

## Effectiveness of acupressure therapy against nausea and vomiting in pregnancy

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### Abstract

**Background:** Nausea and vomiting, commonly known as morning sickness, pose significant discomfort and distress to many expectant mothers during early pregnancy stages. While various remedies and medications exist, concerns regarding their safety and potential side effects prompt exploration into alternative therapies. This study aims to evaluate the effectiveness of acupressure therapy in reducing the symptoms of nausea and vomiting in pregnant women. The research involved a group of pregnant women divided into several groups. The effectiveness of the therapy was assessed by monitoring the frequency and severity of nausea and vomiting before and after the intervention. The results of this study indicate that acupressure therapy significantly reduces the symptoms of nausea and vomiting in pregnant women compared to the placebo group. Thus, acupressure therapy can be an effective and safe approach to managing nausea and vomiting during pregnancy, improving the quality of life for pregnant women, and promoting a more natural and sustainable treatment approach during pregnancy.

**Objectives:** To review the effectiveness of acupressure therapy against nausea and vomiting in pregnancy.

**Conclusion:** Acupressure treatment effectively targets the neiguan point (P6) and ST 36. This therapy involves applying pressure using the thumb's tip with duration for administering acupressure at the P6 point with the thumb is 2-10 minutes, four times daily: upon waking in the morning, during the afternoon, in the evening, and before bedtime, spanning over 3-7 days. Initially, gentle pressure is applied, gradually increasing without causing discomfort to the patient.

**Keywords:** Acupressure; Nausea; Vomiting; Pregnancy; Alternative Medicine

### 1. Introduction

The process of pregnancy is natural and normal. During pregnancy, there will be various changes, both physiologically and psychologically, in pregnant women. These changes cause discomfort in pregnant women. Every pregnant woman experience discomfort that varies in each trimester of pregnancy. One of the common complaints during pregnancy is nausea and vomiting [1]. Nausea generally occurs in the early stages of pregnancy and is accompanied by vomiting (emesis). This condition, known as morning sickness, is one of the most common early signs in the first and second trimester of pregnancy but can last up to four months of pregnancy [2][3].

Based on data from the World Health Organization (WHO), about 14% of all pregnant women in the world experience symptoms of nausea and vomiting. Meanwhile, about 12.5% of all pregnancies in the world experience hyperemesis [4]. The prevalence of hyperemesis gravidarum is that more than 80% of pregnant women in Indonesia experience excessive nausea and vomiting. The incidence of hyperemesis gravidarum cases is 0.8 to 3.2% of all pregnancies or about 8 to 32 cases per 1,000 pregnancies in the world [5]. The impact of morning sickness that is not immediately addressed is hyperemesis gravidarum. Hyperemesis gravidarum is characterized by excessive nausea and vomiting. As a result, the body can experience weakness, dehydration, pale skin, and increased blood viscosity due to obstructed

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blood circulation, reducing the supply of oxygen and nutrients to the tissues. When the supply of oxygen and nutrients to the tissues is reduced, the health condition of the mother and fetus in the womb can be jeopardized [6].

Management of nausea and vomiting in pregnancy depends on the severity of symptoms. Treatment of the mildest symptoms is done with dietary changes and approaches such as antiemetic medication, hospitalization, or parenteral nutrition. In terms of food intake, it is recommended that pregnant women eat foods that contain carbohydrates, fats, proteins, vitamins, and minerals to ensure balanced nutrition. If the mother lacks nutrients, it can worsen the mother's condition. Treatment consists of pharmacological and non-pharmacological therapies. Pharmacological therapy is carried out by administering antiemetics, antihistamines, and corticosteroids. Non-pharmacological therapy regulates diet, emotional support, and acupressure [4][5].

