



Effectiveness of Acupressure on The Pericardium Point P6 And Zusanli St36 Against Nausea, Vomiting In 1st Trimester Pregnant Women

Raisatul Zahra¹, Cut Nurhasanah², Fitriani³

^{1,2,3} Midwifery Department, Health Polytechnic, Ministry of Health Aceh, Jln. Soekarno - Hatta, Lagang, Darul Imarah District, Aceh Besar Regency, 23352, Indonesia

ARTICLE INFO	ABSTRACT
<p><i>Article history:</i></p> <p>Received Jan 16, 2024 Revised Jan 24 2024 Accepted Jan 29, 2024</p> <p><i>Keywords:</i></p> <p>Acupressure P6,St36; First trimester pregnant Nausea, vomiting.</p>	<p>Nausea,vomiting, common symptoms of the first trimester of pregnancy, occur approximately after 6-10 weeks, in 60%-80% of primigravidas and 40-60% of multigravidas. WHO estimates that 14% of all pregnant women experience nausea and vomiting. In Indonesia, of the 2,203 pregnancies that were completely observed, 534 mothers experienced nausea and vomiting. Data from Ingin Jaya Community Health Center, there were 933 pregnant people in 2021, Visit 1 (K1) coverage was 715 people. In 2022, 60 pregnant women will visit community health centers, 45 people will experience nausea and vomiting in the first trimester. Research design ; Quasi-experimental observation of two groups, pre-test and post-test. Two groups of research subjects; P6 pericardium acupressure and Zusanli ST36 acupressure each group amounted to 16 respondents. The research was carried out in the work area of the Ingin Jaya Aceh Besar Community Health Center in April -May 2023. Data analysis; Paired T test to see the results of the pre and post test of P6 and ST36 acupressure and the Independent T test to compare the frequency of nausea in the 2 groups. Research result; P6 and ST36 acupressure effectively reduced the frequency of nausea and vomiting before and after treatment, the p value for each group was (0.001<0.05), the average rank for P6 acupressure was 17.81 and the average rank for ST36 was 15.19. P6 pericardial acupressure is more effective than ST36 acupressure. Complementary methods are recommended for dealing with first trimester nausea and vomiting considering that medical management poses a risk to organogenesis.</p> <p style="text-align: right;"><i>This is an open access article under the CC BY-NC license.</i></p>



Corresponding Author:

Fitriani,
Midwifery Department,
Health Polytechnic,Ministry of Health Aceh, Jln. Soekarno - Hatta,
Lagang, Darul Imarah District, Aceh Besar Regency, 23352, Indonesia
Email : fitriani@poltekkesaceh.ac.id

1. Introduction

Nausea and vomiting (emesis gravidarum) are common symptoms and are often found in the first trimester of pregnancy. Nausea and vomiting of pregnancy is a common condition that affects the health of a pregnant woman and her fetus. It can diminish a woman's quality of life and also significantly contributes to health care costs and time lost from work. Because morning sickness is common in early pregnancy, the presence of nausea and vomiting of pregnancy may be minimized by obstetricians, other obstetric care providers, and pregnant women and, thus, undertreated (Chiossi G, Neri I, Cavazzuti M, Basso G, 2006), (Fejzo MS, Mac Gibbon K, 2016)

The symptoms occur approximately after 6 weeks from the first day of the last menstruation and last for approximately 10 weeks. The incidence of nausea and vomiting occurs 60%-80% in women with first pregnancy (primigravida) and 40-60% occurs in multigravida. One in a thousand pregnancies other symptoms become severe (Saifuddin et al, 2010). this condition is due to increased levels of estrogen and Human Chorionic Gonadotrophin (HCG) in the serum, Most of these complaints are normal, health workers need to distinguish common discomfort in pregnancy. Although common pregnancy discomforts are not life-threatening to the mother, they can be distressing to the mother. (Jannah, 2012)

Based on World Health Organization data on the incidence of nausea and vomiting in pregnancy, estimating that at least 14% of all pregnant women experience nausea and vomiting, the incidence of nausea and vomiting in pregnancy in Indonesia obtained from 2,203 pregnancies that can be observed completely is 534 pregnant women who experience nausea and vomiting, the ratio of the incidence of nausea and vomiting that leads to pathological or so-called hyperemesis gravidarum 4: 1000 pregnancies. It is suspected that 50% to 80% of pregnant women experience nausea and vomiting and approximately 5% of pregnant women need treatment for fluid replacement and correction. K1 coverage in Aceh Besar District in 2020 has decreased due to the Covid-19 pandemic by 67.5% and K4 coverage by 60%, in other words, it did not reach the national target of 76%. As for K4 coverage, there are still many public health centers that are below 85%.(ACOG, 2018)

