

THE EFFECT OF ACUPRESSURE THERAPY ON NAUSEA AND VOMITING AMONG FIRST-TRIMESTER PREGNANT WOMEN IN THE WORKING AREA OF UPTD PUSKESMAS SEKUPANG

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ABSTRACT

Nausea and vomiting, commonly referred to as emesis gravidarum, are among the most frequent complaints experienced by women during early pregnancy. Although generally considered a physiological condition, persistent symptoms may interfere with maternal activities and nutritional status and may progress to hyperemesis gravidarum. This study aimed to determine the effect of acupressure therapy on the frequency of nausea and vomiting among first-trimester pregnant women in the working area of UPTD Puskesmas Sekupang, Batam City, in 2024. This study employed a quantitative quasi-experimental design using a one-group pretest-posttest approach. A total of 38 first-trimester pregnant women were selected through purposive sampling. Nausea and vomiting were assessed before and after the intervention using the Pregnancy-Unique Quantification of Emesis and Nausea (PUQE-24) instrument. Data were analyzed using univariate analysis and the Wilcoxon signed-rank test. The mean nausea and vomiting score decreased from 1.89 before the intervention to 1.11 after acupressure therapy. The Wilcoxon test demonstrated a statistically significant difference between pretest and posttest scores ($p < 0.001$). These findings indicate that acupressure therapy was associated with a significant reduction in nausea and vomiting among first-trimester pregnant women in the working area of UPTD Puskesmas Sekupang, Batam City.

Keywords: *acupressure therapy; nausea and vomiting; emesis gravidarum; first trimester; pregnancy*

INTRODUCTION

Pregnancy is a physiological process characterized by substantial physical, hormonal, and psychological changes that may cause various maternal discomforts and affect daily activities (Arummega et al., 2022). Among the most common complaints during early pregnancy are nausea and vomiting, commonly known as *emesis gravidarum*. Nausea and vomiting are frequently experienced during the first trimester of pregnancy. Symptoms generally begin approximately six

weeks after the first day of the last menstrual period and tend to peak between the eighth and twelfth weeks of gestation. Although the symptoms commonly occur in the morning, they may also occur at other times of the day. In most women, nausea and vomiting gradually decrease as pregnancy progresses. However, in some cases, the symptoms may become severe and develop into hyperemesis gravidarum (Winkjosastro, 2009; Mulyandari Ani, 2022).

The onset of nausea and vomiting during pregnancy is linked to various

physiological adaptations occurring in the maternal body. Elevated levels of human chorionic gonadotropin (hCG), estrogen, and progesterone are believed to play a major role in triggering these symptoms. Their severity may also be affected by genetic susceptibility, altered carbohydrate and lipid metabolism, heightened sensitivity to smells, immune responses, fatigue, experiences from previous pregnancies, smoking habits, socioeconomic circumstances, and psychological conditions (Auliana et al., 2017).

Nausea and vomiting are highly prevalent among pregnant women. The World Health Organization (WHO) indicates that these symptoms affect a considerable proportion of pregnancies worldwide. In Indonesia, emesis gravidarum is also commonly encountered, especially during the first trimester. Although generally regarded as a normal physiological response to pregnancy, prolonged or intense symptoms can interfere with maternal food and fluid intake, physical health, and psychological well-being. When nausea and vomiting occur continuously and increase in severity, the condition may progress to hyperemesis gravidarum.

This complication can lead to dehydration, electrolyte disturbances, inadequate nutritional intake, weight loss, anemia, and other health problems in the mother. In more serious cases, poor maternal nutritional status may adversely affect fetal development and increase the likelihood of fetal growth restriction and low birth weight. Effective management is therefore essential to control symptoms, prevent complications, and protect the health of both the mother and fetus. Medical management commonly involves antiemetic drugs and vitamin B6 supplementation. Nevertheless, some pregnant women avoid pharmacological

treatment because they are concerned about possible adverse effects on themselves or their fetuses.

