

Literature Review: The Use Of Aroma Therapy As A Treatment For Emesis Gravidarum

Etni Dwi Astuti^{1*}, Evita Aurilia Nardina², Endah Wijayanti³

Sekolah Tinggi Ilmu Kesehatan Bakti Utama Pati, Indonesia
Al-Hikmah University, Jepara, Indonesia
Agung Putra University, Indonesia

*Corresponding Author: etnibup88@gmail.com

Abstract.

Nausea and vomiting in early pregnancy, often called morning sickness, doesn't mean the nausea only occurs in the morning. Nausea can occur at any time, at night, during the day, or anywhere. Morning sickness usually begins around 8 weeks and lasts until 12 weeks. Each woman will experience varying degrees of nausea; some may not experience much, while others may experience nausea, and some may even experience severe nausea and vomiting constantly, requiring treatment (Supriyanto, 2015). According to the World Health Organization (WHO), in 2015, the incidence of emesis gravidarum reached 12.5% of all pregnancies worldwide. Management of emesis gravidarum during pregnancy can be done through pharmacological and non-pharmacological measures. One non-pharmacological method that can be provided is the use of aromatherapy, such as inhaling essential oils like lemon, lemongrass, ginger, and lavender. The purpose of this study was to analyze the literature related to aromatherapy, which is effective in treating emesis gravidarum. PICOST analysis was used to determine keywords and criteria for the literature to be used. In this study, the data collection process included compiling a literature review according to the topic approved by the reviewer, determining keywords and criteria for the literature used using PICOST, determining the database to be used, conducting a literature search using the PRISMA guidelines and assessing its feasibility using JBI Critical Appraisal, and finally conducting a literature analysis and reporting the results of the literature review. From the seven articles reviewed, it was concluded that ginger, lemon inhalation, and peppermint can reduce nausea and vomiting in pregnant women. Based on a literature review, the most effective intervention for reducing emesis gravidarum is lemon inhalation therapy, with a p value of 0.000 compared to other research journals that obtained p values >0.000.

Keywords: pregnancy, emesis gravidarum, aromatherapy

INTRODUCTION

Nausea and vomiting, or emesis gravidarum, are physiological symptoms. However, if not properly managed, they can become pathological. Nausea and vomiting can also cause fluid loss and hemoconcentration, which can slow blood circulation and affect fetal growth and development. Nausea and vomiting during pregnancy are usually caused by changes in the endocrine system that occur throughout pregnancy, primarily due to high fluctuations in HCG (Human Chorionic Gonadotropin) levels. Gestational nausea and vomiting most commonly occurs around the first 4-7 weeks, peaking at 9-12 weeks, and generally improving by 16-20 weeks of gestation. (ACOG, 2018; Williams, 2022).

Research by Bustos et al. (2017) explains that HCG is a hormone often associated with nausea and vomiting during pregnancy. The peak of symptoms occurs simultaneously with peak HCG levels. Estrogen and progesterone are also thought to play a role in slowing gastric emptying, thus worsening nausea.

Management of emesis gravidarum during pregnancy can be done through pharmacological and non-pharmacological measures. One non-pharmacological method that can be given is the use of aromatherapy. Plants that can be used as aromatherapy to overcome nausea and vomiting are peppermint, petitgrain, orange, lavender, ginger, lemon used for inhalation. Pharmacologically, essential oils have real benefits in the treatment and healing of our bodies from various health disorders, in addition to providing warmth, aromatherapy can also relieve breathing, prevent nasal congestion, reduce muscle tension, and facilitate the digestive process (Julianto, 2016; Nadesul & Kusuma, 2015). Research by Cholifah, S., & Nuriyanah, TE (2019) entitled Lemon Aromatherapy Reduces Nausea and Vomiting in Pregnant Women in the First Trimester, showed that the study of 36 respondents using the Wilcoxon

Signed Rank Test obtained $p = 0.0001$, so lemon aromatherapy is proven to be effective in reducing nausea and vomiting in pregnant women in the first trimester.

METHODS

The type of research used in this literature review study is a study which is research to critically examine or review knowledge, ideas, or findings contained in various literature and library information sources.

