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The Effect Of Giving A Combination Of Ginger (*Zingiber Officinale Var. Amarum*) And Lemongrass (*Cymbopogon Citratus*) Brewing In Overcoming Emesis Gravidarum In Pregnant Women In The First Trimester

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ABSTRACT

Emesis gravidarum, commonly occurring during the first trimester of pregnancy, is characterized by nausea and vomiting that can lead to dehydration, nutritional deficiency, and psychological distress if left unmanaged. Herbal remedies, such as ginger (Zingiber officinale) and lemongrass (Cymbopogon citratus), are gaining attention for their effectiveness and minimal side effects in addressing this condition. In the Pangkalan Koto Baru District, out of 157 pregnant women, 149 reported experiencing nausea and vomiting, while 48 were diagnosed with Grade 1 hyperemesis gravidarum. Many of these women are generally unaware that natural remedies such as ginger and lemongrass can help alleviate these symptoms.This study aims to examine the effect of a ginger and lemongrass herbal drink in managing emesis gravidarum. The research employed a quasi-experimental design using a one-group pre-test and post-test method. It was conducted in the Pangkalan Koto Baru District with a target population of 77 first-trimester pregnant women. A sample of 30 participants was selected through purposive sampling. Data were analyzed using univariate and bivariate methods, with the Wilcoxon test applied due to the abnormal distribution of the data. The findings revealed a significant effect of consuming the ginger and lemongrass brew, with a p-value of 0.000. This study shows that ginger and lemongrass infusion can be a practical, low-risk alternative to reduce emesis gravidarum in first-trimester pregnancies. Its ease of use and natural properties make it suitable for community health settings. However, the small sample size, short intervention period, and uncontrolled external factors limit the generalizability of the results, indicating the need for broader and more controlled future research.

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1. Introduction

Pregnancy is the period from conception to birth. The normal duration of pregnancy is 280 days (40 weeks or 9 months and 7 days), divided into 3 trimesters. Pregnancy is a physiological process for women. The changes that accompany pregnancy are common during the prenatal period and are not a disease but rather physiological changes in the mother (Uliarta Marbun et al.,2023). During pregnancy, physiological

changes occur in the mother, including physical and psychological changes. These changes generally cause discomfort in each trimester. Common symptoms of pregnancy include nausea, morning sickness, weakness, and fatigue, which are caused by increased estrogen and progesterone levels in early pregnancy, commonly known as emesis gravidarum(Siti Cholifah, 2022).

According to the World Health Organization (WHO), emesis gravidarum affects at least 15% of pregnant women globally, while nausea and vomiting during pregnancy impact approximately 70–80% of expectant mothers. The incidence of emesis gravidarum varies across countries: in Indonesia, it occurs in 1–3% of all pregnancies; in Sweden, 0.9%; in California, 0.5%; in Turkey, 1.9%; and in the United States, between 0.5% and 2%. A study conducted in Indonesia involving 2,203 observed pregnancies found that 543 women experienced emesis gravidarum, indicating a prevalence rate of about 10% (WHO, 2022). Additionally, data from the Lima Puluh Kota Regency Health Office reported that in 2023, a total of 7,847 pregnant women had received antenatal care according to the K1 assessment (Lima Puluh Kota Regency Health Office, 2023).

The number of pregnant women in the first trimester in Pangkalan Koto Baru District from January to July 2024 was 157, and 149 experienced nausea and vomiting. In July, 55 pregnant women experienced Grade 1 hyperemesis gravidarum, a condition characterized by persistent nausea and vomiting, decreased appetite, and weakness, with 48 experiencing it (Report from the Community Health Center in Pangkalan Koto District, 2024). Nausea and vomiting during pregnancy, or emesis gravidarum, is a mild problem that can be managed by a mother. Physiologically, nausea and vomiting occur in the first trimester of pregnancy and gradually subside towards the second trimester. However, the effects of emesis gravidarum can lead to nutritional deficiencies, dehydration, weakness, weight loss, and electrolyte imbalances. If left untreated, this nausea and vomiting can worsen and become hyperemesis gravidarum. Non-pharmacological approaches can be used for pregnant women experiencing emesis gravidarum due to their minimal side effects. Non-pharmacological approaches include consuming brewed ginger with lemongrass, ginger tea, relaxation techniques, and aromatherapy. Many pregnant women require medication or other alternative treatments to manage emesis gravidarum. Vitamin B6 is a common anti-nausea medication prescribed to pregnant women. However, this medication has been reported to have side effects such as headaches, diarrhea, and drowsiness (Rofiah, 2017)

Initial therapy for emesis gravidarum should be conservative, accompanied by dietary changes, emotional support, and alternative therapies such as herbal remedies. Traditional remedies include drinking a cup of warm ginger. In India, ginger is made into a drink to relieve nausea in pregnant women. Ginger can be consumed in various forms, such as drinks, candy, or preserves (Astawan, 2020).

