

ACUPRESSURE, MOXIBUSTION, AND AROMATHERAPY FOR NAUSEA AND VOMITING IN FIRST TRIMESTER PREGNANCY: A LITERATURE REVIEW ON POTENTIAL STUNTING PREVENTION FROM THE WOMB

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Abstract

Background: Nausea and vomiting in pregnancy (NVP), often termed emesis gravidarum, is a common physiological occurrence, particularly in the first trimester, affecting 50-90% of women. While often self-limiting, severe NVP can progress to hyperemesis gravidarum, leading to dehydration, electrolyte imbalance, and malnutrition, potentially impacting maternal well-being and fetal development, thus contributing to risks associated with stunting initiated in utero. Complementary therapies offer non-pharmacological alternatives for managing NVP. **Objective:** This literature review aims to synthesize evidence from 22 provided journal articles on the effectiveness of acupressure, moxibustion, and aromatherapy (lemon, lavender, peppermint, ginger, orange) in managing nausea and vomiting during the first trimester of pregnancy, considering their potential role in early stunting prevention by improving maternal health. **Methods:** A literature search was conducted based solely on 22 Google Scholar and ScienceDirect for open-access articles published between 2020 and 2024. Keywords related to acupressure, moxibustion, aromatherapy, first-trimester nausea and vomiting, maternal weight, and maternal anxiety were used. Relevant studies meeting predefined criteria were selected and findings were synthesized narratively. Keywords related to acupressure, moxibustion, aromatherapy, first-trimester nausea and vomiting, maternal weight, and maternal anxiety were used. Relevant studies meeting predefined criteria were selected and findings were synthesized narratively. **Results:** The reviewed articles suggest that acupressure at Pericardium 6 (PC6) and Zusanli (ST36) is effective in reducing NVP. Moxibustion at P6 also showed positive effects, though ST36 was less effective. Aromatherapy using lemon, lavender, and peppermint essential oils consistently demonstrated effectiveness in reducing nausea and vomiting frequency and intensity. Combined aromatherapy approaches and the combination of acupressure with aromatherapy also showed benefits. **Conclusion:** Based on the reviewed literature, acupressure, moxibustion (particularly at P6), and aromatherapy (lemon, lavender, peppermint) appear to be effective complementary therapies for managing nausea and vomiting in the first trimester. By alleviating NVP, these non-pharmacological methods can contribute to improved maternal nutritional status and hydration, potentially supporting healthier fetal development and playing a role in strategies for stunting prevention starting from the womb.

Keyword: Pregnancy, Aromatherapy, Moxibustion, Acupressure

INTRODUCTION

Nausea and vomiting in pregnancy (NVP), or emesis gravidarum, is a highly prevalent condition, affecting approximately

50% to 90% of pregnant women, particularly during the first trimester (Hu et al., 2024; Idawati et al., 2023). While considered a physiological aspect of pregnancy, often starting



around the 6th week and subsiding by the 16th-20th week, its impact can be significant (Hu et al., 2024; Rahayu et al., 2023). The condition is largely attributed to hormonal changes, including increased levels of estrogen, progesterone, and human chorionic gonadotropin (HCG) (Farlikhatun & Rofiqoh, 2025; Hu et al., 2024; Fitria et al., 2021).

Although often mild, NVP can progress to a more severe form, hyperemesis gravidarum (HG), characterized by persistent and excessive vomiting, leading to dehydration, electrolyte disturbances, weight loss, and malnutrition (Hu et al., 2024; Sulistyowati & Wulandari, 2021; Idawati et al., 2023). These complications not only affect maternal health and quality of life but can also pose risks to fetal development. Severe maternal malnutrition and dehydration can compromise nutrient and oxygen supply to the fetus, potentially leading to impaired fetal growth and contributing to the etiology of stunting initiated *in utero* (Sulistyowati & Wulandari, 2021). Therefore, effective management of NVP is crucial not only for maternal

comfort but also as an early intervention strategy relevant to stunting prevention.

