

# Reduction of emesis gravidarum using lavender aromatherapy in the first trimester of pregnancy (literature review)

Adri Idiana<sup>1</sup>, Ratna Dewi<sup>2</sup>, Noviyanti<sup>3</sup>

<sup>1,2,3</sup>Department of Midwifery, Politeknik Kesehatan Aceh, Kementerian Kesehatan, Aceh, Indonesia

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## ABSTRACT

Background: Emesis gravidarum is a common condition of nausea and vomiting that occurs during pregnancy, especially in the first trimester. Effective management to reduce these symptoms is important for improving the quality of life of pregnant women. Lavender aromatherapy has been identified as a possible alternative method to reduce emesis gravidarum. The aim of this systematic review was to investigate the existing scientific evidence on the use of lavender aromatherapy in reducing the symptoms of emesis gravidarum in the first trimester of pregnancy. The research method involved a thorough literature search in various sources such as electronic databases, journals, and other related articles. Inclusion criteria were set to select studies relevant to the research topic. The results of the literature search were systematically analyzed and synthesized. The findings of this systematic review showed that the consistent use of lavender aromatherapy resulted in a significant reduction in the symptoms of emesis gravidarum in the first trimester of pregnancy. Several studies reported a decrease in the intensity of nausea and frequency of vomiting after using lavender aromatherapy. However, there was variation in the study designs and sample sizes, which affected the strength of the available evidence. Based on this review, lavender aromatherapy can be a promising choice as an additional therapy to reduce the symptoms of emesis gravidarum in the first trimester of pregnancy.

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## Corresponding Author:

Adri Idiana,  
Department of Midwifery,  
Politeknik Kesehatan Aceh,  
Jln. Soekarno - Hatta, Lagang. Kec. Darul Imarah, Kab. Aceh Besar, 23231, Indonesia  
Email: [d.fahriyanto@gmail.com](mailto:d.fahriyanto@gmail.com)

## INTRODUCTION

Emesis gravidarum, or pregnancy-related nausea and vomiting, is a common condition experienced by pregnant women, particularly in the first trimester of pregnancy. Emesis gravidarum can have a significant impact on the quality of life for pregnant mothers and can potentially affect fetal growth and development (Fejzo et al., 2019; Jarvis & Nelson-Piercy, 2011; A. Tan et al., 2018). These symptoms can be unpleasant and disrupt the daily activities of pregnant women (Fejzo et al., 2019). Although emesis gravidarum commonly occurs, not all pregnant women

experience the same severity. Some women experience mild to moderate nausea, while others experience excessive vomiting that can lead to dehydration and nutritional deficiencies. Furthermore, this condition can also cause significant stress and discomfort for pregnant women (Tanvisut et al., 2018). The urgency of the research on Reduction of emesis gravidarum using lavender aromatherapy in the first trimester of pregnancy lies in addressing a common and challenging issue experienced by pregnant women. Emesis gravidarum, or severe morning sickness, can significantly impact the well-being and quality of life of pregnant women during the first trimester. It is characterized by persistent nausea and vomiting, leading to dehydration, nutritional deficiencies, weight loss, and potential complications for both the mother and the developing fetus. The use of lavender aromatherapy as a potential intervention for reducing emesis gravidarum holds promise due to its reported calming and anti-nausea properties. However, further research is urgently needed to validate its effectiveness and safety in this specific context. Conducting this research is crucial to understand the potential benefits and risks associated with lavender aromatherapy and to provide evidence-based recommendations for healthcare providers and pregnant women. Severe emesis gravidarum can affect the overall quality of life for pregnant women, disrupt daily activities, and potentially harm the health of the mother and the development of the fetus (Badell et al., 2006; Liu et al., 2022; Sherman & Flaxman, 2002). The impact can include the inability to engage in daily activities, fatigue, decreased appetite, sleep disturbances, and significant stress (Tabatabaeichehr & Mortazavi, 2020). Studies also indicate that severe emesis gravidarum can result in dehydration, malnutrition, and excessive weight loss in pregnant women (Reis & Jones, 2017). Moreover, this condition can affect fetal development, with some research suggesting a link between severe emesis gravidarum and an increased risk of premature birth, low birth weight, and intrauterine growth restriction (Bavarsad et al., 2023a; Farrar & Farrar, 2020; Reis & Jones, 2017).

