

# The Effect of Acupressure on Pericardium Point 6 on the Reduction of Vomiting in Pregnant Women in the First Trimester

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**Abstract.** Pregnancy lasts from the first trimester, second trimester, to the third trimester. In the first trimester, pregnant women may experience Emesis gravidarum, which is a common complaint in early pregnancy, occurring at 8-12 weeks of gestation due to an increase in the hormone hCG. The incidence of emesis gravidarum in the world reaches 12.5%, in Indonesia it is 1-3%, and in Central Java, it reaches 56.60%. Emesis gravidarum, if not addressed promptly, can lead to hyperemesis gravidarum, with signs and symptoms including weakness, dehydration, and decreased urination frequency. The purpose of this study is to determine the effect of acupressure therapy on the pericardium 6 point on the reduction of emesis gravidarum in first trimester pregnant women. This research method is quantitative, using a pre-experimental type of study with a one group pretest and posttest without control design, involving 16 respondents selected based on inclusion criteria, conducted for 4 days with a duration of 7 minutes. The measurement of gravidarum emesis was conducted using the Rhodes Index of Nausea Vomiting and Retching (INVR). The study results showed an average decrease in INVR. The average reduction was 8 points after the P6 acupressure therapy intervention. The average before the intervention was 11.88 with a minimum of 8 (mild nausea and vomiting) and a maximum of 15 (moderate nausea and vomiting), whereas after performing acupressure at the Pericardium 6 point, it was 3.11 with a minimum of 1 (mild nausea and vomiting) and a maximum of 6 (mild nausea and vomiting), with a significance p value of 0.000. There is an influence of acupressure at the Pericardium 6 point on the reduction of gravidarum emesis in pregnant women in the first trimester.

**Key words:** Acupressure, Emesis Gravidarum, Pregnant

## INTRODUCTION

Pregnancy is a natural and physiological process. Every woman has healthy reproductive organs and experiences menstruation. The period of pregnancy begins from conception until the birth of the baby with a duration of 280 days or 40 weeks. Pregnancy is divided into 3 trimesters: the first trimester starts from conception to 3 months, the second trimester from 4-6 months, and the third trimester from 7-9 months (Findy, 2022). In pregnancy, emesis gravidarum is a normal symptom that often occurs in the first trimester (Murdiana, 2019). Emesis gravidarum is a symptom commonly found in the first trimester of pregnancy. Emesis gravidarum usually occurs in the morning but can also occur at night. The symptoms of emesis gravidarum usually start at 2-4 weeks of gestation after fertilization and peak at 8-12 weeks of gestation. The symptoms of emesis gravidarum begin to decrease at 16-20 weeks of gestation (Lia Ayuningtyas and Ana Mariza, 2019).

WHO UNICEF (2015) reported that 12.5% of all pregnancies worldwide are affected, with varying incidence rates such as 0.3% in Sweden, 0.5% in California, 0.8% in Canada, 10.8% in China, 0.9% in Norway, 2.2% in Pakistan, and 1.9% in Turkey. The incidence of emesis gravidarum in Indonesia according to WHO (2018) reaches 1-3% of all pregnancies (Mariza & Ayuningtias, 2019). In Central Java according to the Ministry of Health of the Republic of Indonesia (2018), 56.60% of pregnant women from 121,000 have emesis gravidarum. Meanwhile, the prevalence of emesis gravidarum in Pati District (2024) is noted to include 15 individuals among all first-trimester pregnant women in Gajahmati Village who underwent pregnancy examinations at UPT Puskesmas Pati 1.

If not promptly addressed, emesis gravidarum can lead to increasingly severe symptoms, causing the mother to experience emesis gravidarum every time she eats or drinks, which can result in hyperemesis gravidarum with signs and symptoms of weakness, dehydration, reduced frequency of urination, decreasing body fluids, and thickened blood, leading to disruptions in the body's blood circulation and blood flow to the placenta. If oxygen and nutrients for the tissues in the body decrease, it poses a risk to the health of both the mother and the fetus she is carrying (Magdalena tri putri apriyani, 2023).