Lemongrass contains a chemical compound known as "fragrant" (Citronella oil), and the essential oil it produces has the effect of relieving all types of inflammation and irritability associated with aches and pains. Ginger is a plant with a multitude of benefits that has been known for a long time. Ginger is an important herbal plant. Its rhizome has numerous uses, including as a spice in cooking, drinks, and candies, and is also used in traditional herbal remedies(Astawan, 2020). A more in-depth explanation of the pharmacological mechanisms of the active compounds in ginger and lemongrass can strengthen this article's scientific contribution. Ginger (Zingiber officinale) contains bioactive compounds such as gingerol, shogaol, and zingerone, which are known to exert antiemetic effects by inhibiting serotonin (5-HT3) receptors in the gastrointestinal tract and central nervous system. This mechanism is believed to reduce the stimulus for nausea and vomiting commonly experienced in early pregnancy. Lemongrass (Cymbopogon citratus), on the other hand, contains essential oils rich in citral and citronellal, which possess anti-inflammatory and antispasmodic properties. The combination of these two herbs may have a synergistic effect in relaxing smooth muscles of the digestive tract and reducing sympathetic nervous system activity that triggers nausea. By linking these pharmacological actions to the study findings, the article can offer a more robust scientific rationale for non-pharmacological management of emesis gravidarum.

Based on research by (Adrienne J., 2016), Ginger for nausea and vomiting of pregnancy stated that the average score difference on the 40-point nausea and vomiting scale was 4.19 vs. placebo at 1

week in 70 women. Of those who consumed ginger, 33% vomited on day 6 vs. 80% of those who used ginger. Based on research(Pratiwi Nasution et al, 2023)on the Effectiveness of Consuming Lemongrass Leaves and Ginger in Overcoming Morning Sickness in First Trimester Pregnant Women at the Mariana Midwife Clinic in North Padang Lawas Regency, it was stated that Consuming Lemongrass Leaves and Ginger was Effective in Overcoming Morning Sickness in First Trimester Pregnant Women at the Mariana Midwife Clinic with an Emesis Gravidarum score of 4.19. The innovation in using a combination of ginger and lemongrass infusion as a non-pharmacological approach addresses the urgent need for safe, accessible, and culturally acceptable alternatives to manage emesis gravidarum, especially in low-resource maternal health settings.

2. Methods

This research utilized a quasi-experimental design with a pre-test and post-test approach, aiming to assess the difference in emesis symptoms before and after the administration of a ginger and lemongrass mixture. Data were collected through both primary sources (direct observation and measurement) and secondary sources (existing records and documentation). To ensure adherence to the consumption of the herbal infusion (ginger and lemongrass), participants were monitored through daily intake logs, which they completed and were verified by assigned healthcare personnel. In addition, brief follow-up interviews were conducted every few days to assess symptoms, identify any side effects, and confirm that the infusion was consumed according to the prescribed dosage and schedule. This approach aimed to minimize bias and enhance the reliability of the intervention data. A total of 30 participants were selected using purposive sampling. The study was conducted in September 2024. The instrument used to assess the severity of emesis gravidarum in this study was a modified version of the PUQE (Pregnancy-Unique Quantification of Emesis and Nausea) scale. This scale is considered to have strong validity, as it is specifically designed to evaluate symptoms of nausea and vomiting unique to the first trimester of pregnancy, including the duration of nausea, the frequency of vomiting, and dry heaves. Previous research has demonstrated that the PUQE scale possesses good content and construct validity in pregnant populations. Additionally, it has demonstrated high reliability, with a Cronbach's alpha coefficient exceeding 0.7, indicating strong internal consistency. Prior to its application in this study, the scale underwent local validation and reliability testing to ensure that the items were culturally appropriate and clearly understood by the respondents.

