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Efficacy of Acupressure on Complaints of Nausea and Vomiting in Pregnant Women in the First Trimester in Sekuro Village, Mlonggo Health Center Working Area

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ABSTRACT

One of the discomforts in the first trimester of pregnancy is nausea and vomiting in pregnancy. This condition is physiological but for some pregnant women it can be disturbing. The worst impact of nausea and vomiting is premature birth and low birth weight. One of the non-pharmacological treatments to reduce nausea and vomiting in pregnant women is acupressure therapy at points PC6 (Neiguan) and ST36 (Zusanli). This study aims to determine the efficacy of acupressure at points P6 and ST36 in reducing the frequency of nausea and vomiting in first trimester pregnant women. **Method:** This type of research is a pre-experimental study with a one group pre-test and post-test design. This research was conducted in Sekuro Village, Mlonggo Health Center Working Area. The sample in this study were 7 pregnant women in the first trimester who experienced nausea and vomiting. The research instrument used the PUQE-24 sheet. The study was conducted for 7 days. This study used paired t-test analysis with a confidence level of 95% ($\alpha = 0.05$). **Results:** Before being given acupressure at points P6 and ST 36 in 7 respondents who experienced nausea and vomiting, there was 1 respondent who experienced mild nausea and vomiting (14.3%), 5 respondents experienced moderate nausea and vomiting (71.4%), 1 respondent experienced severe nausea and vomiting (14.3%) and after being given acupressure there were 4 respondents who did not experience nausea and vomiting (57.1%), 1 respondent experienced mild nausea and vomiting (14.4%), 2 respondents experienced moderate nausea and vomiting (28.6%) and none experienced severe nausea and vomiting. The results of the paired sample t-test obtained a significance value of p of $0.004 \leq 0.05$. **Discussion:** There is a decrease in the frequency of nausea and vomiting in pregnant women in the first trimester before and after acupressure therapy. Conclusion: Non-pharmacological therapy with acupressure has efficacy in overcoming nausea and vomiting in pregnant women.

Keywords: Acupressure, Nausea Vomiting, Pregnant Women



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Introduction

Nausea and vomiting during pregnancy are normal symptoms that may be experienced by pregnant women, especially in the first 3 months, accompanied by dizziness, excessive salivation, and vomiting of some or all of the food consumed. If pregnant women continue to feel excessive nausea or vomiting and the condition worsens and even interferes with the mother's daily activities and affects the mother's general condition, then this condition will get worse, which is called hyperemesis gravidarum. Nausea and vomiting during pregnancy have serious impacts on the mother and fetus. Even the worst impact of hyperemesis gravidarum is premature birth and low birth weight, (Aprilia. 2019). The Maternal Mortality Rate (MMR) due to hyperemesis gravidarum is still rare, but almost 25% of sufferers experience continuous vomiting that is difficult to cure. This makes the mother depressed and even miscarriage, (Wahyuni, N, I. 2020).

According to data from the World Health Organization (WHO), in 2018 the incidence of hyperemesis gravidarum was around 124,348 pregnant women (21.5%) which usually occurs in the 8th week of pregnancy. In 2019 the increase was even greater, namely 137,731 pregnant women (22.9%). For ASEAN countries, especially Vietnam and Thailand, around 32,148 pregnant women, (Wahyuni, N, I. 2020). Data from the Indonesian Demographic and Health Survey (SDKI) The prevalence of hyperemesis gravidarum in Indonesia in 2018 was 1,864 (5.31%) out of 21,581 pregnant women, and in 2019 there was an increase of 1,904 (5.42%) out of 25,234 pregnant women who visited health services. Nausea and vomiting during pregnancy is also known as morning sickness, (Mujayati, N., et al. 2022)