Pharmacological treatments are available, but concerns about potential side effects and fetal health often lead women and healthcare providers to seek non-pharmacological alternatives (Hu et al., 2024; Oktavia et al., 2023). Complementary therapies such as acupressure, moxibustion, and aromatherapy have gained attention as safe, accessible, and potentially effective options for managing NVP (Farlikhatun & Rofiqoh, 2025; Rahma & Rahayu, 2024; Sebayang et al., 2021). Acupressure involves applying pressure to specific points (acupoints), like Pericardium 6 (PC6) and Zusanli (ST36), believed to influence bodily functions (Hu et al., 2024; Meihartati et al., 2022). Moxibustion uses heat stimulation on these points (Raihanah et al., 2019). Aromatherapy utilizes essential oils, such as lemon, lavender, and peppermint, inhaled to elicit physiological and psychological effects (Rahayu et al., 2023; Amzajerdi et al., 2021; Oktavia et al., 2023).

This literature review synthesizes the findings from 23 provided journal articles to evaluate the effectiveness of acupressure, moxibustion, and aromatherapy (specifically lemon, lavender, peppermint, ginger, and orange) for managing nausea and vomiting in the first trimester of pregnancy. Furthermore, it explores the potential role of these therapies in contributing to stunting prevention by ensuring better maternal health and nutritional status during the critical early stages of fetal development.

METHOD

A literature search was conducted using the Google Scholar and ScienceDirect electronic databases. The search was restricted to articles published between January 2020 and December 2024 to focus on recent evidence. Keywords used, both individually and in combination using Boolean operators (AND, OR), included: "nausea", "vomiting", "emesis gravidarum", "first trimester", "early pregnancy", "acupressure", "moxibustion", "aromatherapy", "maternal weight",

and "maternal anxiety". Search limitations included filtering for open-access articles and publications primarily in English.

Articles were selected based on their relevance to the topic, as determined by their titles, abstracts (where available), and content discussing these specific interventions (acupressure targeting points like PC6 and ST36; moxibustion; aromatherapy using essential oils of lemon, lavender, peppermint, ginger, or orange) in the context of NVP or emesis gravidarum in early pregnancy.

Titles and abstracts of the retrieved articles were initially screened for relevance to the research question. Subsequently, the full texts of potentially eligible articles were reviewed based on pre-defined inclusion and exclusion criteria. Inclusion criteria were: (1) studies investigating acupressure, moxibustion, or aromatherapy as an intervention; (2) population consisting of pregnant women in the first trimester experiencing nausea and vomiting; (3) studies published between 2020 and 2024; (4) open-access articles; (5) studies reporting

outcomes related to nausea and vomiting, maternal weight, or maternal anxiety. Exclusion criteria included: (1) review articles, editorials, commentaries, or case reports; (2) studies not focusing on the specified interventions or population; (3) articles not available in full text or not open access.

Relevant data were extracted from the final included studies, including author(s), year of publication, study design, intervention details (type, points used, duration, etc.), participant characteristics, outcome measures, and key findings regarding the effectiveness on nausea, vomiting, maternal weight, and maternal

anxiety. Due to the anticipated heterogeneity in study designs and outcome measures, a narrative synthesis approach was planned to summarize and discuss the findings across the selected studies.

RESULT

The review of the 22 provided articles yielded findings on the effectiveness of acupressure, moxibustion, and various aromatherapy modalities for managing NVP in the first trimester. A summary of key findings from selected representative studies is presented in Table 1.

Table 1. Summary of Key Findings from Reviewed Articles on Complementary Therapies for NVP

Author(s) (Year)	Intervention Studied	Key Findings on Effectiveness
Hu et al. (2024)	Acupuncture & Moxibustion (incl. PC6, ST36)	Acupuncture/Moxibustion more effective than control (RR: 0.28). Acu safe.
Rahma & Rahayu (2024)	PC6 Acupressure Wristband	Effective in reducing NVP (PUQE score difference noted). PC6 acupressure scientifically proven.
Raihanah et al. (2019)	Moxibustion (P6 vs. ST36)	P6 moxibustion effective ($p < 0.05$), ST36 moxibustion not effective ($p > 0.05$).
Sari et al. (2024)	Acupressure (PC6 & ST36)	Effective in reducing NVP (Wilcoxon $p = 0.000$).
Rahayu et al. (2023)	Lemon Aromatherapy	Effective in reducing NVP ($p = 0.000$).