This study was conducted in accordance with established research ethics principles. Prior to data collection, the researcher obtained formal approval from the relevant institutional authorities, including permission from the healthcare facility where the study was carried out. All participants received a clear explanation of the study's objectives, procedures, potential benefits, and risks through a participant information sheet. Written informed consent was obtained from each participant, indicating their voluntary willingness to participate. The confidentiality and anonymity of all participant data were strictly maintained, and participants were assured of their right to withdraw from the study at any time without penalty. These procedures ensured compliance with recognized ethical research standards.

This study has several limitations that should be considered when interpreting the findings. The relatively small sample size restricts the generalizability of the results to a broader population. Additionally, the absence of a control group limits the ability to fully assess the effectiveness of the intervention, as there is no comparison to a non-treatment or alternative-treatment condition. Therefore, while the results indicate a reduction in emesis gravidarum symptoms, the external validity and causal strength of these findings remain limited.

3. Results and Discussion

Table 1.
Respondent Characteristics

Age	N	Percent
20-35	26	86.7
>36	4	13.3
parity		

Primipara	13	43.3
multiparous	17	56.7

Based on Table 1, It is known above that the majority of respondents are aged 20-35 years, namely 26 respondents (86.7%) and more than half, namely 17 respondents (56.7%) were multiparas.

The results of this study align with those (Zunita, 2023), who found that the older a person is, the less frequently they experience emesis gravidarum. This is because young women are less able to cope and are still adapting to hormonal changes in their bodies, as most of these are their first pregnancies(Zuanita, 2023). These results align with research conducted by Ubat (Betriani, 2023)on "The Effectiveness of Zingiber Officinale (Ginger) Brewing Water on Pregnant Women Experiencing Emesis Gravidarum," which found that the average age of pregnant women experiencing emesis gravidarum was 26-35 years, with a percentage of 53.3%.

The results of this study are also in line with research (Sitonga, 2021)on "The Effectiveness of Ginger Tea in Overcoming Nausea and Vomiting in the First Trimester of Pregnancy," which found that the average age of pregnant women experiencing emesis gravidarum was 25-35 years, with an average frequency of nausea and vomiting before being given ginger tea of 8.83 times and after being given treatment of 7.50 times. This shows that age, physical, mental maturity, and social function greatly influence the readiness of the expectant mother. Because if the expectant mother is not ready, it will affect the mother's psychological condition, which can reduce appetite, which causes stomach irritation, resulting in morning gravidarum.

The results of this study align with research conducted (Juwita, 2024) on the Relationship between Parity and Maternal Occupation and the Incidence of Nausea and Vomiting in the Payung Sekaki Community Health Center Work Area. This study revealed a significant relationship between parity and occupation and the incidence of nausea and vomiting in pregnant women in the Payung Sekaki Community Health Center Work Area, with a p-value <0.05. Most primigravidas tend to be less accustomed to adapting to the hormones estrogen and chorionic gonadotropin, so they experience emesis gravidarum more frequently than multigravidas (second or subsequent pregnancies). In multigravidas, experience from previous pregnancies helps them better adapt to these hormonal changes (Ibrahim, 2021).

This contrasts with the characteristics of the respondents, where more than half of pregnant women experiencing emesis gravidarum were multiparous. Mothers with multiparity may face additional challenges, such as managing the symptoms of emesis gravidarum while caring for other children. This can occur due to many factors that trigger emesis sickness, such as hormonal changes, nutrition, age, allergies and other factors.

Table 2.
Distribution of the Frequency of Emesis Gravidarum in Pregnant Women in the First Trimester Before Being Given Ginger (*Zingiber Officiale Var. Amarum*) and Lemongrass (*Cymbopogon Citratus*)

frequency of nausea and vomiting (PUQE Score)	N	Percent
Light (<6)	24	80.0
Moderate (7-12)	6	20.0

Based on Table 2, It is known that the majority of nausea and vomiting (emesis gravidarum) after being given a combination of ginger and lemongrass infusion in pregnant women in the first trimester was in the mild range, namely 24 respondents (80%).

According to (Anna et all, 2023)emesis gravidarum during pregnancy affects more than 80% of pregnant women and can significantly impact quality of life. Others find it uncomfortable and disruptive to daily activities. Many pregnant women even require medication or other alternative treatments to manage nausea and vomiting. Initial treatment for nausea and vomiting should be conservative, accompanied by dietary changes, emotional support, and alternative therapies such as herbal remedies.