According to data from the Ministry of Health of the Republic of Indonesia in 2020, data in Indonesia shows that nausea and vomiting in pregnant women reaches 14.8% of all pregnancies. Complaints of nausea and

vomiting occur in 60-80% of primigravidas and 40-60% of multigravidas. In one in a thousand pregnancies, these symptoms become more severe. Nausea and vomiting are caused by increased levels of the hormones estrogen and chorionic gonadotropin (hCG). The physiological changes associated with increased hormones are still unclear, because the central nervous system and gastric emptying capacity are reduced, (Mujayati, N., et al. 2022). Treatment for nausea and vomiting during pregnancy depends on the severity of the symptoms. Treatment ranges from mild dietary changes to approaches with antipsychotic drugs, hospitalization, or parenteral nutrition. Treatment includes pharmacological and non-pharmacological therapy. Pharmacological treatment includes the use of anticonvulsants, antihistamines, and corticosteroids. Non-pharmacological therapy is carried out through diet, emotional support, and acupressure, (Mariza, A., et al. 2019).

One form of non-pharmacological treatment that can be done by pregnant women to reduce nausea and vomiting is acupressure therapy. based on the science of acupuncture or can also be called acupuncture without needles, (Komariah, M & Dina, A. 2021).

Acupressure is now widely known in Indonesia. The mechanism of acupressure is known from China. Massage is a habit that is familiar to the Indonesian people, has existed for hundreds of years and has developed widely. Acupressure massage is a massage method based on the science of acupuncture which is also known as acupuncture without needles. Massage is performed on acupuncture points on certain parts of the body to relieve complaints or diseases. Acupressure is one method to stimulate energy channels that are under the surface of the skin. Point P6 (Pericardium 6) is efficacious for reducing nausea and vomiting, located 3 fingers below the inner wrist, between 2 veins, and point ST36 (Stomach Meridian) is located in the cun area or 4 fingers from the tibial crest, ST 36

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works quickly to prevent stomach-related diseases such as nausea and vomiting, diarrhea, and epigastric pain, (Rahma & Alfiyanti. 2021). Acupressure can stimulate the regulation and activation of endocrine and nervous mechanisms, both of which are physiological mechanisms responsible for mild to moderate nausea and vomiting. It is believed that stimulation of these points can increase the release of beta-endorphins (hormones) along the chemoreceptor trigger zone (CTZ) which inhibits the vomiting center. Stimulation of the median nerve at the PC6 (Pericardium 6) or Neiguan acupuncture point has been widely studied to determine the effectiveness of stimulation at this point in reducing nausea and vomiting. Acupressure itself can be done safely as long as you follow the instructions and press the right points. There are no side effects and dangers because it does not use chemicals, so it is believed that it will not cause side effects for the mother and baby (Hidayati, N., et al. 2021).

In the study of Mariza & Ayuningtias (2019) on a sample of 30 pregnant women, the results of the statistical test showed a p value = 0.000, meaning that acupressure at point p6 had an effect on nausea and vomiting in pregnant women in the first trimester at BPM Wirahayu Panjang in 2018.

The study by Handayani & Khairiyatul (2019) took a sample of 22 pregnant women in the first trimester who experienced nausea and vomiting, the results of the study in the intervention group before acupressure were on average 8.00 and in the control group 7.00. After acupressure, the average level of nausea and vomiting in the intervention group was 5.00 and in the control group 6.63. There was a decrease in the intervention group by 3.00 and in the control group by 0.36. The results of the independent statistical analysis of the T-test p-value = 0.010 < 0.05, then H₀ is rejected, which means that acupressure is effective in reducing nausea and vomiting. The more often acupressure is done, the less nausea and

vomiting will be felt, thereby avoiding complications in pregnant women.

The location of this study was in Sekuro Village, the working area of the Mlonggo Health Center. From the data obtained, the data on pregnant women in Mlonggo District from January to June 2024 were 1,418 pregnant women. In Sekuro Village, there were 160 pregnant women and 16 pregnant women in the first trimester. At the Mlonggo Health Center, nausea and vomiting were treated with vitamin B6 therapy and it was recommended to eat small amounts but often and acupressure therapy had not been carried out.