Data from the Ingin Jaya community health center, the target number of pregnant women in 2020 was 933 people with K1 coverage of 669 people. The target number of pregnant women in 2021 is 933 people with the number of K1 as many as 715 people. The number of pregnant women who visited the community health center in 2022 who experienced nausea and vomiting was 60 people. First trimester mothers who experience nausea and vomiting are 45 people, second trimester mothers who experience nausea and vomiting are 10 people and third trimester pregnant women who experience nausea and vomiting are 5 women.(Dinas Kesehatan Aceh Singkil, 2021)

The Government's efforts to implement complementary traditional health services that utilize biomedical and biocultural science in their explanation as well as their benefits and safety, one of which can be done with nonpharmaco (*PERATURAN MENTERI KESEHATAN REPUBLIK INDONESIA NOMOR 15 TAHUN 2018, 2018*) Logical therapy to overcome nausea and vomiting with Acupressure point Pericardium 6 (P6) The effect of stimulation at the point is able to increase the release of beta-endorphin in the hypophysis and adrenocorticotrophic (ACTH) along the chemoreceptor triggering zone (CTZ) which can inhibit the vomiting center.10. and acupressure at acupressure point ST36 (Zusanli/leg three miles), showing that stimulation at the point produces measurable changes in brain areas related to gastric function, ST 36 can treat most digestive conditions including nausea and vomiting.

Based on research by Niasty Lasmi Zaen et al (2019) on the effectiveness of acupressure massage on nausea and vomiting in first trimester pregnant women, and the results of this study indicate that there is a significant effectiveness of acupressure massage on nausea and vomiting in first trimester pregnant women in the work area of the Sukaramai Medan community health center.(Zaen & Ramadani, 2019). One of the benefits of this research is supporting the government's efforts to promote traditional medicine for nausea and vomiting in pregnant women in the 1st trimester. The use of medical drugs for nausea and vomiting has a risk for the organogenesis process at the beginning of the 1st trimester. The practical implications are a series of facts that will occur if certain conditions in carrying out these two acupressure methods are met, which will certainly have an impact on the final results that occur, namely reducing nausea and vomiting in pregnant women in the first trimester. SBased on the above description, the researcher is interested in conducting research on the effectiveness of acupressure at the pericardium point 6 P6 and zusanli (ST36) on nausea and vomiting in first trimester pregnant women.

2. Methods

The research design used a quasi experimental design with a two group pre-test and post-test design approach. This research design provides research treatment to research subjects and makes

measurements or observations before and after the treatment is given. The research subjects were divided into two groups, the P6 pericardium acupressure group and the ST36 zusanli acupressure group, thus obtaining four kinds of observation groups of tried variables, two initial observation results and two final observation results. This research design can be seen from the diagram below :

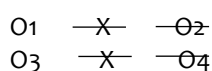


Figure. 1. Two Group Pre-test and Post-test Design

Information:

O1: pretest pericardium acupressure group P6

X: P6 pericardium acupressure treatment once a day for 4 days

O2: posttest pericardium acupressure group P6

O3: Zusanli ST36 acupressure group pretest

X: Zusanli ST36 acupressure treatment once a day for 4 days

O4: Zusanli ST36 acupressure group posttest

Dependent Variable: Pregnant women with nausea and vomiting are defined as Nausea and vomiting during pregnancy is usually caused by hormonal changes during pregnancy and begins early in pregnancy and the cause of nausea and vomiting is the HCG (Human Chorionic Gonadotropin) hormone factor.

How to Measure, using the Rhodes index of nausea, vomiting and retching (INVR) instrument sheet, the sum of the INVR instrument scores can be categorized as follows: - Moderate – Severe Measurement Tool: Instrument the Rhodes index of nausea, vomiting and retching (INVR) Scale: Ordinal, Measurement Result: Moderate = 20-30, Severe = 0-19.