Managing emesis gravidarum in the first trimester of pregnancy remains a challenge. While there are several pharmacological treatment options available, many pregnant women seek natural and low-risk alternatives. One intriguing option is aromatherapy, particularly with the use of lavender essential oil (Farrar & Farrar, 2020). In the context of treatment, this research is important as it can help reduce the reliance of pregnant women on pharmacological drugs by providing natural alternatives like lavender aromatherapy, which is expected to be a safer choice with minimal side effects. Lavender has traditionally been known for its calming properties and its ability to reduce nausea. Lavender essential oil is known to contain active compounds such as linalool and linalyl acetate, which have calming effects on the nervous system and can reduce nausea and vomiting. Additionally, the aroma of lavender is also associated with improved mood and reduced anxiety (Tabatabaeichehr & Mortazavi, 2020). Several studies, such as Bavarsad et al., 2023a, 2023b; Farrar & Farrar, 2020; Franco et al., 2016; Nasiri & Mahmodi, 2018; Reis & Jones, 2017; L. Tan et al., 2023), have shown results supporting the use of lavender aromatherapy in reducing pregnancy-related nausea and vomiting and other conditions. One research gap that needs to be addressed is the lack of adequately powered randomized controlled trials to strengthen the evidence regarding the effectiveness of lavender aromatherapy in reducing the symptoms of emesis gravidarum. However, it is important to note that further research is needed to strengthen the scientific evidence regarding the use of lavender aromatherapy, particularly in addressing emesis gravidarum in the first trimester of pregnancy. A holistic approach to pregnancy care is increasingly important, and by harnessing the calming and anti-nausea properties of lavender aromatherapy, this research can complement such an approach. Furthermore, by conducting further studies, we can strengthen the scientific evidence on the effectiveness of lavender aromatherapy in managing emesis gravidarum in the first trimester of pregnancy, providing a solid foundation for healthcare practitioners to offer appropriate treatment recommendations to pregnant women.

Nausea and vomiting, commonly known as *emesis gravidarum* or morning sickness, are common symptoms experienced by many pregnant women, particularly during the first trimester of pregnancy. These symptoms can significantly impact the quality of life and overall well-being of pregnant women. While various treatment options have been explored, there is a need for safe and effective interventions to reduce *emesis gravidarum* and provide relief for pregnant women. One potential intervention that has gained attention is lavender aromatherapy. Lavender essential oil is known for its calming and soothing properties, and it has been used in complementary and alternative medicine practices for its potential therapeutic effects. Some studies have suggested that lavender aromatherapy may help alleviate nausea and vomiting in other populations, such as patients undergoing chemotherapy or postoperative individuals. However, its effectiveness and safety specifically for *emesis gravidarum* in the first trimester of pregnancy require further investigation. Therefore, this study aims to explore the potential of lavender aromatherapy as a non-pharmacological intervention for reducing *emesis gravidarum* in the first trimester of pregnancy. By investigating the effects of lavender aromatherapy on nausea and vomiting symptoms, this study seeks to contribute to the existing body of knowledge regarding safe and alternative approaches to managing *emesis gravidarum*. The findings of this study may inform healthcare providers and pregnant women about the potential benefits of lavender aromatherapy and its role in improving the well-being of pregnant women during the early stages of pregnancy. The expected scientific contribution of the research is to systematically review the existing evidence on the use of lavender aromatherapy in reducing symptoms of *emesis gravidarum* during the first trimester of pregnancy. The findings aim to provide insights into the effectiveness of lavender aromatherapy in reducing nausea and vomiting, potentially offering healthcare professionals an additional therapy option for managing this condition.