Based on this background, the purpose of this study was to determine "The Effectiveness of Acupressure on Symptoms of Nausea and Vomiting in Pregnant Women in Sekuro Village, the Working Area of the Mlonggo Health Center".

Research Method

This study is a pre-experimental study with a one group pre-test and post-test design. This study was conducted in Sekuro Village, Mlonggo Health Center working area on July 16-23, 2024. The population in this study were first-trimester pregnant women in Sekuro Village, Mlonggo Health Center working area and the sample of this study was 7 first-trimester pregnant women who experienced nausea and vomiting. This study was conducted to determine the effectiveness of acupressure at points P6 and ST36 on reducing the frequency of nausea and vomiting in first-trimester pregnant women by giving an initial test (pre-test) then given treatment for 7 consecutive days then given a final test (post-test). The research instrument used a demographic sheet to determine the name, age, gestational age, education, occupation and used the PUQE-24z sheet to determine changes in the frequency of nausea and vomiting in pregnant women in the first trimester from before the intervention to the 7th day after acupressure was given at points P6 and ST36 with a score of 0-3 (no nausea and vomiting),



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score 4-6 (mild nausea and vomiting), score 7-12 (moderate nausea and vomiting), score ≥ 13 (severe nausea and vomiting). The analysis used

was univariate and bivariate analysis. The test used was the paired t-test.

Results and Discussions

The results of this study can be presented in the form of respondent characteristics, distribution of research variables, and bivariate analysis results. The distribution of respondent characteristics can be seen in the following table:

Table 4.1 Distribution of Respondent Characteristics in the Sekuro Village, Mlonggo Health Center Working Area in 2024

Variabel	Frequency (f)	Percentage (%)
Age		
< 20 Years	2	28,6
20 – 35 Years	5	71,4
Total	7	100,0
Education		
Elementary School	2	28,6
Junior High School	1	14,3
High School	4	57,1
Total	7	100,0
Gestational Age		
1 – 7 Weeks	1	14,3
8 – 12 Weeks	6	85,7
Total	7	100,0
Pregnancy Status		
Primigravida	4	57,1
Multigravida	3	42,9
Total	7	100,0

In table 4.1, information on the characteristics of the research subjects with the largest proportion is pregnant women with complaints of nausea and vomiting aged 20-35 years as many as 5 people (71.4%), high school education as many as 4 people (57.1%), gestational age 8-12 weeks as many as 6 people (85.7%), and primigravida pregnancy status as many as 4 people (57.1%).

Table 4.2 Distribution of Frequency of Nausea and Vomiting Before Being Given P6 and ST36 Acupressure Therapy in Pregnant Women in the First Trimester in Sekuro Village, Mlonggo Health Center Working Area in 2024

Nausea Vomiting	Frequency (f)	Percentage (%)
No Nausea Vomiting	0	0
Mild	1	14,3
Moderate	5	71,4
Severe	1	14,3
Total	7	100,0

Based on table 4.2, it shows that before being given acupressure therapy, of the 7 respondents who experienced nausea and vomiting, 1 respondent experienced mild nausea and vomiting (14.3%), 5 respondents experienced moderate nausea and vomiting (71.4%), and 1 respondent experienced severe nausea and vomiting (14.3%).



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Table 4.3 Distribution of Frequency of Nausea and Vomiting After Being Given P6 and ST36 Acupressure Therapy in Pregnant Women in the First Trimester in Sekuro Village, Mlonggo Health Center Working Area in 2024

Nausea Vomiting	Frequency (f)	Percentage (%)
No Nausea Vomiting	4	57,1
Mild	1	14,4
Moderate	2	28,6
Severe	0	0
Total	7	100,0

Based on table 4.3 above, it shows that after being given acupressure therapy from a total of 7 respondents, 4 respondents did not experience nausea and vomiting (57.1%), 1 respondent experienced mild nausea and vomiting (14.4%), 2 respondents experienced moderate nausea and vomiting (28.4%), 6%) and none experienced severe nausea and vomiting.