The mechanism of emesis gravidarum involves the meeting of an egg cell and sperm cell in the fallopian tube, followed by the formation of a zygote. The zygote then travels down from the fallopian tube to the uterus where it forms a morula. The morula develops into a blastocyst which then implants

into the uterine lining (endometrium). During this implantation, the placenta and embryo are formed, leading to the phase of nausea and vomiting. Nausea and vomiting during pregnancy are caused by changes in the endocrine system that occur during pregnancy, particularly the increase of hCG which leads to the sensation of emesis gravidarum in pregnant women (Setyowati, 2018).

Efforts to address the discomfort of emesis gravidarum during the first trimester of pregnancy with pharmacological or non-pharmacological therapy. Pharmacological therapy is carried out by administering antiemetics, antihistamines, and anticholinergics. Management of non-pharmacological therapy with herbal remedies such as ginger, aromatherapy, and acupressure (Parapat et al., 2023). Acupressure is a non-pharmacological therapy performed by pressing the P6 or Neiguan point, which is believed to be the main point for alleviating nausea and vomiting. This point is located on the volar aspect of the forearm, between the flexor carpi radialis tendon and the palmaris longus muscle, approximately 3 fingers below the wrist, performed for 7 minutes in a clockwise circular motion (Mariza & Ayuningtias, 2019).

The mechanism of acupressure at the PC6 point below the wrist is measured using three fingers, between the tendon of the radial carpi and the muscle of the palmaris longus is the median nerve that will stimulate the massage. It activates the modulation system in the opioid, non-opioid system, and inhibition on the sympathetic nerve leading to a decrease in nausea frequency due to local reactions that can stimulate nitric oxide, which increases intestinal motility, thereby reducing nausea. It also enhances the release of beta-endorphins in the pituitary gland and ACTH (Adrenocorticotrophic Hormone) throughout the CTZ (Chemoreceptor Trigger Zone). Beta-endorphin in the pituitary gland inhibits the vomiting center (Setyowati, 2018). A study conducted by Rahmanindar et al. (2021) titled "The Effect of PC6 Acupressure on Nausea and Vomiting in Pregnant Women in the First Trimester" found that acupressure massage at the PC6 point was administered to pregnant women in the first trimester with a total of 20 respondents who had nausea and vomiting in the pre-test, followed by acupressure treatment. The results of the post-test show an effect in reducing nausea and vomiting in 18 respondents who were treated, while 2 respondents have not been treated. This means that there is an effect of acupressure massage in reducing nausea and vomiting during pregnancy (Kusumaningsih, 2022).

Research conducted by Dewi and Saidah (2020) titled "The Effect of PC6 Acupressure in Addressing the Incidence of Emesis Gravidarum in Pregnant Women in the First Trimester in Tondowongso" found that among 16 respondents before receiving PC6 acupressure therapy, 13 respondents experienced mild nausea and vomiting, while 3 respondents experienced severe emesis gravidarum. After receiving PC6 acupressure therapy, post-test results showed a decrease, with 13 respondents experiencing relief from mild emesis gravidarum, while 3 respondents had not yet found relief. Thus, it can be concluded that there is a significant effect of complementary acupressure therapy in reducing emesis gravidarum (Kusumaningsih, 2022). Based on the above description, the author is interested in conducting research titled "The Effect of Acupressure on Pericardium 6 Points on the Reduction of Emesis Gravidarum in Pregnant Women in the First Trimester".

## METHODS

The type of pre-experimental research with a one group pretest and posttest design without a control group, using purposive sampling technique by taking samples from the treatment group consisting of 16 respondents who meet the inclusion and exclusion criteria. The population is pregnant women in their first trimester in the work area of Puskesmas Pati 1, Kabupaten Pati, where each patient must meet the criteria of being pregnant in the first trimester experiencing morning emesis gravidarum, and able to interact with others with mild to moderate frequencies of emesis gravidarum. The exclusion criteria include pregnant women experiencing medical emergencies, taking anti-nausea medication, having complications of chronic illnesses, and having skin conditions that are peeling in the area to be acupressed. Statistical analysis used SPSS 25.0 software, and the type of hypothesis test that might be used in this study is the Paired T Test if the data is normally distributed, but if the data is not normally distributed you can use the Wilcoxon (Dahlan, 2011). The independent variable in this study is the application of acupressure P6. Acupressure (pericardium point 6) is an action to reduce or alleviate nausea and vomiting (emesis gravidarum) during pregnancy, performed by applying pressure on specific points of the body. Acupressure involves circular pressure in a clockwise direction applied over 4 days for 7 minutes each time in the morning or as needed (Parapat et al, 2023). The dependent variable in this

case study is nausea and vomiting or emesis gravidarum, which is a common complaint during early pregnancy, occurring due to increased levels of estrogen and progesterone produced by the hormone chorionic gonadotropin (hCG) from the placenta. The frequency, intensity, and duration of nausea are key characteristics commonly measured in clinical trials.