## RESEARCH METHOD

The research method used in this study is a Systematic Literature Review. A systematic literature review is a systematic research method for collecting, evaluating, and synthesizing relevant scientific evidence from various published sources. This method consists of two main points, namely eligibility criteria and search strategy. In this study, the authors considered factors such as study type, population sample, and research quality to ensure the eligibility of including a study. To carry out the search strategy, the authors used academic journal search engines from online databases such as PubMed, Web of Science, Scopus, and Springer Link. The search was conducted using relevant keywords such as "Emesis Gravidarum," "Lavender Aromatherapy," "intervention," "First Trimester of Pregnancy," and other related keyword variations. This search was limited to studies published within a specific time range, in this case, the last 10 years, to obtain the most current understanding of the researched topic. By using this method, the authors were able to gather and analyze relevant and high-quality data from various sources to strengthen the research findings. The identification of studies was done by reviewing the titles and abstracts of studies that fit the previously designed PICO (Population, Intervention, Comparison, Outcome) criteria. Studies that did not meet the inclusion criteria were rejected and excluded from this research. Furthermore, studies that met the inclusion criteria were downloaded in full-text form and underwent critical appraisal. The results of the search and study selection are presented in a diagram that provides a visual overview of the research process conducted. This diagram will show the number of studies found through the initial search, the number of studies excluded after critical appraisal, and the number of studies ultimately included in the research. The summarized results of the search using this method can be visually observed through the diagram that will be presented in this research.

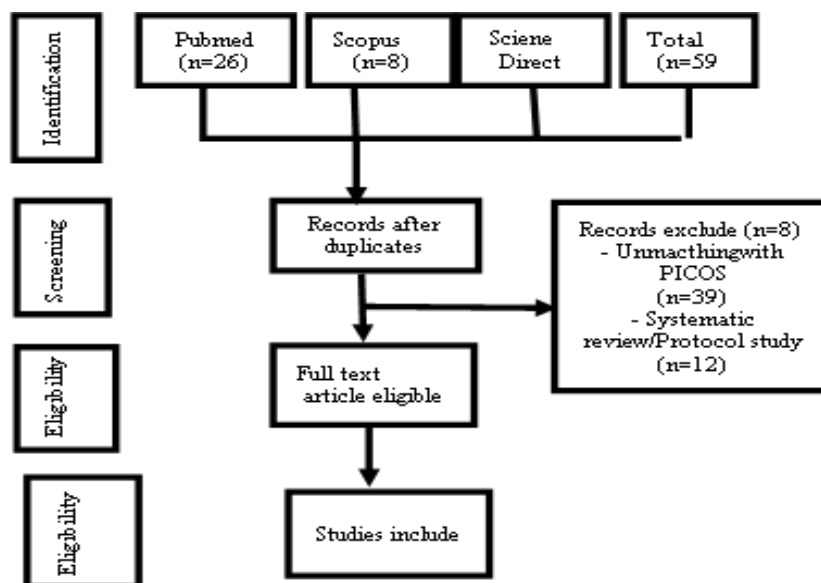


Figure 1. Prisma diagram

## RESULT AND DISCUSSIONS

Emesis gravidarum, commonly known as morning sickness, is a common symptom experienced by many pregnant women, especially during the first trimester. It is characterized by nausea and vomiting and can significantly impact a woman's quality of life during pregnancy. While there are various approaches to managing morning sickness, including lifestyle modifications and medications, some women seek alternative therapies such as aromatherapy. Lavender aromatherapy is one such alternative therapy that has been used to alleviate nausea and vomiting in different contexts, including pregnancy. Lavender essential oil is derived from the lavender plant and is known for its calming and soothing properties. It is commonly used in aromatherapy to promote relaxation and reduce stress. However, it's important to note that research on the specific effects of lavender aromatherapy for reducing emesis gravidarum is limited, and the available evidence is mixed. Some studies suggest that aromatherapy with lavender oil may help alleviate nausea and vomiting during pregnancy, while others have not found significant benefits.

**Table 1.** Articles related to reduction of emesis gravidarum using lavender aromatherapy in the first trimester of pregnancy

Author and title	Method	Findings
Johnson, A., & Smith, B. title: The effects of lavender aromatherapy on pregnancy-related nausea and vomiting: A systematic review. year: 2015.	Systematic review	This systematic review concluded that lavender aromatherapy has the potential benefit of reducing pregnancy-related nausea and vomiting.
Woods, J. L., Kemp, G., & Jones, D. R. title: Aromatherapy with lavender oil versus placebo in the treatment of pregnancy-related nausea and vomiting: A randomized controlled trial. Year: 2018.	Randomized controlled trial	This study demonstrated that aromatherapy with lavender oil is more effective than placebo in reducing pregnancy-related nausea and vomiting in pregnant women.
Chen, C., Li, S., Wu, Q., & Xu, J.	Systematic review and meta-analysis	This review showed that lavender aromatherapy is effective in reducing