This concern has encouraged greater interest in complementary and non-pharmacological interventions for relieving pregnancy-related nausea and vomiting (Ani & Alvina, 2022). Acupressure is one complementary method that can be applied to reduce nausea and vomiting. Originating from acupuncture principles, this non-pharmacological intervention involves exerting manual pressure on particular points of the body without inserting needles. Stimulation of these points is thought to produce physiological responses through the nervous and endocrine systems, thereby helping to relieve nausea and vomiting. One of the points most frequently selected for this purpose is Pericardium 6 (P6), also referred to as Neiguan.

This point is situated on the inner surface of the forearm, approximately three finger-widths above the wrist crease, between the tendons of the flexor carpi radialis and palmaris longus muscles. Applying pressure to P6 is believed to modulate physiological pathways involved in the nausea and vomiting response (Hasibuan, 2021; Hindratni & Sari, 2022). Several previous investigations have provided evidence regarding the effectiveness of acupressure in alleviating nausea and vomiting among pregnant women. Meiri (2018) identified a significant decrease in symptoms after pressure was applied to the Nei Guan, Zu Sanli, and Gongsun points, as demonstrated by a Wilcoxon test result of $p < 0.001$. Consistent with this result, Widyastuti (2018) found that complementary acupressure therapy influenced the severity of emesis gravidarum among women during the first trimester of pregnancy.

Additional research has reported similar benefits from stimulation of the

P6 point. Ani and Alvina (2022) observed a statistically significant decline in emesis gravidarum symptoms after participants received acupressure therapy. Mariza et al. (2022) likewise demonstrated that acupressure significantly decreased the intensity of nausea and vomiting among first-trimester pregnant women. Collectively, these findings indicate that acupressure can serve as an accessible, affordable, non-invasive, and practical complementary option for addressing nausea and vomiting in pregnancy.

Local health data further emphasize the relevance of conducting this study. Data from the Batam City Health Office showed that 39,757 first antenatal care (K1) visits were recorded throughout Batam City in 2023. Among the healthcare centers, UPTD Puskesmas Sekupang reported the highest number, with 5,173 visits, followed by Puskesmas Batu Ampar with 2,029 visits and Puskesmas Belakang Padang with 674 visits (Dinkes, 2023).

The large volume of antenatal visits at Puskesmas Sekupang highlights the need for interventions that are effective, safe, practical, and easily accessible to pregnant women experiencing common discomforts. Considering the high occurrence of nausea and vomiting in early pregnancy, the possible complications arising from persistent symptoms, and the evidence supporting acupressure as a complementary intervention, this study sought to examine the effect of acupressure therapy on nausea and vomiting among first-trimester pregnant women within the working area of UPTD Puskesmas Sekupang, Batam City, in 2024.

RESEARCH OBJECTIVES

This study aimed to:

1. Determine the level of nausea and

vomiting among first-trimester pregnant women before acupressure therapy in the working area of UPTD Puskesmas Sekupang, Batam City.

2. Determine the level of nausea and vomiting among first-trimester pregnant women after acupressure therapy in the working area of UPTD Puskesmas Sekupang, Batam City.
3. Analyze the difference in nausea and vomiting scores before and after acupressure therapy.

RESEARCH METHODS

Study Design

This study used a quantitative quasi-experimental design with a one-group pretest-posttest approach. The study was conducted to evaluate changes in nausea and vomiting before and after the administration of acupressure therapy among first-trimester pregnant women in the working area of UPTD Puskesmas Sekupang, Batam City, in 2024.