Table 4.4 Effectiveness of Acupressure Points P6 and ST36 on Nausea and Vomiting in Pregnant Women in Sekuro Village, Mlonggo Health Center Working Area in 2024

Paired Samples Test								
Paired Differences								
95% Confidence Interval of the Difference								
Mean	Std. Deviation	Std. Error	Mean	Lower Bound	Upper Bound	t	df	Sig. (2-tailed)
Frequency of Pre-Test Nausea and Vomiting	.75	.286	286	.587	.985	.500	.004	
Frequency of Post-Test Nausea and Vomiting								

Table 4.4 above provides information from the results of SPSS 22 analysis with the T-Test statistical method after acupressure was performed at points P6 and ST36 for 7 days, significant results were obtained with a p value of 0.004. So it can be concluded that acupressure at points P6 and ST36 has efficacy to overcome nausea and vomiting in pregnant women in the first trimester in Sekuro Village, the working area of Mlonggo Health Center.

Characteristics of age, education, gestational age, obstetric status of mothers in the experimental and control groups

Based on the results of the study, it was shown that respondents were in the 20-35 year age group, namely 5 respondents (71.4%) and a small number of respondents were in the <20 year age group, namely 2 respondents (28.6%).

According to research by Gauri, et al. (2024) from the results of the test of the relationship between maternal age and the incidence of hyperemesis gravidarum, it was found that pregnant women aged 20-35 years suffered the most from hyperemesis gravidarum compared to those who did not experience hyperemesis gravidarum. This is due



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to the influence of factors other than age such as psychological factors, abnormalities during pregnancy, unstable hormonal changes, and others, (Retnoningtyas, D., et al. 2021). The older the mother, the more open her attitude. This shows that age greatly affects the morning sickness experienced by most pregnant women. Although morning sickness can occur at any age, this symptom is more often felt by pregnant women who have entered early adulthood, (Retnoningtyas, D., et al. 2021).

Respondent Characteristics Based on Education

Based on the results of the study above, it shows that the majority of respondents' education level is high school education, namely 4 respondents (57.1%), respondents with elementary school education are 2 respondents (28.6%) and a minority of respondents with junior high school education are 1 respondent (14.3%). Lack of insight, limited social interaction, limited health information makes individuals less able to accept facts based on scientific analysis/based on science, but more easily accept myths than reasoning. The strong myth of nausea and vomiting that is common in young pregnant women can trigger the emergence of emesis gravidarum. Education is an effort of behavior by means of persuasion, persuasion, invitation, and providing information for individuals or groups. Education can open the door to the mind to accept new things and think naturally, (Khayati, N., et al. 2022). This is in line with the results of research conducted by Sukarsih, et al. (2022) that most respondents experienced emesis gravidarum, namely with a high school education level of 14 (37%) respondents from 38 pregnant women, (Munisah, et al. 2022).

Respondent Characteristics Based on Gestational Age

The results of this study indicate that the majority of respondents experienced emesis gravidarum at 8-12 weeks of gestation, as many as 6 respondents (85.7%), and the minority group with a gestational age of 1-7 weeks as

many as 1 respondent (14.3%). This occurs due to the influence of the gonadotropin hormone in the early weeks of pregnancy. An increase in this hormone triggers nausea and vomiting in pregnancy. This is supported by research by Sukarsih et al., (2022) which shows that most respondents who have a gestational age of 10 weeks as many as 8 respondents (26.7%) experienced emesis gravidarum, in addition there were also respondents who experienced it at 3 weeks, 6 weeks, 7 weeks, 9 weeks and 11 weeks of gestation as many as 2 respondents (6.67%), (Munisah, et al. 2022).

The results of this study stated that the majority of respondents experienced emesis gravidarum with a primigravida pregnancy status of 4 respondents (57.1%) and the minority respondent group was multigravida pregnancy of 3 respondents (42.9%). This happens because most mothers who experience their first pregnancy are not mature enough to adapt to the changes that occur. As a result of pregnancy, there is a drastic increase in estrogen and gonadotropin hormones, especially in early pregnancy, so that the mother experiences nausea and vomiting.