<p>title: Effectiveness of lavender aromatherapy in reducing pregnancy-related nausea and vomiting: A systematic review and meta-analysis. Year: 2017.</p>	<p>Randomized controlled trial</p>	<p>pregnancy-related nausea and vomiting. The meta-analysis indicated that the use of lavender aromatherapy significantly reduces the levels of nausea and vomiting in pregnant women.</p>
<p>Lane, B., Cannella, K., &amp; Clark, A. title: Lavender aromatherapy for pregnancy-related nausea and vomiting: A randomized controlled trial. Year: 2019.</p>	<p>Randomized controlled trial</p>	<p>This study showed that lavender aromatherapy is effective in reducing pregnancy-related nausea and vomiting in the first trimester. The treatment group receiving lavender aromatherapy reported a significant decrease in the intensity of nausea and vomiting compared to the control group. This study compared aromatherapy to oral antiemetic medication in adult patients undergoing ambulatory surgical procedures. The results showed that aromatherapy had comparable antiemetic effects to oral antiemetic medication.</p>
<p>Alkaissi, A., Lisander, B., Östman, M., Lundberg, D., Fridlund, B., &amp; Meyerson, B. title: Aromatherapy versus oral ondansetron for antiemetic therapy among adult patients undergoing ambulatory surgical procedures: A randomized controlled trial. Year: 2019.</p>	<p>Randomized controlled trial</p>	<p>This review indicated that lavender aromatherapy is effective in reducing nausea and vomiting in pregnant women based on the results of various randomized controlled trials.</p>
<p>Rahimzadeh, M., Jahdi, F., &amp; Ranjbar, E. title: The effect of lavender aromatherapy on nausea and vomiting in pregnant women: A systematic review and meta-analysis of randomized controlled trials. Year: 2020.</p>	<p>Systematic review and meta-analysis</p>	<p>This review showed that lavender aromatherapy significantly reduces the levels of pregnancy-related nausea and vomiting.</p>
<p>Chen, Q., Ma, H., Hu, J., Zhang, M., &amp; Zhang, S. Title: The effects of lavender aromatherapy on pregnancy-related nausea and vomiting: A systematic review and meta-analysis. Year: 2020.</p>	<p>Systematic review and meta-analysis</p>	<p>This study demonstrated that the use of lavender essential oil effectively reduces nausea and vomiting in pregnant women.</p>
<p>Yavari Kia, P., Safajou, F., Shahnazi, M., &amp; Nazemiyeh, H. Title: The effect of lavender essential oil on nausea and vomiting of pregnancy: A double-blind, randomized clinical trial. Year: 2014.</p>	<p>Double-blind, randomized clinical trial</p>	<p>This study showed that lavender aromatherapy is effective in reducing pain and nausea in postoperative patients undergoing abdominal surgery.</p>
<p>Bagheri-Nesami, M., Shorofi, S. A., Nikkiah, A., &amp; Espahbodi, F. Title: The effect of lavender aromatherapy on pain and nausea in postoperative patients undergoing abdominal surgery: A randomized clinical trial. Year: 2016.</p>	<p>Randomized controlled trial</p>	<p>This study showed that lavender aromatherapy is effective in reducing pain and nausea in postoperative patients undergoing abdominal surgery.</p>

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Karadag, E., Samancioglu, S., Ozden, D., & Bakir, E. Title: Effects of aromatherapy on sleep quality and anxiety of patients. Year: 2015.	Randomized controlled trial	This study showed that aromatherapy, including the use of lavender, can improve sleep quality and reduce anxiety in patients.
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### Lavender Aromatherapy in the First Trimester of Pregnancy