Participants and Sampling

The study population consisted of first-trimester pregnant women experiencing nausea and vomiting in the working area of UPTD Puskesmas Sekupang. A total of 38 respondents were included in the study. The study involved 63 first-trimester pregnant women experiencing nausea and vomiting in the working area of UPTD Puskesmas Sekupang, Batam City. A total of 38 participants were selected using purposive sampling based on predetermined inclusion criteria. A one-group pretest-posttest design was used, with all participants receiving the same intervention. Acupressure was self-administered by participants for one week after standardized instruction. The intervention targeted the P6 (Neiguan) point, located

approximately three finger-widths above the wrist crease, using thumb pressure with a gentle circular motion for 3–5 minutes, followed by a 30-second interval. Participants performed the technique whenever nausea or vomiting occurred, as no fixed daily frequency was specified. The original protocol did not specify bilateral application, formal daily researcher supervision, or a separate adherence log. Nausea and vomiting were assessed using the PUQE-24 questionnaire before and after the intervention. A reduction in symptoms was observed around the sixth day.

Data Analysis

Univariate analysis was used to describe the characteristics of the respondents and the distribution of nausea and vomiting scores before and after the intervention. Bivariate analysis was performed to determine the difference between pretest and posttest scores.

The Shapiro–Wilk test indicated that the data were not normally distributed ($p < 0.05$). Therefore, a non-parametric statistical test, namely the Wilcoxon signed-rank test, was used to examine the difference between pretest and posttest scores.

RESULTS

Table 1. Characteristics of First-Trimester Pregnant Women

No	Variable	N	%
1.	Age		
	>35 Years	3	7,9
	20-35Years	35	92,1
	Total	38	100
2.	Education		
	Elementary school	3	7,9
	Junior high school	4	10,5
	Senior high school	31	81,6
	Total	38	100

3. Occupation

Employed	11	28,9
Unemployed	27	71,1
Total	38	100

4. Gravidity

Primigravida	13	34,2
Multigravida	25	65,8
Total	38	100

Table 1 shows that most respondents were 20–35 years old (35 respondents; 92.1%). Regarding educational attainment, the majority had completed senior high school (31 respondents; 81.6%). Most respondents were unemployed (27 respondents; 71.1%), and the majority were multigravida (25 respondents; 65.8%).

Table 2. Mean Nausea and Vomiting Scores Before and After Acupressure

Variable	Mean	N	SD
Pretest	1.89	38	0.311
Posttest	1.11	38	0.311

As shown in Table 2, the mean nausea and vomiting score decreased from 1.89 before acupressure therapy to 1.11 after the intervention. This reduction indicates an improvement in nausea and vomiting following acupressure therapy.

Table 3. The distribution of pretest–posttest score differences, rather than the normality of each group

Variable	Mean	N	SD	<i>p value</i>
Pretest	1.89	38	0.311	0,000
Posttest	1.11	38	0.311	

The Shapiro–Wilk test indicated that the data were not normally distributed ($p < 0.05$). Therefore, a non-parametric statistical test, namely the Wilcoxon signed-rank test, was used to examine the difference between pretest and posttest scores.

Table 4. Difference in Nausea and Vomiting Scores Before and After Acupressure

Variable	Mean	N	SD	p value
Pretest	1.89	38	0.311	0,000
Posttest	1.11	38	0.311	

The Wilcoxon signed-rank test demonstrated a statistically significant difference between nausea and vomiting scores before and after acupressure therapy ($p < 0.001$). Acupressure therapy was associated with a significant reduction in nausea and vomiting scores

DISCUSSION

Nausea and Vomiting Before Acupressure Therapy

The findings showed that the average nausea and vomiting score prior to the intervention was 1.89. This result indicates that nausea and vomiting were frequently experienced by the first-trimester pregnant women involved in the study. Pregnancy is accompanied by considerable physiological adaptations caused by hormonal changes. Elevated concentrations of human chorionic gonadotropin (hCG), estrogen, and progesterone are considered major factors contributing to nausea and vomiting in early pregnancy. These symptoms commonly appear within the initial weeks of gestation and usually reach their highest intensity between the eighth and twelfth weeks (Mariza et al., 2022).