Acupressure is a form of Tuina, also known as "Chinese Massage", a branch of Traditional Chinese Medicine. Acupressure uses the technique of pressing or/and rubbing acupoints with fingers or non-invasive tools [7]. Acupressure points that can reduce nausea and vomiting are PC6 or P6 (Pericardium 6) and ST36 (Stomach 36) [5]. The acupressure method in overcoming nausea and vomiting has been proven in the research of Widyastutui, Rumiya and Widyastutik [8] that after the intervention of acupressure therapy in pregnant women with nausea and vomiting, the calculation of nausea and vomiting score is  $0.005 < 0.05$ , there is a comparison between the results of the post-test and pre-test, which means that the acupressure method efficiently treats emesis gravidarum or nausea and vomiting in first-trimester pregnant women. Likewise, in Mariza's research [4], the results obtained  $p\text{-value} = 0.000$ , which means that there is an effect of acupressure at point P6 to overcome emesis gravidarum. The stimulating effect on P6 can increase beta-endorphins release in the pituitary and adrenocorticotrophic (ACTH) along the CTZ, profoundly inhibiting the vomiting center [9].

Based on the explanation above, it can be concluded that there are many influences on acupressure therapy in reducing complaints of nausea and vomiting in pregnant women. Therefore, the author conducted a literature review regarding the effectiveness of acupressure therapy in reducing complaints of nausea and vomiting in pregnant women.

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## 2. Material and Methods

This research applied a systematic approach using the literature review method. The literature search was conducted in October 2023.

### 2.1. Research Strategy

The literature search was conducted in October 2023 using electronic databases, including Science Direct, PubMed, and Scholar, with a maximum range of research over the last five years. The search terms selected for this literature review were "acupressure", "nausea", "vomiting", and "pregnancy".

### 2.2. Inclusion Criteria

The inclusion criteria used in this study include: the literature is available in full text in PDF format, the literature is in English or Indonesian, can be accessed for free or open access, the literature is in the form of articles that have been published, the research design used is original articles, and the research subjects are pregnant women.

### 2.3. Exclusion Criteria

Exclusion criteria used in this study include literature that uses languages other than English or Indonesian, literature reviews or systematic reviews, and not available in full text or open access.

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## 3. Results

Nausea and vomiting during pregnancy can have a significant impact on an expectant mother's well-being and quality of life. These symptoms often interfere with the mother's diet and nutrient intake, which can affect fetal growth and development. The condition can lead to malnutrition and dehydration if not properly managed, increasing the risk of pregnancy complications such as premature birth or low birth weight. In addition, persistent nausea and vomiting can also affect the mother's mental health, causing ongoing stress and anxiety throughout the pregnancy period [4]. Therefore, it is essential to pay attention to and manage these symptoms with the help of medical personnel in order to reduce the negative impact on pregnant women and the fetus. Treating nausea and vomiting in pregnant women can be done by using acupressure techniques on the PC 6 (Pericardium 6) and ST 36 (Stomach 36) points. This technique involves pressing on the PC 6 point, which is located three fingers below the wrist, on the inside of the arm, as well as

the ST 36 point, located on the outside of the leg, below the knee. Apply light pressure using fingers or a soft tool on both points regularly for a few minutes. Stimulating these acupressure points can relieve nausea and vomiting by stimulating energy pathways in the body, thereby reducing the symptoms experienced by pregnant women [5].