Independent Variable: Pericardium point acupressure 6 P6 : performing acupressure on the pericardium point 6 which is three fingers below the wrist, carried out for 4 days with a duration of 7 minutes per day. Acupressure point zusanli ST36 :performing acupressure on the zusanli point ST36 located in the area 3 cun or 4 fingers below the patella and one cun or 1 finger lateral to the tibia crest, performed for 4 days with a duration of 7 minutes per day.

Research Hypothesis, There is a difference in nausea and vomiting in first trimester pregnant women who are performed acupressure action at the P6 pericardium point and acupressure action at the zusanli point (ST36).

Population, The population of this study were all first trimester pregnant women who experienced nausea and vomiting in the working area of the Ingin Jaya health center, Aceh Besar Regency. The number of pregnant women with nausea and vomiting in the first trimester in December was 32 mothers.

Sample, The sample size in this study was 32 people, group 1 as many as 16 people were given the P6 pericardium point acupressure technique and group 2 as many as 16 people were given the ST36 zusanli point acupressure technique.

The calculation of the size of the respondents in this study used the large respondent formula from Lameslow et al:

Equation:

$$n = n_1 = n_2 = \frac{n^2 \delta^2 (1 - \alpha + 1 - \beta)^2}{(\mu_1 - \mu_2)^2}$$

$$n = n_1 = n_2 = \frac{2 \times 4,04^2 (1,96 + 1,28)^2}{4,81^2} = 15$$

Information:

$n_1 = n_2 =$ minimum number of respondents (per group)

$\delta =$ standard deviation (4.04)

$Z(1-\alpha)$ = Z value, 95% confidence degree (α value 0.05 is 1.96) $Z(1-\beta)$ = Z value at 90% test power ($\beta = 10\%$ is 1.28)

$\mu_1 - \mu_2$ = the difference in the average reduction in the frequency of nausea and vomiting, the difference between the initial mean value and the final mean of the number of frequencies in the intervention group and the control group.

In experimental research, to anticipate the possibility of selected subjects dropping out, loss to follow up, or subjects who are disobedient, a 10% correction is made. So there were 16 respondents in each group, (Lemeslow, S, Hosmer, D.W., Klar, J & I.Wanga, S, 1997) so the total sample size was 32 pregnant women with nausea and vomiting.

Data analysis in this study using Paired T-test to see the results of pre-test and post test after P6 acupressure and ST36 acupressure treatment in pregnant women with nausea vomiting. then Independent T test to see the comparison of the frequency of nausea vomiting in first-trimester pregnant women between the group given P6 pericardium acupressure and ST36 zusanli acupressure group.

Place and Time of Research, The study was conducted in the working area of the Ingin Jaya community health center, Aceh Besar Regency, April 2023 to May 2023.