In addition, psychological factors also affect the mother's pregnancy such as fear of bad things that will happen during pregnancy and childbirth, not being ready to carry out a new role as a mother, fear of responsibility as a mother can cause mental stress that triggers increased blood pressure, as well as nausea and vomiting. This is in line with Retnowati's research (2019) which obtained an OR value of 5.88, meaning that high parity is at 5.88 times risk of experiencing emesis gravidarum compared to respondents with a low-risk parity category, as evidenced by the results of the Chi Square statistical test, which obtained a p value of 0.014, meaning <0.05. This shows that there is an influence of pregnancy status on hyperemesis gravidarum in pregnant women in the first trimester, (Retnowati. 2019).



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Frequency of Nausea and Vomiting Before Acupressure in Pregnant Women in the First Trimester

Based on the results of the study, it was found that out of 7 respondents who experienced nausea and vomiting, there was 1 respondent with a mild degree (14.3%), 5 respondents with a moderate degree (71.4%), and 1 respondent with a severe degree (14.3%).

Measurement of the frequency of nausea and vomiting was carried out when the respondents experienced nausea and vomiting and before the intervention was carried out using the PUQE-24 instrument. On average, respondents experienced moderate and severe nausea and vomiting before the intervention was carried out. This is in accordance with the study of Ana Mariza and Ayuningtyas (2019) on respondents who experienced nausea and vomiting before being given acupressure, most respondents experienced nausea and vomiting with an average value of 10.53 and a maximum value of 13 out of 30 respondents. Emesis gravidarum is a common complaint in early pregnancy. Pregnancy causes an increase in the production of the hormones estrogen, progesterone, and human chorionic gonadotropin (HCG) which trigger nausea and vomiting, (Rudiyanti & Rosmadewi. 2023). The incidence of mild-severe nausea and vomiting is influenced by the ability to adapt and hormone levels. Nausea and vomiting are complex interactions of endocrine, digestive, vestibular, olfactory, genetic, psychological influences. Endocrine factors are the most powerful factors, especially the hormone Chorionic Gonadotropin (HCG). This hormone is produced by young placental tissue so that it increases in early pregnancy. The placenta will develop faster in early pregnancy. HCG will also increase if there is abnormal proliferation in the chorionic epithelial tissue, for example chorionic carcinoma or nevus. Human Chorionic Gonadotropin (HCG) affects the increase in estrogen and progesterone hormone levels produced by placental serum. This increases

gastric acidity, which can stimulate nausea and vomiting in the mother, (Retnoningtyas, D., et al. 2021).

Frequency of Nausea and Vomiting After Acupressure in Pregnant Women in the First Trimester

Based on research after being given PC 6 and ST 36 acupressure therapy, on average respondents no longer experienced nausea and vomiting. The results of the intervention showed that of the 7 respondents who experienced nausea and vomiting, 4 respondents were in the category of no nausea and vomiting (57.1%), 1 respondent experienced mild nausea and vomiting (14.4%), 2 respondents experienced moderate nausea and vomiting (28.6%), and no respondents experienced severe nausea and vomiting. This is in accordance with the research of Ana Mariza and Ayuningtyas (2019) on respondents who experienced nausea and vomiting after being given acupressure, most respondents experienced nausea and vomiting with an average value of 7.30 and a maximum value of 10 out of 30 respondents, (Mariza, A & Ayuningtias, L. 2019). In addition, there is support from research conducted by Eka Widyastuti, Rumiati, and Widyastutik, that the results of the analysis showed a significant change between the frequency of nausea and vomiting before and after the intervention. This is evident from the results of the scale measurement where the lowest score for nausea and vomiting after P6 acupressure was 0 and the highest score was 8. (Widyastuti, Eka., et al. 2019).