Article or journal searches use keywords and Boolean operators (AND, OR, NOT, or AND NOT) to broaden or refine the search, making it easier to determine which articles or journals to use. Keywords in this literature are aligned with medical subject headings (MeSH) and consist of:

Table 1. Keywords in this literature

Nausea and vomiting in pregnancy	Aromatherapy	Early pregnancy
OR	OR	OR
Emesis gravidarum	Aromatherapy	Early pregnancy
OR	OR	OR
Nausea and vomiting of pregnancy		First trimester
OR	OR	OR
Nausea and vomiting during pregnancy		First trimester
OR		OR
Nausea and vomiting during pregnancy		

The literature search was conducted between 2013 and 2023. The data used in this study is secondary data obtained from research conducted by previous researchers. The secondary data sources were articles from reputable national and international journals on a predetermined topic.

This study uses an online literature search strategy, including searches on Google Scholar, Sinta, PubMed, and Elsevier. The following are the search site addresses used by the researcher in conducting the literature review: Site Name Google Scholar Site Address: <https://scholar.google.co.id/> PubMed: <https://pubmed.ncbi.nlm.nih.gov>

A comprehensive summary of the literature review on the use of aromatherapy in the management of emesis gravidarum. The protocol and evaluation of the literature review will use the PRISMA checklist to determine the completeness of the studies found and their alignment with the objectives of the literature review.

The strategy used for search for articles using the PICOST framework strategy, which consists of:

1. Inclusion and Exclusion Criteria

Table 2. Inclusion and Exclusion Criteria

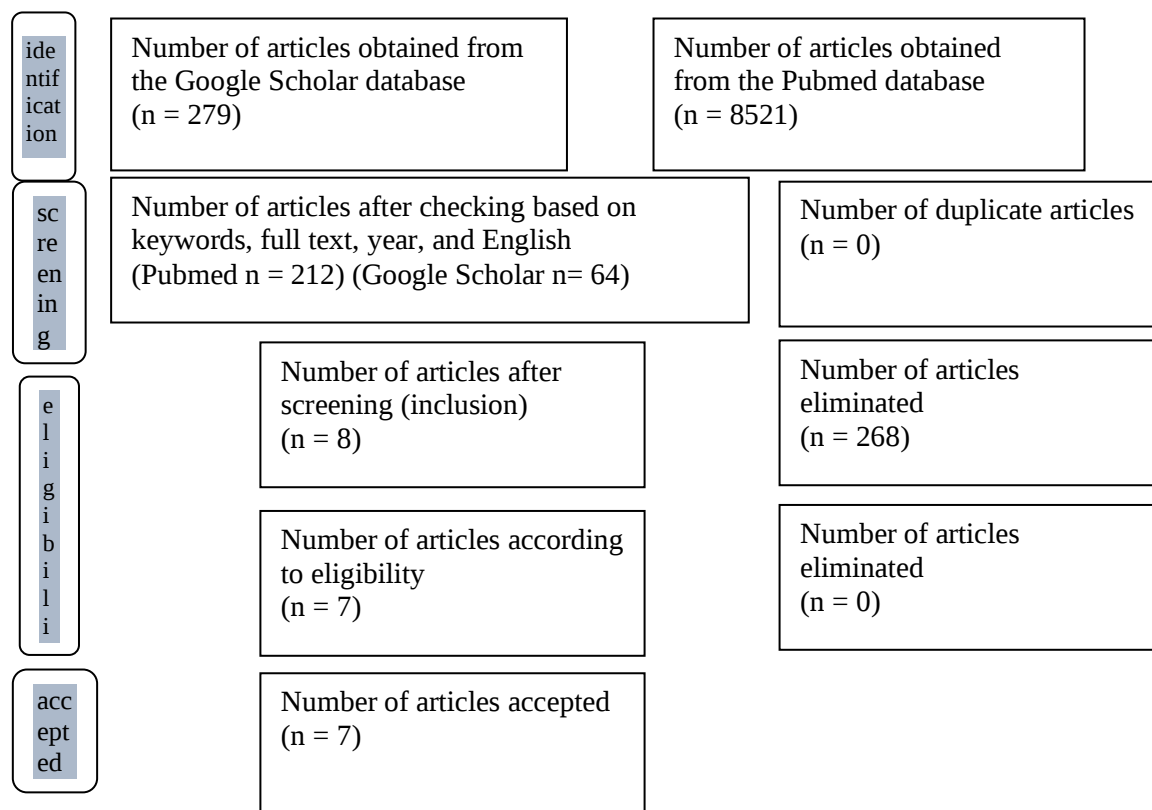
Criteria	Inclusion	Exclusion
Population	All pregnant women in the first trimester.	Pregnant women in second and third trimesters
Intervention	All aromatherapy can reduce emesis gravidarum	Aromatherapy that cannot reduce emesis gravidarum
Comparison	There is no comparison	