The measurement of emesis gravidarum is assessed using the Rhodes Index of Nausea, Vomiting, and Retching (INVR), which consists of 8 questions with a Likert scale of 0 – 4. The score is interpreted from 0 – 32 with 0 as the lowest value and 32 as the highest value. The questionnaire is filled out by respondents before and after receiving acupressure; respondents are asked to check the box that corresponds to the experience of the pregnant women, among others (Fengge, 2012). Score 0: No nausea or vomiting, Score 1 – 8: Mild nausea and vomiting, Score 9 – 16: Moderate nausea and vomiting, Score 17 – 24: Severe nausea and vomiting, Score 25 – 32: Extreme nausea and vomiting. The management of this research is conducted in the working area of Puskesmas Pati 1, Pati Regency, Gajahmati Village, which took place in May 2025.

## RESULTS AND DISCUSSION

Research on acupressure therapy at the pericardium 6 point on the reduction of emesis gravidarum in pregnant women in the first trimester at the Work Area of Puskesmas Pati I, Pati Regency, for 4 days in May 2025 with 16 respondents who are pregnant women experiencing emesis gravidarum in the first trimester through non-pharmacological methods (acupressure therapy at point P6).

Table 4.1. Frequency Distribution of Respondents by Age of Respondents (n=16)

	<b>Mean</b>	<b>Median</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Age (Year)</b>	28	29	19	36

Based on table 4.1, it is known that the average age of respondents who are pregnant in the first trimester is 28 years, with a minimum of 19 years and a maximum of 36 years. The ideal age for pregnant mothers is over 20 years and under 35 years, with the expectation that the nutrition of pregnant mothers will be better. The age of pregnant mothers is classified into two categories: at risk and not at risk. At-risk age means that the age of the pregnant mother has a high risk if she experiences pregnancy, namely age too young (<20 years) and too old (>35 years). Not at risk means the age of mothers recommended to experience pregnancy, which is between 20-35 years (Ernawati, 2018).

Table 4.2. Frequency Distribution of Respondents based on Gestational Age of Respondents (n=16)

	<b>Mean</b>	<b>Median</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Gestational Age (Weeks)</b>	7,3	6,5	5	11

Based on table 4.2, it is known that the average gestational age of respondents in their first trimester is 7.3 weeks, with a minimum of 5 weeks and a maximum of 11 weeks. The increase in estrogen, progesterone, and hCG hormones during the first trimester of pregnancy causes emesis gravidarum to occur. The increase in progesterone hormone levels causes smooth muscle in the gastrointestinal system to relax, leading to decreased motility and an empty stomach, which causes emesis gravidarum (Septa et al., 2021). Emesis gravidarum is a normal condition of pregnancy; however, if not addressed in early pregnancy, it can continue to become hyperemesis gravidarum, which poses risks for pregnancy complications and potential dehydration (Bahrah, 2022). Pregnant women experiencing emesis gravidarum with mild to moderate severity will experience symptoms such as increased saliva due to hormonal changes where the increase in estrogen and progesterone affects the central nervous system and salivary glands, decreased gastric tone and peristalsis, and retching (uncontrollable body movements resembling nausea that occurs before vomiting) (Yuanita, 2019).

Table 4.3 Frequency Distribution of Respondents based on the Index For Nausea, Vomiting, and Retching (n=16)

	Mean	Median	Minimum	Maximum
<b>Pre test</b>	11,88	12,00	8	15
<b>Post tes</b>	3,31	3,00	1	6

Based on table 4.3, it can be seen that the average Index For Nausea, Vomiting, and Retching of respondents in their first trimester of pregnancy before performing acupressure at the Pericardium 6 point is 11.88 with a minimum of 8 (mild nausea and vomiting) and a maximum of 15 (moderate nausea and vomiting). The average Index For Nausea, Vomiting, and Retching of respondents in their first trimester after performing acupressure at the Pericardium 6 point is 3.11 with a minimum of 1 (mild nausea and vomiting) and a maximum of 6 (mild nausea and vomiting).