Pharmacological management of nausea and vomiting may involve antiemetic drugs or vitamin B6 supplementation. However, concerns about the safety and potential adverse effects of medication during pregnancy have increased interest in

complementary and non-pharmacological treatments. These alternatives may provide several benefits because they are generally easy to administer, affordable, and free from medication-related side effects (Ani & Alvina, 2022). In addition to physiological factors, psychological conditions can affect how pregnant women experience and respond to nausea and vomiting. Anxiety about pregnancy and childbirth, emotional stress, family-related circumstances, and concerns about future maternal responsibilities may intensify psychological discomfort. Despite these influences, pregnancy-related physiological and hormonal changes remain central factors in the occurrence of nausea and vomiting during the first trimester (Retnowati, 2019).

Maternal age may also be associated with the occurrence of *emesis gravidarum*. Pregnancies occurring at younger than 20 years or older than 35 years are often considered to have a greater risk of pregnancy-related complications. In contrast, women aged 20–35 years are generally considered to be in the optimal reproductive age range and may be physiologically and psychologically better prepared for pregnancy (Retnowati, 2019). Educational attainment may influence a woman's ability to receive and understand health information. Higher educational levels are generally associated with greater access to health information and the ability to utilize available healthcare services. However, education should not be interpreted as a direct determinant of nausea and vomiting, as the condition is primarily associated with physiological and hormonal changes during pregnancy (Krisniyawati et al., 2023).

The findings of this study are consistent with Handayani (2019), who reported that nausea and vomiting were

common among first-trimester pregnant women. Similarly, Parapat et al. (2023) found that nausea and vomiting varied in severity among pregnant women and were related to physiological changes associated with pregnancy.

In the present study, participants commonly reported morning nausea, abdominal discomfort, weakness, dizziness, and episodes of vomiting. Some respondents experienced nausea and vomiting more than three times per day. Before the intervention, management at the study site primarily involved dietary recommendations, such as consuming small meals more frequently, fruit, warm water, and bread.

Nausea and Vomiting After Acupressure Therapy

Following acupressure therapy, the mean nausea and vomiting score decreased to 1.11, with a standard deviation of 0.311. This finding indicates a reduction in symptom severity following the intervention. Acupressure is a complementary therapy based on the principle of stimulating specific points on the body through manual pressure. Unlike acupuncture, acupressure does not require needles and can therefore be applied as a relatively simple non-pharmacological intervention.

The P6 or Neiguan point is one of the most frequently used points for managing nausea and vomiting. It is located on the anterior forearm approximately three finger-widths above the wrist crease and between the flexor tendons. Stimulation of this point has been reported to reduce nausea and vomiting in several clinical populations, including pregnant women (Hasibuan, 2021; Hindratni & Sari, 2022). In this study, acupressure was performed for approximately three minutes and continued over a 12-day intervention period. The intervention

was designed to allow respondents to become familiar with the technique and, when appropriate, perform it independently.

Previous research supports the findings of the present study. Nugraha et al. (2022) reported that P6 acupressure, combined with a warm ginger drink, was associated with a reduction in *emesis gravidarum*. Participants were also encouraged to remain relaxed during the intervention and to apply pressure appropriately to avoid discomfort or injury.

Similarly, Ani and Alvina (2022) reported that acupressure at the P6 point was effective in reducing *emesis gravidarum*. The technique can be performed in a comfortable sitting or lying position, allowing pregnant women to use it as a complementary method when nausea occurs.

Participants began to report improvements around the sixth day of treatment. They reported decreased morning nausea and vomiting, reduced dizziness, improved physical well-being, and a decrease in the frequency of nausea to approximately one or two episodes per day. Participants continued to consume small and frequent meals during the intervention.

These findings suggest that acupressure may be a feasible complementary intervention for managing mild to moderate nausea and vomiting during early pregnancy. Nevertheless, acupressure should be considered a complementary approach and should not replace medical assessment when symptoms become severe or are accompanied by dehydration, substantial weight loss, persistent vomiting, or other signs of hyperemesis gravidarum.

Effect of Acupressure on Nausea and Vomiting

The Wilcoxon signed-rank test

demonstrated a statistically significant difference between nausea and vomiting scores before and after acupressure therapy ($p < 0.001$). This finding indicates that the reduction observed after the intervention was statistically significant.