Outcomes	Effectively reduces the frequency of nausea and vomiting in pregnant women in the first trimester.	Not effective in reducing the frequency of nausea and vomiting in pregnant women in the first trimester.
Study design	Quasi-experimental and experimental, one group pre test-post test, randomized control and trial.	Cross-sectional, case-control
Year of publication	Articles published from 2013 to 2023.	Articles published before 2013

2. Feasibility Assessment

Methodological feasibility analysis of each study was conducted using the JBI Critical Appraisal (the tool used is adjusted to the type of study used). Researchers conducted a critical appraisal to assess eligible studies. If a study scored at least 50% and met the critical appraisal criteria with a predetermined cut-off point, the study was included in the inclusion criteria. Researchers excluded low-quality studies to avoid bias in the validity of the results and review recommendations. In the final screening, studies that achieved a score above 50% and were ready for data synthesis, but due to an assessment of the risk of bias in the results, were excluded from the articles used in the literature review. The risk of bias in this literature review uses an assessment of the assessment method for each study.

Based on the results of literature searches through publications in online databases, namely Google Scholar, PubMed and using keywords that have been adjusted to MeSH, it can be described in the PRISMA diagram as follows:



RESULTS AND DISCUSSION

The results of the literature identification and analysis yielded articles that met the study's inclusion criteria. Furthermore, the characteristics of each article and its main findings are summarized in the following table as a basis for the research discussion.

Table 3. Results of Previous Research Literature Review

NO	Title and Author	Types of research	Method of collecting data	Population and Sample Size	Results
1	The Effectiveness of Giving Lemon Aromatherapy to Reduce Nausea and Vomiting in Trimester I Pregnant Women in Mariana Clinic Ronni Naudur Siregar, Agnes Purba, Sharfina Haslin 2022	analytical research with a quasi-experimental design.	Data collection was conducted using the PUQE (Pregnancy Unique Quantification of Emesis/Nausea) instrument before and after the intervention. Data analysis used the Wilcoxon test.	The study population was all pregnant women in their first trimester, between weeks 4 and 16, experiencing nausea and vomiting. A random sample size of 26 women was used.	Before the intervention, 53.8% of respondents experienced severe nausea and vomiting, while after receiving lemon aromatherapy, 65.4% experienced mild nausea and vomiting. Statistical tests showed a significant difference with a p-value of 0.000, indicating that lemon aromatherapy was effective in reducing the intensity of nausea and vomiting in pregnant women.
2	The Effect of Providing Lemon Aromatherapy in Reducing Nausea and Vomiting in Pregnant Women in the First Trimester in the UPTD Community Health Center, Teras Terunjam Siti Rahma Yuliani, Kadarsih Partner, Syami Yulianti 2023	Pre-experimental research with a one group pretest-posttest design.	A total sampling method was used to select 31 pregnant women in their first trimester. Data were collected before and after the lemon aromatherapy intervention and analyzed using statistical tests with p-values to assess the effect of aromatherapy on reducing nausea and vomiting.	First trimester pregnant women in the Teras Terunjam Community Health Center area, Muko-muko. Sample of 31 pregnant women.	Before the intervention, 55% of respondents experienced moderate nausea and 45% experienced severe nausea. After receiving lemon aromatherapy, 77% of respondents experienced mild nausea, and 23% experienced moderate nausea. No respondents experienced severe nausea after the intervention. Statistical testing showed a significant effect with a p-value of 0.000, indicating that lemon aromatherapy is effective in reducing nausea and vomiting in pregnant women in the first trimester.
3	Pengaruh Pemberian Aromaterapi Lemon dan Peppermint Terhadap Penurunan Intensitas Mual dan Muntah Pada Ibu Hamil Trimester Pertama di Puskesmas Pulo Ampel Mahduroh, Irma Jayatmi, Hidayani 2023	This research uses a qualitative research type with a case study approach.	This study used qualitative methods and a case study approach, involving two respondents. One respondent received lemon aromatherapy and the other received peppermint aromatherapy. The study was conducted at the Pulo Ampel Community Health Center in April 2024. Measurements were made using the PUQE questionnaire to assess the intensity of nausea and vomiting at each visit.	The sample consisted of two pregnant women in their first trimester experiencing moderate emesis gravidarum. Respondents were selected using purposive sampling based on visits to the Pulo Ampel Community Health Center.	Respondents who were given lemon aromatherapy intervention experienced a decrease in PUQE scores from 10 (moderate) at the initial visit to 6 (mild) at the final evaluation visit. Respondents who were given peppermint aromatherapy intervention experienced a decrease in PUQE scores from 12 (moderate) at the initial visit to 5 (mild) at the final evaluation visit.