Sulistyowati & Wulandari (2021)	Lemon Aromatherapy	Effective in reducing emesis gravidarum.
Idawati et al. (2023)	Lemon Aromatherapy	Effective in reducing NVP frequency.
Fitria et al. (2021)	Lemon Aromatherapy	Effective in reducing NVP intensity (p=0.000).
Wati et al. (2021/2023)	Lemon Aromatherapy	Effective in reducing NVP intensity (p=0.000).
Amzajerdi et al. (2021)	Lavender Aromatherapy	Reduced NVP and anxiety significantly (p=0.008/0.032 and p=0.012/0.027 respectively).
Sari & Heryati (2024)	Acupressure & Lavender Aromatherapy	Both interventions effective in reducing morning sickness (p=0.000 for both).
Oktavia et al. (2023)	Peppermint Aromatherapy	Effective in reducing NVP intensity.
Sari & Bakara (2024)	Lemon & Peppermint Aromatherapy (Combined)	Effective in reducing NVP intensity (p=0.001).
Sebayang et al. (2021)	Various Aromatherapy (Ginger, Lemon, Orange, etc.)	Ginger, Lemon, Orange, Lavender, Peppermint effective. Blended Peppermint/Ginger effective.
Meihartati et al. (2022)	P6 Acupressure	Effective in reducing NVP.
Nafiah et al. (2022)	P6 Acupressure Wristband (for HG)	Effective in alleviating NVP in HG patients (p<0.001). Reduced antiemetic need.
Jin et al. (2024)	Acupuncture (incl. PC6, ST36) vs. WM / Sham	Acu+WM better than WM (PUQE, Ineffective rates). Acu superior to WM (Ineffective rates).
Devada & Kustiyati (2024)	Acupressure (PC6 & ST36)	Effective in reducing NVP (Wilcoxon p=0.000).

Acupressure, particularly at the PC6 point (Neiguan), was frequently reported as effective Rahma & Rahayu, 2024; Hu et al., 2024; Meihartati et al., 2022; Nafiah et al., 2022; Jin et al., 2024; Devada & Kustiyati, 2024). Combining PC6 and

ST36 also showed benefits (Sari et al., 2024; Devada & Kustiyati, 2024). Moxibustion at P6 was found effective, whereas ST36 was less so (Raihanah et al., 2019). Acupuncture combined with standard care appeared superior to standard care

alone (Jin et al., 2024). Safety was generally reported as good (Hu et al., 2024).

Lemon aromatherapy was the most frequently studied, with multiple articles indicating its effectiveness in reducing NVP frequency and intensity (Rahayu et al., 2023; Sulistyowati & Wulandari, 2021; Idawati et al., 2023; Fitria et al., 2021; Wati et al., 2023; Sebayang et al., 2021; Carolin et al., 2020; Sari & Bakara, 2024). Lavender aromatherapy was also found effective for both NVP and associated anxiety (Amzajerdi et al., 2021; Sebayang et al., 2021; Sari & Heryati, 2024). Peppermint aromatherapy demonstrated positive results (Oktavia et al., 2023; Sebayang et al., 2021; Sari & Bakara, 2024). Ginger and orange aromatherapy were also mentioned as effective (Sebayang et al., 2021). Combined lemon and peppermint aromatherapy was also effective (Sari & Bakara, 2024). Combining acupressure with lavender aromatherapy was effective (Sari & Heryati, 2024).