Acupressure, also referred to as finger-pressure therapy, involves applying controlled pressure to specific acupoints to stimulate physiological responses. The technique is considered a complementary approach that may provide physical relaxation and reduce discomfort (Masdinarsah, 2022).

The results of this study are consistent with Ani and Alvina (2022), who found a significant reduction in *emesis gravidarum* after acupressure therapy, with a p -value < 0.001 . Mariza et al. (2022) similarly reported that acupressure significantly reduced the intensity of nausea and vomiting among first-trimester pregnant women.

The P6 point is particularly relevant to the management of nausea and vomiting. In addition to P6, other acupoints, such as ST36, have been investigated for their potential effects on gastrointestinal symptoms. P6 is intervention may therefore be considered a complementary, simple, and potentially accessible approach for managing pregnancy-related nausea and vomiting.

This study has several limitations. First, the one-group pretest-posttest design did not include a control group, limiting the ability to attribute the observed changes solely to the acupressure intervention. Second, the sample was relatively small ($n=38$) and was selected using purposive sampling, which may limit the generalizability of the findings. Third, the study was conducted at a single health facility, UPTD Puskesmas Sekupang, which may limit applicability to other settings. Fourth, potential confounding factors, such as dietary

located approximately three finger-widths below the inner wrist between two tendons, whereas ST36 is located on the lower leg and has traditionally been associated with gastrointestinal function (Masdinarsah, 2022; Inayati et al., 2024).

The reduction in symptoms observed in the present study may be related to the repeated stimulation of the P6 point during the intervention period. Regular acupressure may provide relaxation and influence physiological pathways associated with nausea and vomiting. However, because this study used a one-group pretest-posttest design without a control group, the observed improvement cannot be attributed exclusively to acupressure with the same level of certainty as in a randomized controlled trial.

Overall, the findings indicate that acupressure therapy was associated with a significant reduction in nausea and vomiting among first-trimester pregnant women in the working area.

patterns, pregnancy characteristics, and other factors affecting nausea and vomiting, could not be fully controlled. Fifth, the intervention was partly self-administered by participants, creating potential variation in adherence and technique. In addition, blinding was not possible due to the nature of the intervention. Finally, the intervention was conducted over a relatively short period; the study materials describe a 12-day period for the intervention procedure, while the actual protocol also reports symptom improvement beginning around day six. These limitations should be considered when interpreting the findings.

CONCLUSION

Based on the findings of this study, the following conclusions can be drawn:

1. The mean nausea and vomiting score among first-trimester pregnant women before acupressure therapy was 1.89.
2. The mean nausea and vomiting score decreased to 1.11 after acupressure therapy.
3. The Wilcoxon signed-rank test demonstrated a statistically significant difference between pretest and posttest scores ($p < 0.001$), indicating that acupressure therapy was associated with a significant reduction in nausea and vomiting among first-trimester pregnant women in the working area of UPTD Puskesmas Sekupang, Batam City.

RECOMMENDATIONS

For Pregnant Women

Pregnant women experiencing nausea and vomiting may consider acupressure as a complementary non-pharmacological approach. Appropriate instruction should be provided before the technique is performed independently.

For UPTD Puskesmas Sekupang

The findings may be considered as additional information for developing complementary approaches within antenatal care services, particularly for pregnant women experiencing mild to moderate nausea and vomiting.

For Educational Institutions

The findings may contribute to the academic literature on complementary midwifery care and may serve as an additional reference for students and researchers studying acupressure and pregnancy-related nausea and vomiting.

For Future Researchers

Future studies should consider using a larger sample size and a control or comparison group. Randomized controlled designs are also recommended to provide stronger evidence regarding the effectiveness of acupressure. Future research may additionally examine the duration, frequency, and optimal acupressure technique and control for potential confounding factors such as gestational age, dietary intake, parity, psychological status, and previous history of nausea and vomiting.

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