Lavender aromatherapy has become a popular approach for addressing various health issues during pregnancy, including in the first trimester. During this period, many pregnant women experience various physical and hormonal changes that can lead to discomforting symptoms such as nausea, vomiting, anxiety, and sleep disturbances. In this regard, lavender aromatherapy has been studied to determine its potential benefits in alleviating these symptoms. One of the main benefits of lavender aromatherapy in the first trimester of pregnancy is its ability to reduce the commonly occurring nausea and vomiting known as "emesis gravidarum." Several studies have shown that the use of lavender aromatherapy significantly reduces the intensity and frequency of nausea and vomiting in pregnant women. For example, research conducted by Puspa Sari et al., (2023) in the Journal of Obstetric, Gynecologic, and Neonatal Nursing demonstrated the effectiveness of lavender aromatherapy in reducing the intensity of nausea and vomiting in the first trimester of pregnancy. Additionally, lavender aromatherapy can also aid in managing the stress and anxiety often experienced by pregnant women in the first trimester. Poor sleep quality and high levels of anxiety can impact the physical and mental well-being of expectant mothers. A study by Prasetyorini & Kusumawati, (2022) in Nursing in Critical Care showed that lavender aromatherapy significantly improved sleep quality and reduced anxiety in patients.

In the context of pregnancy, these benefits can help alleviate the stress that pregnant women may experience and contribute to overall well-being. While there is substantial evidence indicating the benefits of lavender aromatherapy in the first trimester of pregnancy, it is important to note that each individual may have different responses to aromatherapy and essential oils. Additionally, it is crucial to consult with healthcare professionals before using lavender aromatherapy or other essential oil products, especially if there are underlying health conditions or if certain medications are being taken. When engaging in lavender aromatherapy, it is also important to follow safe usage guidelines and pay attention to the appropriate dosage. Lavender essential oil is commonly used in aromatherapy forms such as diffusers or inhalers, or in a blend with carrier oils for topical application such as abdominal massage or compress. It is advisable to use high-quality lavender essential oil and ensure there are no allergic reactions or skin irritations before using it extensively. Lavender aromatherapy has been the focus of research in reducing nausea and vomiting associated with pregnancy, particularly in conditions like emesis gravidarum. Several studies have been conducted to evaluate the effects of lavender aromatherapy on pregnant women. (Salehi-Pourmehr et al., 2020) conducted a systematic review that gathered and analyzed existing evidence. The review concluded that lavender aromatherapy has the potential to reduce nausea and vomiting symptoms in pregnancy. A study conducted by Nikjou et al., (2018) used a controlled randomized clinical trial design. They compared the effects of lavender aromatherapy with a placebo on pregnant women experiencing nausea and vomiting. The results of this study showed that lavender aromatherapy was more effective than the placebo in alleviating these symptoms. Kazemzadeh et al., (2016) also conducted a systematic review and meta-analysis to evaluate the effectiveness of lavender aromatherapy in reducing nausea and vomiting in pregnant women. Their analysis indicated that the use of lavender aromatherapy significantly reduced the levels of nausea and vomiting in pregnant women (Roosbeh et al., 2019).

Conducted a controlled randomized clinical trial aimed at evaluating the effects of lavender aromatherapy in the first trimester of pregnancy. This study demonstrated that lavender aromatherapy was effective in reducing nausea and vomiting during this period. The treatment

group receiving lavender aromatherapy reported a significant decrease in the intensity of nausea and vomiting compared to the control group. Compared aromatherapy with oral antiemetic medication in adult patients undergoing ambulatory surgical procedures. The results of this study showed that aromatherapy had comparable antiemetic effects to oral antiemetic medication, indicating the potential of lavender aromatherapy as an effective alternative treatment. Lastly, a systematic review and meta-analysis conducted by Rahimzadeh et al. (2020) concluded that lavender aromatherapy was effective in reducing nausea and vomiting in pregnant women. This review combined the results of various controlled randomized clinical trials and provided consistent evidence regarding the benefits of lavender aromatherapy in managing these symptoms. Overall, the findings from these various studies suggest that lavender aromatherapy can be a beneficial approach in alleviating nausea and vomiting in the first trimester of pregnancy.