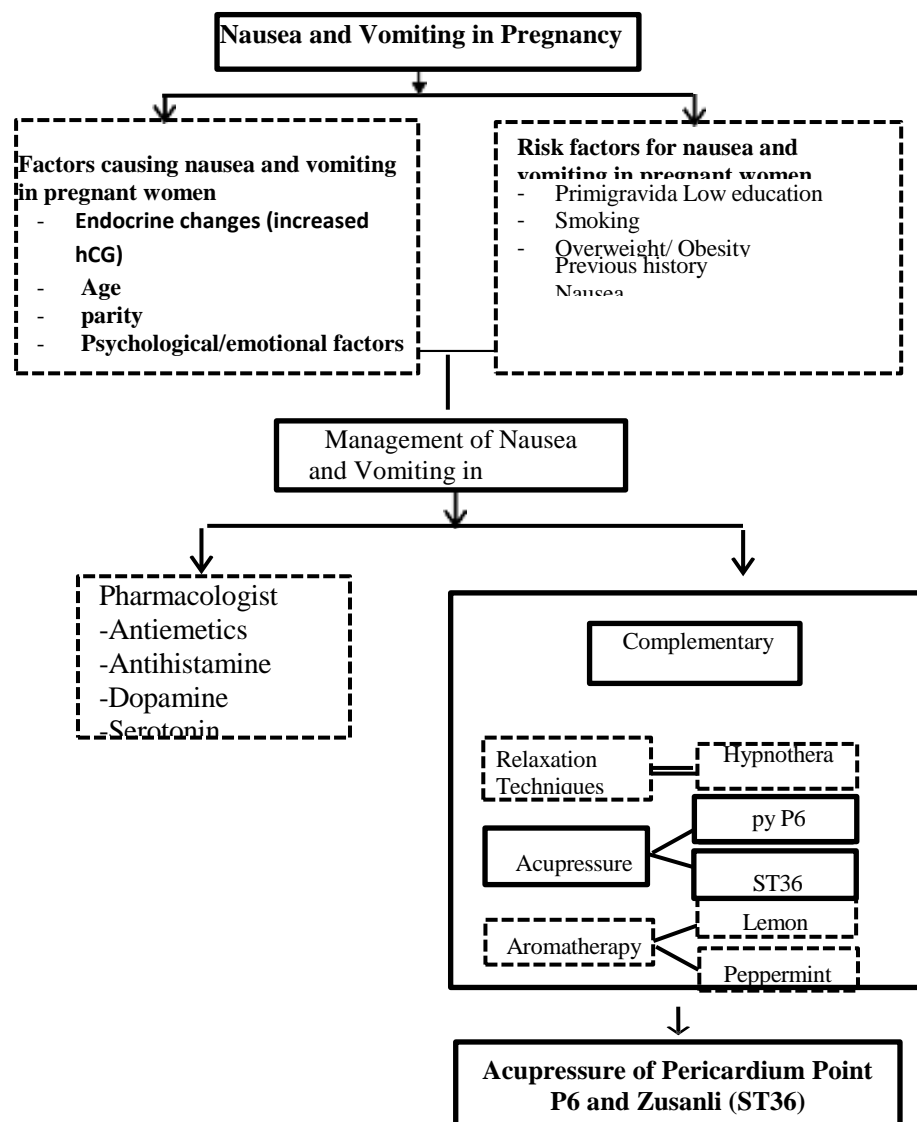


Figure. 2 Research theoretical framework

3. Results and Discussion

Based on the results of research conducted on May 24 to July 3, 2023 located in the working area of Community Health Center, Ingin Jaya, Aceh Besar District.

a. univariate data analysis

General data characteristics of respondents as follows :

Table 1.
Respondent data based on age

No	Age	Pericardium P6 Group		Zusanli ST36 Group	
		f	(%)	f	(%)
1	20-35 years	16	100	16	100
2	>35 years	0	0	0	0
	Total	16	100	16	100

Based on table 1, the age of mothers in the pericardium P6 and zusanli ST36 groups are all in the range of 20-35 years as much as (100%).

Table 2.
Respondent data based type of work

No	Type of work	Pericardium P6 Group		Zusanli ST36 Group	
		f	%	f	%
1	Housewife	10	62,5	11	68,8
2	Self-employed	4	25	4	24,9
3	Civil Servant	2	12,5	1	6,3
	Total	16	100	16	100

Based on Table 2, the average occupation of mothers in the pericardium P6 and zusanli ST36 groups is housewife as much as 62.5% and 68.8%.

b. Bivariate data analysis

a. Effectiveness of pericardium group P6 and zusanli group ST36 on nausea and vomiting in 1st trimester pregnant women

Table 3
Normality Test Results

No	Group	df	Shapiro-Wilk	
			Before	After
1	Perikardium P6	16	0,008	0,048
2	Zusanli ST36	16	0,001	0,451

Based on table 3, it can be seen that the results of the normality test for reducing the frequency of nausea and vomiting in pregnant women in the P6 pericardium group and the ST36 zusanli group are not normally distributed. The significance value in the P6 pericardium group before the intervention is smaller than the alpha value ($0.008 < 0.05$) and the significance value after the intervention is smaller than the alpha value ($0.048 < 0.05$) so the Wilcoxon test is used. And the significance value in the ST36 zusanli group before the intervention was smaller than the alpha value ($0.001 < 0.05$) and the significance value after the intervention was smaller than the alpha value ($0.451 < 0.05$) so the Wilcoxon test was also used.

b. Mean difference in frequency of nausea and vomiting before and after intervention in the P6 pericardium group.

Table 4
Average Difference in Nausea and Vomiting Frequency Before and After Intervention in the P6 Pericardium Group

No	frequency	n	Mean	Sig.
1	Before	16	26,44	0,001
2	After	16	30,00	

Based on Table 4, it is known that the increase in the frequency of nausea and vomiting in the P6 pericardium group has a mean value before intervention 26.44 and after intervention 30.00 and gets a significance value smaller than the alpha value ($0.001 < 0.05$).