4	The Effect of Lemon Aromatherapy on the Reduction of Nausea and Vomiting in Pregnant Women in the First Trimester Sri Rahayu, Riona Sanjaya, Mariatina, Nelly Apriningrum 2023	Quantitative experimental research	The study used a pre-experimental design with a one-group pretest-posttest method. Twenty pregnant women in their first trimester were selected using accidental sampling, given lemon aromatherapy for four days, and their outcomes were measured using the PUQE questionnaire for nausea and vomiting. Analysis was performed using a T-test.	40 pregnant women in the first trimester, with a sample of 20 people selected using the accidental sampling technique.	Research shows that lemon aromatherapy significantly reduces nausea and vomiting in pregnant women in the first trimester. A p-value of 0.000 indicates a significant result ($p < 0.05$). The average frequency of nausea and vomiting decreased from moderate (8.05) before the intervention to mild (6.65) after the intervention.
5	Lemon Suangi (Citrus limon) Aromatherapy to Reduce Vomiting on Early First Trimester Pregnancy at Teling Public Health Center Wanea District Manado City Atik Purwandari 2022	Experimental research	Using an experimental method with pre- and post-intervention measurements, respondents were given lemon aromatherapy for a specific period of time, and the effects were measured to determine whether nausea and vomiting decreased.	A pregnant woman in her first trimester experiencing nausea and vomiting at the Teling Community Health Center, Manado.	Research shows that lemon aromatherapy is effective in reducing symptoms of nausea and vomiting in first trimester pregnant women at the study site.
6	<i>The Influence of Giving Lemon Aromatherapy on Pregnant Women with Emesis gravidarum.</i> Meteria Simbolon, Fitriyaningsih, Trifonia MK Koli. 2022.	Quantitative research with quasi-experimental design and One Group Pretest-Posttest Design approach without control.	The research was conducted through experiments by measuring the frequency of nausea and vomiting before and after administration of lemon aromatherapy.	The study population was all pregnant women who underwent examinations at the Maubesi Community Health Center from March 24 to May 5, 2022. A sample of 10 pregnant women experiencing emesis gravidarum was taken using a purposive sampling technique.	Lemon aromatherapy significantly reduced the frequency of nausea and vomiting in pregnant women. Before the intervention, the average frequency of nausea and vomiting was 7.4, and after the intervention, it decreased to 0.1, with a P value of 0.000. This indicates a statistically significant difference between before and after the lemon aromatherapy intervention.
7	<i>The Effect of Ginger Aromatherapy Inhalation on Emesis Gravidarum in 1st Trimester Pregnant Women at PMB Maghpiro.</i> Titin Apriyani, Ade Marlisa Rahmadayanti, Sartika Dwi Yolanda Putri. 2023.	This study used a quasi-experimental design with one group pretest-posttest.	This study used a quasi-experimental approach with one test group measured before and after ginger aromatherapy intervention. Data collection used the PUQE-24 questionnaire, which has been tested for validity and reliability. Respondents were observed for 5 days by administering ginger aromatherapy by dropping 2-3 drops onto a non-perfumed tissue, and placing the tissue 5 cm away from their nose for 5 minutes.	The population consisted of first-trimester pregnant women at PMB Maghpiro. The study sample consisted of 15 first-trimester pregnant women selected using purposive sampling.	Before receiving ginger aromatherapy, 10 respondents (66.7%) experienced moderate nausea and vomiting, and 5 respondents (33.3%) experienced severe nausea and vomiting. After receiving ginger aromatherapy inhalation, all respondents (100%) experienced a decrease in the intensity of nausea and vomiting to mild. The average score before receiving ginger aromatherapy was 12.07, while after receiving ginger aromatherapy, the average score decreased to 4.33. This indicates a significant decrease in the intensity of nausea and vomiting in pregnant

Based on research results, lemon aromatherapy has been shown to significantly reduce the frequency of nausea and vomiting in pregnant women. This reduction may be attributed to the active compounds in lemons, such as limonene and linalyl acetate, which are known to have a calming (analgesic) effect. These two compounds can help reduce nausea symptoms by providing a relaxing effect and improving mood.