**Table 1** Summary of study results

No.	Author Name, Year	Title	Design and Sample	Intervention	Research Result
1.	Tara et al. 2020	The Effect of Acupressure on the Severity of Nausea, Vomiting, and Retching in Pregnant Women	Randomized Controlled Trial  Ninety women with singleton pregnancy, gestational age below 12 weeks	Patients were randomly divided into three groups:  Pressure on PC6 points 4 times a day: in the morning after waking up, in the afternoon, in the evening, and at night before going to bed, for 10 minutes with constant pressure without massage. False acupressure on waiguan point (SJ5) Treatment with vitamin B6 and metoclopramide.  The severity of nausea and vomiting was assessed based on the Rhodes Index on the first and fifth days (before and after the intervention).	The three groups were significantly different on day five in terms of vomiting frequency, distress due to vomiting, nausea duration, distress due to nausea, number of vomits, nausea frequency, and vomiting frequency ( $p < 0.001$ for each outcome).
2.	Mobarakabad i, Shahbazzadegan, and Ozgoli 2020	The Effect of P6 Acupressure on Nausea and Vomiting of Pregnancy: A randomized, single-blind, placebo-controlled trial	Randomized, single-blind, placebo-controlled trial  75 pregnant women with mild to moderate nausea and vomiting, gestational age <20 weeks.	Pressing on the P6 point in the acupressure group was performed for three days using the Sea-Band button.  The Sea-Band was applied without pressure on the P6 point in the placebo group.  The control group received no intervention except for dietary recommendations similar to those of the other two groups.  The frequency and severity of nausea and vomiting were recorded for six days, twice daily, with the intervention starting on the fourth day.	There was a significant reduction in the frequency, duration and severity of nausea and vomiting frequency in the acupressure and placebo groups but not in the control group after three days of intervention.  Acupressure on P6 applied using a wristband can reduce the frequency and severity of nausea and vomiting. Furthermore, it is a safe method.
3.	Mariza et al. 2022	The Effect of Acupressure on the Intensity of Nausea and	Quasi-experiment with a group pre and post-	Patients were filling out the questionnaire of Pregnancy Unique Quantification of Emesis, monitoring nausea	The average nausea and vomiting before acupressure therapy was 8.9, while the

		Vomiting in First-Trimester Pregnant Women	<p>test design approach.</p> <p>The population of this study was all mothers who would give birth to 32 pregnant women, with a sample of 30 respondents.</p> <p>The object of this research is first-trimester pregnant women who experience nausea and vomiting.</p>	<p>and vomiting and providing interventions in the form of massage performed on the three fingers above the wrist circularly.</p> <p>Pressing was done for 7 minutes every morning. This technique was performed for four days individually by the patient. Evaluation was done on the fifth day in the morning.</p>	<p>average nausea and vomiting after acupressure therapy was 6.5.</p> <p>There is an effect of acupressure on nausea and vomiting in first-trimester pregnant women at Gusnila Independent Midwife Practice Pringsewu Regency in 2021 with a p-value = 0.000.</p> <p>Acupressure therapy can be applied as a non-pharmacological therapy to reduce the frequency of nausea and vomiting in pregnancy.</p>
4.	Mulyandari and Alvina 2022	Acupressure Therapy for Pregnant Women with Emesis Gravidarum	<p>Quasi-experiment with a group pre - post-test design approach.</p> <p>The total population is 80 pregnant women and a sample of 20 people. This research uses a purposive sampling technique.</p>	<p>The patients filled out the Rhodes index questionnaire and observation sheet, then performed a massage on the three fingers below the wrist in a circular manner, carried out for 7 minutes every morning.</p> <p>This technique was performed for five days individually by the patient. The evaluation was carried out on the sixth day in the morning using the Rhode Index questionnaire.</p>	<p>The average emesis gravidarum in first-trimester pregnant women before being given acupressure therapy is 11.53; after being given acupressure therapy, it becomes 8.3.</p> <p>There is an effect of giving acupressure to pregnant women.</p>
5.	Tanjung, Wari, and Antoni 2020	Effect of Acupressure on Pericardium Point 6 Against the Intensity of Nausea Vomiting in Pregnant Women's First Trimester	<p>Quasi-experiment with a group pre - post-test design approach.</p> <p>The sample in this study consisted of 20 people using the purposive sampling method.</p>	<p>Assess the intensity of nausea and vomiting before (pretest) Pericardium 6 acupressure using Pregnancy-Unique Quantification of Emesis and Nausea (PUQE)-24.</p> <p>The patients performing acupressure pericardium six on pregnant women who experience nausea and vomiting within 30 seconds to 2 minutes, done in the morning and evening for five days.</p>	<p>Acupressure at Pericardium point 6 affects the Intensity of Nausea and Vomiting in First Trimester Pregnant Women with a p-value of 0.000 (p &lt;0.05).</p>



**Figure 1** PC6 Point

Point PC6 is located on the anterior forearm, two cun ( $\approx 40$  mm) above the wrist crease between the tendons of the palmaris longus and flexor carpi radialis muscles along the pericardium meridian.