- c. Mean difference in frequency of nausea and vomiting before and after intervention in the zusanli ST36 group.

Table 5
Mean difference in frequency of nausea and vomiting before and after intervention in the Zusanli ST36 group.

No	Frequency	n	Mean	Sig.
1	Before	16	26,81	0,001
2	After	16	30,94	

Based on table 5, it can be seen that the results of the Wilcoxon test increase in the frequency of nausea and vomiting in the ST36 zusanli group have a mean value before intervention 26.81 and after intervention 30.94 and get a significance value smaller than the alpha value ($0.001 < 0.05$).

- d. The mean difference in the effectiveness of nausea and vomiting between the pericardial acupressure group P6 and the zusanli acupressure group ST36

Table 6
Mean difference in the effectiveness of nausea and vomiting between the P6 Pericardium Acupressure Group and the ST36 Zusanli Acupressure Group

No	Group	df	Mean Rank	P-Value
1	Perikardium P6	16	17,81	0,422
2	Zusanli ST36	16	15,19	

Based on table 6 it can be seen that the Mann-Whitney test results of the pericardium P6 and zusanli ST36 groups are effective on the frequency of nausea and vomiting in pregnant women. But there is no significant difference between the pericardium P6 and zusanli ST36 groups.

3.3 Discussion

Based on the research that has been done, it shows that there is a relationship between acupressure point P6 on nausea vomiting in first trimester pregnant women with a significant value of P-value 0.001. it can be concluded that There is a difference in the frequency of nausea and vomiting before and after the P6 pericardium acupressure technique. The results of this study are in line with the research of Ana, et al (2019). From the statistical test, the p-value = 0.000 was obtained, which stated that the provision of acupressure at the P6 pericardium point was effective against nausea and vomiting in pregnant women in the 1st trimester. Based on research results The The Effect of Acupressure on the Severity of Nausea, Vomiting, and Retching in Pregnant Women: A Randomized Controlled Trial Based on linear regression analysis, the correlation between employment and frequency of vomiting (beta coefficient = 0.252) and severity of nausea (beta coefficient = -0.213) is statistically significant. Conclusion: It appears that PC6 acupuncture point pressure can reduce the