Peppermint, as a non-pharmacological treatment, has the main advantage of not causing significant side effects, as do some antiemetic medications. Medications such as ondansetron, antihistamines, and pyridoxine (vitamin B6) can sometimes cause drowsiness, dizziness, or dry mouth, while peppermint provides a safe, natural solution. Furthermore, peppermint aromatherapy can also improve mood, relieve anxiety, and provide a sense of freshness, which are often experienced by pregnant women facing discomfort during pregnancy.

The use of ginger in aromatherapy offers quick and safe benefits, making it a good alternative to pharmacological treatments that can have side effects. Ginger can be considered as a complementary therapy for pregnant women experiencing mild to moderate nausea.

CONCLUSION

From the seven articles reviewed, it was concluded that ginger, lemon inhalation, and peppermint can reduce nausea and vomiting in pregnant women. Based on the literature review, the most effective intervention for reducing emesis gravidarum is lemon inhalation therapy, as $p = 0.000$ was obtained compared to other research journals that obtained $p = > 0.000$. It is hoped that further researchers can develop this literature review. Meanwhile, the general public is expected to be able to determine and draw conclusions about interventions that are appropriate to the current situation related to the literature obtained.

REFERENCES

- American College of Obstetricians and Gynecologists. (2018). *ACOG Practice Bulletin No. 189: Nausea and vomiting of pregnancy. Obstetrics & Gynecology*, 131(1), e15–e30.
- Apriyani, T., Rahmadayanti, A. M., & Putri, S. D. Y. (2023). *The effect of ginger aromatherapy inhalation on emesis gravidarum in first trimester pregnant women at PMB Maghpiro*.
- Bustos, M., Venkataramanan, R., & Caritis, S. (2017). *Nausea and vomiting of pregnancy—What's new? Autonomic Neuroscience*, 202, 62–72.
- Cholifah, S., & Nuriyanah, TE (2019). *Lemon aromatherapy reduces nausea and vomiting in pregnant women in the first trimester. Jurnal Kebidanan Midwifery*, 4(1), 36–43.
- Julianto TS. (2016). *Indonesian Flower Essential Oils*. Yogyakarta: Deepublish: 7–8 p.
- Mahduroh, Jayatmi, I., & Hidayani. (2023). *Pengaruh pemberian aromaterapi lemon dan peppermint terhadap penurunan intensitas mual dan muntah pada ibu hamil trimester pertama di Puskesmas Pulo Ampel*.
- Nadesul, Hendrawan, and Retno Kusuma. (2015). *The Secret to Modern Health*. PT. Elex Media Komputindo: Jakarta. Pages 203-221
- Purwandari, A. (2022). *Lemon suangi (Citrus limon) aromatherapy to reduce vomiting on early first trimester pregnancy at Teling Public Health Center, Wanea District, Manado City*.
- Rahayu, S., Sanjaya, R., Mariatina, & Apriningrum, N. (2023). *The effect of lemon aromatherapy on the reduction of nausea and vomiting in pregnant women in the first trimester*.
- Simbolon, M., Fitriyaningsih, & Koli, T. M. K. (2022). *The influence of giving lemon aromatherapy on pregnant women with emesis gravidarum*.
- Siregar, R. N., Purba, A., & Haslin, S. (2022). *The effectiveness of giving lemon aromatherapy to reduce nausea*

and vomiting in trimester I pregnant women in Mariana Clinic.

Williams Obstetrics. (2022). Williams obstetrics (26th ed.). McGraw-Hill.

Yuliani, S. R., Kadarsih, M., & Yulianti, S. (2022). *The effect of providing lemon aromatherapy in reducing nausea and vomiting in pregnant women in the first trimester in the UPTD Community Health Center, Teras Terunjam.*