table 1. The Characteristics of Respondents

The Characteristics of Respondents	n	%
Age		
<20 or >35	5	17
20-35	25	83
Education Levels		
Low	23	77
High	7	23
Maternal occupation		
Working mother	3	10
Non-working mother	27	90
Parity		
Primigravida	14	47
Multigravida	12	40
Grande multigravida	4	13

Before giving red ginger essential oil aromatherapy, 30 respondents (100%) had mild nausea and vomiting. After intervention, 28 (80%) respondents had no nausea and vomiting, and 2 (20%) had mild nausea and vomiting (Table 2).

Table 2. Frequency Distribution of Symptoms of Nausea and Vomiting Before and After Giving Red Ginger Essential Oil Aromatherapy

Symptoms of Nausea and Vomiting	Pretest		Posttest	
	n	%	n	%
No nausea and vomiting	0	7	28	80
Mild nausea and vomiting	30	93	2	20

The average PUQE score in respondents before giving red ginger essential oil aromatherapy was 9.13, while after intervention, the mean PUQE score was 5.80. The dependent t-test obtained $p=0.000$ ($p<\alpha$), indicating that red ginger essential oil aromatherapy significantly affected the severity of nausea and vomiting in pregnant women (Table 3).

Table 3. Effect of Giving Red Ginger Essential Oil Aromatherapy on PUQE Scores

PUQE Score	n	Mean	SD	<i>p</i>
Pretest	30	9.13	1.521	0.000
Posttest	30	5.80	1.246	

DISCUSSION

Most pregnant women with emesis gravidarum in this paper were aged 20-35 years (Table 1). It is in line with research, which stated that the older a person is, the less often they experience nausea and vomiting. It is because individuals more than 35 years old have more stable emotions, experience in dealing with nausea and vomiting, so they are better prepared to face pregnancy. Apart from the psychological,

physical can also influence the occurrence of nausea and vomiting. Pregnancy at an early age or before the age of 20 years potentially results in nausea and vomiting due to immature reproductive organs.

Initial therapy for emesis should be conservative, accompanied by dietary changes, emotional support, and alternative treatments such as herbs. Traditional concoctions can be used by drinking a cup of warm ginger. In India, ginger is a drink to treat nausea in pregnant women. Ginger can be consumed in various forms, such as drinks, candy, or sweets (Handayani and Rahmawati, 2017).

This paper showed that red ginger essential oil aromatherapy decreased the severity of nausea and vomiting in pregnant women (Table 3). This study's results align with research by Rika Handayani (2022) that boiled ginger water effectively relieves nausea and vomiting in pregnancy (Asmirah *et al.*, 2022). Another study also demonstrated that giving red ginger extract water could reduce the frequency of emesis gravidarum in pregnant women in the first trimester at the Kibin Public Health Center (Asmirah *et al.*, 2022).

In addition, an investigation conducted by Nugrahani (2015) regarding the effectiveness of giving ginger tea with grapefruit juice on the frequency of nausea and vomiting in pregnant women in the first trimester in the working area of the Adan-Adan Health Center, Kediri Regency, found a more significant decrease in the frequency of nausea and vomiting after giving ginger tea compared to grapefruit juice. The average frequency of nausea and vomiting of respondents after giving ginger tea was 1.62. Meanwhile, the average frequency of nausea and vomiting in respondents after giving grapefruit juice was 2.00 (Nugrahani, 2015). Thus, ginger is an alternative non-pharmacological therapy for daily use to reduce symptoms of nausea and vomiting. In addition, it is also easy to obtain (Oktaviani, Indrayani and Dinengsih, 2021).

CONCLUSION

Red ginger essential oil aromatherapy can significantly reduce the severity of nausea and vomiting in pregnant women. Thus, it can be used as a non-pharmacological therapy to treat emesis gravidarum in pregnant women.

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