severity of nausea, vomiting and vomiting in pregnant women.(Tara, Fatemeh, 2020) Results showed that there was acupressure at the P6 pericardium point on the intensity of nausea and vomiting in first trimester pregnant women with a p-value = 0.000 ($p < 0.05$). (Tanjung & Nasution, 2021). Nausea and vomiting are symptoms often found in the first trimester of pregnancy. The causes of nausea and vomiting vary, including changes in the hormone estrogen and the release of human chorionic gonadotropine (hCG) in the serum. This complaint is a physiological thing but if it is not immediately resolved it will become pathological so that it will cause interference with pregnancy. (Maheswara AN, Wahyuni ES, Istiqomah, 2021) Acupressure complementary therapy at the P6 pericardium point in overcoming nausea and vomiting in pregnancy proves that acupressure at the P6 pericardium point can produce a good evaluation in mothers who experience nausea and vomiting. Acupressure treatment does not need to take drugs, herbs because with acupressure therapy the body already has medicinal content, which must be reactivated by the body's nerve cells (Maheswara AN, Wahyuni ES, Istiqomah, 2021). Based on the observations that the researchers have made, there is an effectiveness of P6 pericardium acupressure on the frequency of nausea and vomiting. This is in accordance with the results of the study which showed a difference before and after the P6 pericardium acupressure. One of the benefits of P6 pericardium acupressure therapy with complaints of nausea vomiting is to reduce the frequency of nausea vomiting felt by pregnant women Effectiveness of acupressure point zusanli ST36 on nausea vomiting in first trimester pregnant women. Based on the research that has been done, the results of the analysis show that there is a relationship between acupressure point zusanli ST36 on nausea vomiting in first trimester pregnant women with a significant value of P-value 0.001. So it can be concluded that there is a difference in the frequency of nausea and vomiting before and after the zusanli ST36 acupressure technique. (Sri Hardjanti, 2021). Nausea and vomiting are the most common discomforts in the 1st trimester of pregnancy. Nausea occurs in about half of all pregnant women, of this number, about a third experience multiple vomiting. Symptoms usually appear in the fourth fourth to sixth week and lasts until about 12 weeks of pregnancy. (Septa AF, HS SAS, 2021) Nausea and vomiting can be reduced by performing acupressure therapy at points P6 and ST 36. Acupressure, also known as finger prick therapy, is a form of physiotherapy by providing massage and stimulation at certain points on the body. Acupressure is also defined as pressing healing points using fingers gradually which stimulates the body's ability to heal itself naturally. (Yanti et al., 2021) Based on observations, acupressure zusanli ST36 effectively reduces the frequency of nausea and vomiting. This is in accordance with the results of the study which showed a difference before and after acupressure zusanli ST36. Mean difference between pericardium acupressure group P6 and zusanli acupressure group ST36. Based on the results of the study, there was a difference in the mean rank of the two groups. The P6 pericardium acupressure group has a mean rank value (17.81). The ST36 zusanli acupressure group has a mean rank value (15.19). So, it can be concluded that the P6 pericardium and zusanli ST36 acupressure groups effectively reduce the frequency of nausea and vomiting in first trimester pregnant women, but there is no significant difference between the P6 pericardium and zusanli ST36 groups. The results of this study are in line with the research of Eka, et al (2019). From the results of the Wilcoxon test statistical test obtained a p-value of $0.000 < (0.05)$. The conclusion in this study is that there is an effectiveness of acupressure on reducing nausea and vomiting in pregnant women in trimester 1 at Afah Fahmi Independent Practice Midwife, Amd Keb Surabaya. 12 The results of this study are in line with the research of Delvi, et al (2022). The massage technique at point ST36 can overcome nausea vomiting in pregnant women performed for 7 minutes every morning. Based on Oktaviani's research, et al (2013) The results of a study conducted at PMB Afah, Amd. Keb Surabaya were first trimester pregnant women who experienced nausea and vomiting after being given acupressure there was a decrease in nausea and vomiting. From the results of the study obtained a P-value of 0.000, which means that there is an effect of giving acupressure at the Zu San Li ST36 point on reducing nausea and vomiting in the 1st trimester. (Yanti et al., 2021) According to Hilman in Ismuhu, et al (2020) acupressure massage at point P6 is believed to be effective and easy to overcome nausea and vomiting. Acupressure massage of points P6 and ST36 is effective in patients undergoing chemotherapy because it can inhibit the effects of nausea and vomiting due to the

balance of energy in the spleen and stomach. The existence of beta endorphin expenditure in the hypophysis makes acupressure massage of points P6 and ST36 believed to have an effect in reducing nausea and vomiting because beta endorphine cells play a role in reducing nausea and vomiting impulses in the vomiting center and chemoreceptor trigger zone (CTZ) due to the improvement of Qi energy flow. Acupressure therapy is a development of massage therapy that goes hand in hand with the development of acupuncture because acupressure massage techniques are derived from acupuncture. (Mohd Nafiah et al., 2022) Techniques in this therapy use fingers instead of needles but are performed on the same points as those used in acupuncture therapy. Management of nausea and vomiting in pregnancy consists of pharmacology and non-pharmacology. By being given non-pharmacological therapy, it is hoped that it can reduce the side effects of drugs, and pregnant women can reduce going to health facilities by being given acupressure mothers feel more comfortable and relaxed.

4 Conclusion

The P6 pericardium acupressure technique effectively reduces the frequency of nausea and vomiting before and after the P6 pericardium acupressure technique is performed with a p-value ($0.001 < 0.05$). Zusanli ST36 acupressure technique effectively reduces the frequency of nausea and vomiting before and after being performed with a p-value ($0.001 < 0.05$). Pericardium P6 and Zusanli ST36 groups are effective on the frequency of nausea vomiting in pregnant women. But there is no significant difference between the pericardium P6 and Zusanli ST36 groups. The P6 pericardium acupressure technique effectively reduces the frequency of nausea and vomiting before and after the P6 pericardium acupressure technique is performed with a p-value ($0.001 < 0.05$). Zusanli ST36 acupressure technique effectively reduces the frequency of nausea and vomiting before and after being performed with a p-value ($0.001 < 0.05$). Pericardium P6 and Zusanli ST36 groups are effective on the frequency of nausea vomiting in pregnant women. But there is no significant difference between the pericardium P6 and Zusanli ST36 groups. The results of this study contribute to expanding options regarding the management of nausea and vomiting in women in the first trimester of pregnancy and so far it is effective and safe from side effects. The limitations of the study are the small number of respondents who are an obstacle related to the availability of respondents who must be reached because of the large community health center work area, affecting the generalization of the research results, it is hoped that the next study can increase the number of samples available. Management of pregnancy discomfort in the first trimester related to nausea and vomiting, complementary methods are highly recommended considering that medical management can risk disrupting the stages of organogenesis that occur in early pregnancy.