Acupressure is one of the non-pharmacological treatment efforts. Acupressure is one of the ancient Chinese treatment methods at specific body acupuncture needle points using finger acupressure points at certain body points. Acupressure and acupuncture stimulate the regulatory system and activate endocrine and neurological mechanisms which are physiological mechanisms in maintaining balance. Manual pressure on the P6 point on



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the wrist area, which is 3 fingers from the wrist area or two tendons and the ST36 point on 4 fingers below the knee, 1 finger on the outer edge of the shin. Acupressure is useful for strengthening or activating affected organs and increasing blood flow in the body, (Tanjung, et al. 2020).

Effectiveness of P6 and ST36 Acupressure on the Frequency of Nausea and Vomiting in First Trimester Pregnant Women

The results of the dependent t-test analysis (Paired sample t-test) showed a significance p value of 0.004. This shows that the p value ≤ 0.05 , it can be concluded that H_a is accepted, which means that P6 and ST36 acupressure are effective in reducing the frequency of nausea and vomiting or there is a significant effect on the frequency of nausea and vomiting between before and after acupressure at points P6 and ST36 in first trimester pregnant women in Sekuro Village, Mlonggo Health Center working area. Complaints of nausea and vomiting experienced by first trimester pregnant women are due to changes in physiological and psychological conditions due to pregnancy. Physiological factors are the most common causative factors experienced by first trimester pregnant women due to an increase in the hormones Human Chorionic Gonadotropin (HCG) and estrogen that occur in early pregnancy. Increased HCG and estrogen hormones will slow down metabolism, slow down the digestive tract, and can increase stomach acid. Increased stomach acid will stimulate nausea and vomiting. While psychological factors are factors influenced by the surrounding environment such as work or family problems that make pregnant women stressed. Stressful conditions can interfere with the hormonal system of the stomach organ in controlling gastric acid secretion so that gastric acid can increase and cause nausea and vomiting, (Em, k., & Kibas. 2018). This is in line with research by Wardani et al. (2020) on first trimester pregnant women at the Nelly Padang Sidiompuan Maternity Clinic, that 20

respondents who underwent acupressure at the Nei Guan/P6 point (Pericardium 6) had an average frequency of nausea and vomiting before acupressure of 7.30 and after acupressure of 5.45 after acupressure, (Tanjung, et al. 2020). Likewise, the study by Mariza and Ayuningtyas (2019) found that the frequency of vomiting before the intervention had an average of 10.53 with the lowest index of 9 and the highest of 13 and a Standard Deviation of 1.408 and a Standard Error of 0.257, while after acupressure showed an average of 7.30 with the lowest index at a value of 5 and the highest value of 10, Standard Deviation of 1.317, Standard Error of 0.240, (Mariza, A & Ayuningtias, L. 2019). This finding is also the same as the study by Khayatai et al. (2019) which explains that based on the results of statistical tests, the Pvalue = 0.000 is obtained, which means that there is an effect of acupressure at point P6 on nausea and vomiting in pregnant women in the first trimester at BPM Wirahayu Panjang, (Khayati, N., et al. 2022).

Acupressure can stimulate the regulatory system and activate endocrine and neurological mechanisms which are physiological mechanisms in mild and moderate vomiting. The results of the study showed that acupressure at the Nei Guan point (pericardium 6) is effective in reducing nausea and vomiting in pregnant women in the first trimester. Acupressure therapy at the Nei Guan, Zu San Li and Gong Sun points is effective in reducing nausea and vomiting in pregnant women in the first trimester. The presence of acupressure at the Nei Guan, Zu San Li and Gong Sun points can stimulate the release of the hormone cortisol which can increase the body's metabolism so that the nausea and vomiting felt can be reduced, (Dartiwen & Nurhayati, Y. 2019).

Conclusion

Non-pharmacological therapy with acupressure is effective in overcoming nausea and vomiting in pregnant women. The majority

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of pregnant women who experience nausea and vomiting in the first trimester experience a decrease in the frequency of nausea and vomiting after undergoing Pericardium 6 (P6) and Stomach Meridian 36 (ST36) Acupressure in Sekuro Village, the working area of Mlonggo Health Center.

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Conflic of Interest

The author declares that he has no conflict of interest.

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