#### 4. Discussion

The pathophysiologic mechanism of emesis gravidarum could be due to increased levels of Chorionic Gonadotropin Hormone (HCG), which can be the cause of nausea and vomiting. In addition, increased hormone progesterone levels can also cause smooth muscle in the gastrointestinal system to relax, reducing motility and making the stomach emptier [10]. The statistical test results of the study obtained a p-value = 0.000, which means that acupressure at point P6 affects emesis gravidarum [4][5].

Tara et al. [11] used a sample of first-pregnant mothers and single-pregnant women, with as many as 90 participants. Researchers were divided into three groups, namely the PC6 acupressure group, the sham acupressure group performed in Waiguan, and the vitamin B6 treatment group. All respondents had a gestational age of less than 12 weeks. Exclusion criteria in this study were respondents with digestive problems, urinary tract infections, and hyperemesis gravidarum. The intervention was carried out in the PC6 acupressure group; the researcher applied pressure to the Neiguan or PC6 point 4 times a day with time in the morning after waking up, in the afternoon, and at night before bed for 10 minutes. This pressure is applied with as much resistance as possible with constant pressure. There were significant changes on the fifth day in terms of vomiting frequency, vomiting difficulty, vomiting amount, nausea duration, nausea difficulty, nausea frequency, and vomiting frequency ( $p < 0.001$  for each outcome) [11]. The overall results showed that the PC6 pressure intervention was significantly more effective than the drug therapy intervention. The study showed that the frequency of vomiting, nausea, vomiting and discomfort caused by nausea and vomiting were significantly lower in the PC6 acupoint pressure treatment group than in the control group undergoing drug therapy [11].

These results are also in accordance with the research of Tanjung, Wari and Antoni [9], obtaining a value of  $p = 0.000$ , and it can be concluded that acupressure performed on pericardium 6 has a significant effect on the intensity of nausea and vomiting in first-trimester pregnant women. Acupressure at P6 with a time of 1 minute or 30 seconds to 2 minutes was performed in the morning and evening. The intervention was carried out for five days. Respondents perform acupressure therapy by sitting or lying down in a comfortable position. If the pregnant woman feels relaxed or comfortable, then the pregnant woman can repeat this procedure. The characteristics of this study are that most respondents were in the age group of 26-35 years with the first trimester and experienced nausea and vomiting [9].

While the results of research by Mobarakabadi et al. [12] in the acupressure group, the intervention was to apply permanent pressure to the P6 point using a Sea-Band bracelet on both wrists. The intervention was carried out for three days, except when the participants went to the bathroom, the bracelet was removed first. The placebo group used the same method of the bracelet as the acupressure group but without the push button on the bracelet. There was a difference in the mean values of nausea concerning frequency, duration, and severity after the intervention, with a value of  $p < 0.001$  [12]. Researchers also found a significant difference in the frequency of vomiting with a result of  $p = 0.02$ . This means that P6 acupressure using Sea-Bands can reduce the frequency and severity of nausea and vomiting. While in the Tukey Test, the acupressure and placebo groups did not differ significantly in this regard ( $p = 0.61$ ). This result is consistent with previous research that shows that using Sea-Bands at point P6 can reduce the severity of nausea and vomiting [12].

## 5. Conclusion

Based on several journal articles that have been reviewed, it can be concluded that acupressure therapy has an effective effect at the neiguan point or P6 and ST 36. This therapy is effectively given by applying pressure using the tip of the thumb. The intensity of the initial pressure is done gently, and then the pressure strength is gradually increased but does not cause pain to the patient. The pressure is applied by rotating clockwise. The duration for giving P6 acupressure therapy using the thumb is 2-10 minutes 4 times a day, namely in the morning after waking up, afternoon, evening, and night before bed within 3-7 days.

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## Compliance with ethical standards

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### *Disclosure of Conflict of Interest*

There was no conflict of interest in this study.

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