References

- ACOG, C. on P. B.-O. (2018). *Nausea And Vomiting Of Pregnancy*. *Obstet Gynecol. Jan*;131(1):e15-e30. doi: 10.1097/AOG.0000000000002456. PMID: 29266076.
- Chiossi G, Neri I, Cavazzuti M, Basso G, F. F. (2006). *Hyperemesis gravidarum complicated Wernicke encephalopathy: background, case report, and review of the literature*.
- Dinas Kesehatan Aceh Singkil. (2021). *Profil Kesehatan Aceh Singkil. Aceh, Dinas Kesehatan*, 1–193.
- Fejzo MS, Mac Gibbon K, M. P. (2016). *Why are women still dying from nausea and vomiting of pregnancy? Gynecol Obstet Case Rep 2016*.
- Jannah, N. (2012). *Buku Ajar Asuhan Kebidanan Kehamilan*. ANDI OFFSET.
- Lemeslow, S, Hosmer, D.W., Klar, J & I.Wanga, S, K. (1997). *Besar Sampel Dalam Penelitian Kesehatan*. Gajah Mada University Press.
- Maheswara AN, Wahyuni ES, Istiqomah, K. S. (2021). *Literature Review: Terapi Komplementer Akupresur Pada Titik Perikardium 6 Dalam Mengurangi Mual dan Muntah Pada Kehamilan*. *J Ners Lentera. J Ners Lentera*.
- Mohd Nafiah, N. A., Chieng, W. K., Zainuddin, A. A., Chew, K. T., Kalok, A., Abu, M. A., Ng, B. K., Mohamed Ismail, N. A., & Nur Azurah, A. G. (2022). *Effect of Acupressure at P6 on Nausea and Vomiting in Women with Hyperemesis Gravidarum: A Randomized Controlled Trial*. *International Journal of Environmental Research and Public Health*, 19(17). <https://doi.org/10.3390/ijerph191710886>

- PERATURAN MENTERI KESEHATAN REPUBLIK INDONESIA NOMOR 15 TAHUN 2018. (2018).
- Septa AF, HS SAS, D. N. (2021). Penerapan Akupresur Pada Ibu Hamil Trimester I Untuk Mengatasi Mual Dan Muntah Di Wilayah Kerja Puskesmas Metro. *J Cendikia Muda. Cendikia Muda*.
- Sri Hardjanti, T. (2021). *Text Buku Saku Asuhan Holistik Akupresur : Tatacara Akupresur Sebagai Asuhan Holistik Dalam Kehamilan, Persalinan, Nifas dan Pencegahan Covid-19*. Politeknik Kesehatan Kemenkes Semarang.
- Tanjung, W. W., & Nasution, E. Y. (2021). Akupresur Titik Perikardium 6 pada Ibu Hamil Trimester I. *Jurnal Pengabdian Masyarakat Aufa (JPMA)*, 3(1), 100–103. <https://jurnal.unar.ac.id/index.php/jamunar/article/view/359>
- Tara, Fatemeh, et al. (2020). *The Effect of Acupressure on the Severity of Nausea, Vomiting, and Retching in Pregnant Women: A Randomized Controlled Trial*.
- Yanti, J. S., Zu, A., & Li, S. (2021). Zu San Li Acupressure Method (ST 36) With Decreasing Nausea and Vomiting in Pregnant Women in the First Trimester at PMB Onni Dilla Roza Pekanbaru. *Science Midwifery*, 10(1, October), 506–509. <https://www.midwifery.iocspublisher.org/index.php/midwifery/article/view/242>
- Zaen, N. L., & Ramadani, D. (2019). Pengaruh Pijat Akupresur terhadap Mual Muntah pada Ibu Hamil Trimester 1 di Wilayah Kerja Puskesmas Sukaramai Medan Tahun 2019. *Sintaks*, 1, 414–420. <https://jurnal.uimedan.ac.id/index.php/sintaks/article/view/921>