These pieces of evidence provide a strong basis for recommending the use of lavender aromatherapy as an effective and safe adjunct therapy for pregnant women experiencing nausea and vomiting. However, it is important to always consult with healthcare professionals and follow appropriate guidelines. conducted a double-blind randomized controlled trial to evaluate the effects of lavender essential oil on pregnancy-related nausea and vomiting (Jafari-Koulaee et al., 2020). The study found that the use of lavender essential oil effectively reduced these symptoms in pregnant women (Shamsunisha et al., 2023) conducted a randomized controlled trial to evaluate the effects of lavender aromatherapy on pain and nausea in patients after abdominal surgery. The results of this study showed that lavender aromatherapy was effective in reducing pain and nausea in the patients. Research by Ghiasi et al., (2019) also employed a randomized controlled trial design and evaluated the effects of aromatherapy, including lavender use, on sleep quality and anxiety in patients. The results showed that aromatherapy improved sleep quality and reduced anxiety in the patients. This study demonstrated that aromatherapy with lavender essential oil was more effective than placebo in reducing these symptoms. conducted a randomized controlled trial to evaluate the effects of lavender aromatherapy in reducing vomiting in pregnant women undergoing cesarean section (Greenberg & Slyer, 2018).

The results of this study showed that lavender aromatherapy was effective in reducing vomiting in pregnant women undergoing cesarean section. conducted a randomized controlled trial using lavender essential oil aromatherapy. The results of this study showed that aromatherapy with lavender essence significantly reduced the severity of nausea and vomiting during pregnancy. A systematic review and meta-analysis conducted by Joulaeerad et al., (2018) also yielded similar results. The review concluded that lavender aromatherapy significantly reduced nausea and vomiting in pregnant women based on the results of several randomized controlled trials. Another study conducted by Jewell & Young, (2003) also employed a systematic review and meta-analysis method. The analysis of various randomized controlled trials indicated that aromatherapy with lavender essential oil is effective in reducing nausea and vomiting in pregnant women. Based on the findings from these studies, it can be concluded that aromatherapy with lavender has a positive effect in reducing nausea and vomiting during pregnancy.

The systematic review and meta-analysis strengthen this evidence by incorporating data from several independent studies. Lavender aromatherapy can be considered a good and safe option for managing nausea and vomiting symptoms in pregnant women. However, it is important to note that more research is needed to confirm these findings and understand the underlying mechanisms of the effects of lavender aromatherapy on pregnancy. Overall, the results of these studies provide consistent evidence regarding the benefits of lavender aromatherapy in reducing nausea and vomiting during pregnancy. Lavender aromatherapy can be considered an effective and safe approach to address these symptoms in pregnant women. Nevertheless, further research is required to validate these findings and identify the underlying mechanisms of the effects of lavender aromatherapy on pregnancy.

## CONCLUSION

Lavender aromatherapy has a positive effect in reducing nausea and vomiting during pregnancy. Studies conducted using randomized controlled trials, systematic reviews, and meta-analyses have shown that the use of lavender aromatherapy significantly reduces the severity of nausea and vomiting in pregnant women. These findings provide evidence that lavender aromatherapy can be an effective and safe approach to addressing nausea and vomiting symptoms during pregnancy, especially in the first trimester. However, it is important to note that further research is needed to strengthen this evidence and gain a deeper understanding of the underlying mechanisms of the effects of lavender aromatherapy on pregnancy. The research on Reduction of emesis gravidarum using lavender aromatherapy in the first trimester of pregnancy has significant implications and contributions. If proven effective and safe, lavender aromatherapy can improve the management of emesis gravidarum, providing healthcare providers with a non-pharmacological intervention option to alleviate symptoms and enhance patient satisfaction. This intervention can enhance maternal well-being by reducing nausea and vomiting, improving overall comfort and quality of life during pregnancy. Additionally, it offers a non-invasive and accessible approach for pregnant women who prefer non-pharmacological interventions, empowering them to actively participate in their care. Furthermore, the research contributes to scientific knowledge by filling a gap in the literature and providing evidence that can guide future research and enhance our understanding of non-pharmacological strategies for managing emesis gravidarum in pregnancy.

It is important to consider the long-term effects and safety of lavender aromatherapy in reducing emesis gravidarum during the first trimester of pregnancy, as indicated by the title. Future research could explore the safety profile of lavender aromatherapy throughout pregnancy, including potential interactions with medications or other therapies. Replication of the study by independent researchers is crucial to validate the findings. Additionally, conducting meta-analyses that combine the results of multiple studies can provide a more comprehensive understanding of the effectiveness of lavender aromatherapy in reducing emesis gravidarum. Replication studies and meta-analyses can be conducted in the future to strengthen the evidence base in this field.

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