Traditional herbal remedies, such as drinking a cup of warm ginger and lemongrass, can be beneficial in relieving nausea in pregnant women (Yuliana, 2023).

This study aligns with the research of (Pratiwi, 2023)entitled "The Effectiveness of Consuming Lemongrass and Ginger Leaves in Overcoming Morning Sickness in First Trimester Pregnant Women at the Mariana Midwife Clinic in North Padang Lawas Regency in 2020." The results showed that 16 respondents (72.2%) had mild nausea and vomiting, while 6 respondents (27.3%) had moderate nausea and vomiting.

According to research conducted (Fera et al, 2023)in their study titled "Ginger and Honey Drinks for Nausea and Vomiting in First Trimester Pregnant Women," the average nausea and vomiting score before the intervention was 1.83 with a standard deviation of 0.389, which decreased to 1.08 after the intervention, with a standard deviation of 0.289 (Setiyaningsih et al., 2023). While the combination of lemongrass and ginger for managing nausea and vomiting has not been previously studied, several researchers have investigated the use of ginger and vitamin B6. These studies found that ginger was more effective in reducing symptoms of nausea and vomiting during pregnancy. Additionally, previous research has shown that combining ginger extract with pyridoxine (vitamin B6) is more effective in alleviating these symptoms compared to pyridoxine alone (Rofi'ah et al, 2017)

Lemongrass contains a chemical compound known as citronella oil, and its essential oil has anti-inflammatory properties that help alleviate various types of pain and irritation. In ginger, essential oils play a key role in managing emesis gravidarum by producing a refreshing aroma that helps suppress the gag reflex. Additionally, its oleoresins create a warming, spicy sensation that promotes sweating and provides relief (Nasution, 2020). Based on the findings of this study, observations indicated a reduction in emesis gravidarum among pregnant women following the administration of ginger and lemongrass infusions. This suggests that the combination is effective in decreasing the frequency of nausea and vomiting during pregnancy. Data collection showed a noticeable shift in severity levels, with 24 respondents (80%) falling into the mild category and no participants experiencing severe emesis gravidarum.

The severity of emesis gravidarum before and after the intervention remained within the mild category. This outcome is attributed to the administration of ginger and lemongrass infusions by the researchers in accordance with established Standard Operating Procedures (SOPs). The findings demonstrated a reduction in the severity of emesis gravidarum among first-trimester pregnant women, with the majority scoring in the mild range (≤6) based on the PUQE (Pregnancy-Unique Quantification of Emesis) scale.Based on these results, the researchers suggest that the active compounds in ginger and lemongrass may serve as an effective combination for reducing the severity of emesis gravidarum in early pregnancy.

Table 3.
Data Normality Test

Emesis Gravidarum	*n*	Sig	Information
Before intervention	30	0.000	Not normally distributed
After the intervention	30	0.000	Not normally distributed

Based on table 3, Normality test was obtained in pre and post gravidarum emesis. In the pre group, the sig value = 0.000 means it is not normally distributed where the value of α > 0.05 (normal) and in the post group, the sig value = 0.000 means it is not normally distributed. The normality test is said to be normal if α > 0.05. Therefore, the test used is the Wilcoxon test.

Table 4.
The Effect of Giving a Combination of Ginger and Lemongrass Brew in Overcoming Emesis Sicknees in Pregnant Women in the First Month of Pregnancy

Emesis Gravidarum	N	Mean	SD	Pvalue
Pre-test	30	6.27	2.664	0.000

Post-test	30	5.40	2.430

Based on Table 4, The results showed a change in the degree of emesis gravidarum between the pre- and post-tests. The average emesis gravidarum score before being given the combination of ginger and lemongrass infusion was 6.27 with a SD of 2.664. Meanwhile, the average emesis gravidarum score after being given the combination of ginger and lemongrass infusion was 5.40 with a SD of 2.430. Based on statistical analysis, the value was 0.000 <0.005. This means that H0 is rejected and Ha is accepted. Therefore, it can be concluded that there is an effect of administering the combination of ginger and lemongrass infusion in treating emesis sickness in pregnant women in the first trimester in Pangkalan Koto Baru District.