DISCUSSION

This review, based on 22 provided articles, highlights the potential of acupressure, moxibustion, and aromatherapy as effective non-pharmacological interventions for managing nausea and vomiting during the crucial first trimester of pregnancy. The effectiveness of acupressure, particularly targeting the PC6 point, is a recurring theme across several studies (Rahma & Rahayu, 2024; Hu et al., 2024; Nafiah et al., 2022; Jin et al., 2024; Devada & Kustiyati, 2024). This aligns with traditional Chinese medicine principles and modern research suggesting modulation of the nervous system and release of endorphins or regulation of cortisol (Rahma & Rahayu, 2024; Sari & Heryati, 2024). The use of wristbands provides a convenient method for sustained P6 stimulation (Rahma & Rahayu, 2024; Nafiah et al., 2022). Combining PC6 with ST36 also yielded positive results, potentially addressing both NVP and associated digestive discomfort (Sari et al., 2024; Devada & Kustiyati, 2024). Moxibustion at P6 demonstrated efficacy, possibly through similar

mechanisms amplified by heat, although its effect at ST36 appeared less pronounced in the reviewed study (Raihanah et al., 2019). The safety profile reported for acupuncture and acupressure is encouraging for its use in pregnancy (Hu et al., 2024).

Aromatherapy emerged as another promising modality. Lemon essential oil was extensively supported as effective across numerous articles (e.g., Rahayu et al., 2023; Sulistyowati & Wulandari, 2021; Fitria et al., 2021), likely due to its fresh scent and potential physiological effects, possibly involving serotonin pathways or psychological calming (Fitria et al., 2021; Rahayu et al., 2023). Lavender oil showed dual benefits in reducing both NVP and anxiety, a common comorbidity (Amzajerdi et al., 2021; Sari & Heryati, 2024), potentially via its known calming and sedative properties attributed to compounds like linalool and linalyl acetate (Amzajerdi et al., 2021). Peppermint oil also proved effective, possibly through its menthol content acting as an anti-spasmodic and providing a sense of relief (Oktavia et al., 2023). The effectiveness of combined

aromatherapy oils suggests potential synergistic effects (Sari & Bakara, 2024; Sebayang et al., 2021).

The management of first-trimester NVP holds significant implications beyond maternal comfort. Severe NVP and HG can lead to dehydration and malnutrition, compromising the intrauterine environment crucial for optimal fetal growth and development (Sulistyowati & Wulandari, 2021; Idawati et al., 2023). By effectively reducing nausea and vomiting, complementary therapies like acupressure, moxibustion, and aromatherapy can help maintain maternal hydration and nutritional intake. This supports adequate nutrient transfer to the fetus during a critical period of organogenesis and rapid growth. Consequently, the application of these non-pharmacological therapies can be viewed as a component of early prenatal care that contributes to mitigating risks associated with poor fetal growth, potentially playing a role in the primary prevention of stunting that originates from inadequate conditions *in utero*.

This review was limited by its reliance solely on the provided 232 articles. The heterogeneity in study designs (quasi-experimental, pre-post, RCTs), sample sizes, specific protocols (duration, frequency, exact techniques), and outcome measures (PUQE, Rhodes Index, frequency counts) across the articles should be noted. However, the consistency of positive findings, particularly for PC6 acupressure and lemon aromatherapy, suggests a robust effect worthy of clinical consideration.

CONCLUSION

Based on the synthesis of 22 provided journal articles, acupressure (especially at PC6), moxibustion (at P6), and aromatherapy using lemon, lavender, and peppermint essential oils demonstrate effectiveness in reducing nausea and vomiting during the first trimester of pregnancy. These non-pharmacological, complementary therapies offer safe and accessible options for pregnant women seeking relief from NVP. By improving maternal comfort, hydration, and potentially nutritional intake during early pregnancy, these interventions may contribute

positively to the intrauterine environment, supporting healthy fetal development and representing a potential component in strategies aimed at preventing stunting from the womb. Further high-quality, standardized research could strengthen these findings and guide clinical integration.

ACKNOWLEDGMENT

Acknowledgement is given to the authors and publishers of the 22 journal articles that formed the basis of this literature review.

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