Table 4.4 Respondent Groups Based on the Index For Nausea, Vomiting, and Retching (n=16)

	Mild Nausea Vomiting	Moderate Nausea Vomiting	Severe Nausea Vomiting	T-Test
Pre test	2	14	0	0,000
Post test	16	0	0	

Based on tables 4.3 and 4.4 it is known that after the acupressure intervention at the Pericardium 6 point on the treatment group, the Index For Nausea, Vomiting, and Retching scores of pregnant respondents in their first trimester shifted all respondents to the mild nausea vomiting category with a significance of 0.000, indicating that there is an effect before and after the acupressure intervention at the Pericardium 6 point in the treatment group (p value: 0.000).

Acupressure is a non-pharmacological management that is safe to use to reduce complaints of emesis gravidarum during the first trimester of pregnancy. Exercises applying acupressure at the pericardium 6 point can inhibit the vomiting nausea center (Mariza & Ayuningtias, 2019). Acupressure exercises can prevent diseases, heal ailments, relieve emesis gravidarum in pregnant women, aid in rehabilitation (recovery), and even enhance the immune system to rebuild weakened cells in the body and strengthen the defense system, as well as regenerate body cells, thereby making the immune system robust and reducing abnormal cells. Thus, by performing acupressure at the pericardium 6 point for emesis gravidarum in pregnant women during the first trimester, it can decrease, allowing pregnant women to meet their nutritional needs and those of the fetus in their womb (Retno, 2023). Acupressure exercise on point P6 is a pressure point applied to stimulate the increase of beta-endorphin release in the pituitary gland and ACTH along the chemoreceptor trigger zone (CTZ), which inhibits the nausea and vomiting center (Mariza & Ayuningtias, 2019).

The exercise was performed once a day for 4 consecutive days with a duration of 7 minutes. The results of this study align with Khayati, Saputri, Machmudah, and Rejeki (2022) which found that out of 24 respondents experiencing nausea and vomiting, there were 3 categories of severity: moderate, severe, and poor, with the moderate category having 7 respondents (29.2%), severe 14 respondents (58.3%), and the poor category 3 respondents (12.5%). After acupressure was performed on point P6 for pregnant women in the first trimester for 4 days with a duration of 7 minutes, it was found that out of the 24 respondents who experienced nausea and vomiting, they were categorized into 2 levels of nausea and vomiting: mild and moderate, with the mild category having 10 respondents (41.7%) and the moderate category consisted of 14 respondents (58.3%), which means there is a significant effect of the frequency of nausea and vomiting between before and after acupressure at the P6 point on pregnant women in the first trimester at the Kusuma Husada Klaten Primary Clinic (Khayati et al., 2022).

Another study supported by Widyastuti, Rumiati, and Widyastutik (2018) found that after acupressure was performed on 10 respondents, the average score for nausea before the intervention was 11.7 and the average score for vomiting was 11.8, indicating moderate nausea and vomiting. Following the intervention, the frequency of nausea and vomiting among the respondents decreased, with an average nausea score of 6.2 and an average vomiting score of 6.0, indicating mild nausea and vomiting. The study concluded that complementary therapy with acupressure is effective in addressing emesis gravidarum in pregnant women in the first trimester at the Gambirsari Community Health Center,

Surakarta in 2018 (Widyastuti et al., 2019).

## CONCLUSION

Acupressure action on P6 for pregnant women in the first trimester for 4 consecutive days with a duration of 7 minutes significantly reduced the level of emesis gravidarum among all respondents, with an average decrease in the Index For Nausea, Vomiting, and Retching of 8 points after the acupressure therapy. The average score before the action was 11.88 with a minimum of 8 (mild nausea and vomiting) and a maximum of 15 (moderate nausea and vomiting). After the acupressure treatment at the Pericardium 6 point, the score decreased to 3.11, with a minimum of 1 (mild nausea and vomiting) and a maximum of 6 (mild nausea and vomiting), with a significance p-value of 0.000. This indicates that there is an influence of acupressure at the Pericardium 6 point on the reduction of emesis gravidarum in pregnant women during the first trimester.

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