This is in line with a study conducted (Vina, 2023)entitled "The Effect of Ginger Drinking and Acupressure Therapy on Morning Sickness in Pregnant Women in the First Trimester," which found an effect of giving ginger drink and acupressure therapy with a p-value of 0.000 (Mahira et all., 2022). Furthermore, this is also in line with research conducted (Siti et all., 2017)entitled "The Effectiveness of Ginger and Lemongrass Consumption in Overcoming Morning Sickness," which found that consuming ginger and lemongrass was effective in overcoming emesis gravidarum in pregnant women, with a p-value of 0.001 (Rofi'ah et all., 2017).

One non-pharmacological approach to reducing the frequency of nausea and vomiting (emesis gravidarum) is the consumption of an herbal infusion combining ginger and lemongrass. Ginger has long been recognized for its wide range of health benefits. It is a versatile plant used not only as a culinary spice and confectionery ingredient but also as a component in traditional herbal medicine. Ginger acts as an aromatic stimulant and contains various essential oils and active compounds such as zingiberene (zingirone), zingiberol, bisabolene, curcumin, gingerol, farnesene, vitamin A, and bitter resins. These compounds are known to inhibit serotonin, a neurotransmitter produced in serotonergic neurons of the central nervous system and in enterochromaffin cells of the gastrointestinal tract. By blocking serotonin, ginger helps soothe the stomach and reduce feelings of nausea and the urge to vomit.

Lemongrass also contributes to digestive health by alleviating symptoms such as stomach discomfort, nausea, vomiting, bloating, intestinal cramps, and diarrhea. Additionally, it helps prevent excessive gas formation. Lemongrass is a rich source of essential nutrients, particularly vitamins A and C (Sari et al., 2024). The practical implications of this study suggest that the combination of ginger and lemongrass may serve as an effective and safe non-pharmacological alternative for managing emesis gravidarum during the first trimester of pregnancy. Herbal interventions offer minimal side effects, are culturally acceptable, and are widely accessible, making them a promising complementary approach in antenatal care. Therefore, it is recommended that healthcare providers, particularly midwives and antenatal care personnel, consider incorporating herbal remedies into pregnancy care protocols, especially for mild to moderate cases.

Based on the aforementioned facts and theories, the researchers conclude that the combination of ginger and lemongrass infusion is highly effective in reducing the frequency of nausea and vomiting (emesis gravidarum). The active compounds in both ginger and lemongrass complement each other, creating a synergistic effect that enhances their ability to alleviate these symptoms. The sharp aroma of lemongrass is balanced by the more pleasant and calming scent of ginger, which may be more tolerable for pregnant women. This is likely due to the primary aromatic components in ginger essential oil, such as zingiberene and zingiberol, which contribute to its soothing fragrance.

3. Conclusion

Based on the research findings and discussion, the following conclusions can be drawn: The majority of respondents were between 20 and 35 years of age, accounting for 26 individuals (86.7%). In terms of gestational age, most participants were at ≥9 weeks, with 21 respondents (70%). Prior to the intervention, 22 respondents (73.3%) experienced mild emesis gravidarum (scores 1–6). After the intervention, the number of respondents experiencing mild emesis gravidarum increased to 24 (80%). The interpretation of these results should take into account several limitations. The absence of a control group limits the ability

to directly compare outcomes with those not receiving the intervention. Additionally, the relatively small sample size reduces the generalizability of the findings to a broader population. Future research employing more robust designs, such as randomized controlled trials (RCTs) with larger sample sizes, is recommended to enhance external validity and strengthen the scientific basis for the clinical application of ginger and lemongrass in managing pregnancy-related nausea and vomiting. The results showed a significant effect of administering a combination of ginger (Zingiber officinale) and lemongrass (Cymbopogon citratus) in reducing emesis gravidarum among first-trimester pregnant women, with a p-value of 0.000, which is less than the significance level α = 0.05. This study is expected to contribute both scientifically and practically to the management of emesis gravidarum in first-trimester pregnant women through a safe, accessible, and non-pharmacological intervention namely, the use of a combination infusion of ginger (*Zingiber officinale*) and lemongrass (*Cymbopogon citratus*). With significant results, this research aims to serve as a foundation for healthcare providers, particularly midwives and nurses, to adopt evidence-based herbal interventions as part of comprehensive antenatal care. For future research, it is recommended to expand the sample size, extend the duration of the intervention, and include additional influencing factors such as maternal nutritional status, dietary habits, and psychological well-being. Further studies could also explore different forms of administration such as capsules, teas, or standardized extracts to evaluate both the efficacy and practicality of use. These efforts are expected to yield more robust evidence and contribute to broader clinical applications in maternal health care.

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