

BRASE (BRACELET NAUSEA) REDUCE NAUSEA, VOMITING IN PREGNANCY

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ABSTRAK: BRASE (BRACELET NAUSEA) UNTUK MUAL MUNTAH DALAM KEHAMILAN

Latar Belakang: Mual dan muntah kehamilan adalah komplikasi kehamilan yang paling umum terjadi pada 90% ibu hamil. Etiologi mual dan muntah kehamilan tidak diketahui dengan pasti, bisa disebabkan karena perubahan hormon, imunologis, dan anatomi. Akupresure merupakan perkembangan terapi pijat yang berlangsung seiring dengan perkembangan ilmu akupunktur. Dengan terapi ini, akupresur lebih menarik sebagai alternatif yang aman dan non-invasif. Namun dengan berkembangnya jaman, diperlukan terobosan baru guna mempermudah dalam melakukan teknik ini, diperlukan suatu inovasi sederhana dan low cost agar semua masyarakat mendapatkan manfaat dari teknik ini.

Tujuan : Untuk mengetahui pengaruh akupresu P6 dengan Bracelet Nausea (BraSe) untuk mengurangi mual dan muntah pada ibu hamil.

Metode: Penelitian ini merupakan penelitian praeksperimen dengan non-randomized uncontrolled trial with pretest- posttest without control group design, yaitu desain eksperimen yang dilakukan dengan pretest sebelum diberikan perlakuan, kemudian diberikan perlakuan, dan selanjutnya dilakukan posttest. Pendekatan yang digunakan adalah cross sectional. Penelitian ini dilakukan di Klinik Taman Sari 6 Kota Pekanbaru. Populasi dalam penelitian ini adalah seluruh ibu hamil yang melakukan pemeriksaan kehamilan di klinik Taman Sari bulan Februari – Juli 2022. Teknik pengambilan sampel menggunakan total sampling yang berjumlah 20 orang. Penelitian dilakukan dengan cara kunjungan rumah, selanjutnya dilakukan *informed consent* dan *pre-test* setelah itu dilakukan akupresure dalam waktu 3 hari pada pagi hari dan setelah hari ke 3 dilakukan *post-test*. Instrumen dalam penelitian ini Lembar kuesioner *Pregnancy- Unique Quantification of Emesis-24* (PUQE 24). Analisa data secara univariat dan bivariate dengan Uji T-Test.

Hasil : Hasil penelitian didapatkan bahwa rata-rata frekuensi mual dan muntah sebelum diberikan akupresur pada titik perikardium 6 adalah sebesar 2.25 (SD 0.44) dan sesudah diberikan akupresur pada titik perikardium 6 dengan BraSea terjadi penurunan frekuensi mual dan muntah dengan nilai rata-rata sebesar 1,8 (SD 0.41). Hasil Uji Two Sample T Test menunjukkan bahwa ada pengaruh akupresur pada titik perikardium 6 ($p=0,001$).

Kesimpulan: ada pengaruh akupresu P6 dengan menggunakan Bracelet Nausea (BraSe) untuk mengurangi mual dan muntah pada ibu hamil.

Saran : Untuk menjaga kehamilan berjalan dengan aman, ibu hamil tidak boleh mengesampingkan keluhan yang dirasakan termasuk mual dan muntah karena dapat menjadi masalah serius. Akupresur merupakan pengobatan non-invasif yang baik diambil oleh ibu hamil untuk mengurangi mual dan muntah.

Kata Kunci : mual, muntah, akupresur P6, ibu hamil, Bracelet Nausea

ABSTRACT

Background: Nausea and vomiting during pregnancy are the most common pregnancy complications that occur in 85% of pregnant women. High levels of the hormone hCG in pregnancy are thought to be the cause of nausea and vomiting. Acupressure is the development of massage therapy that goes hand in hand with the development of acupuncture. Acupressure at the point of pericardium 6 can reduce nausea and vomiting because the stimulation can increase the release of beta-endorphin.

Purpose: To determine the effect of P6 acupressure to reduce nausea and vomiting in pregnant women.

Method: This research is a pre-experimental study using a one-group pre-post-test research design. The approach used is cross-sectional. This research was conducted at Taman Sari 6 Clinic, Pekanbaru City. The population in this study were all pregnant women who had a pregnancy check-up at the Taman Sari clinic from February to July 2022. The sampling technique used a total sampling of 25 people. The instrument in this study was the *Pregnancy- Unique Quantification of Emesis-24* (PUQE 24) questionnaire. Data analysis was univariate and bivariate with the T-Test.

Results: The results showed that the average frequency of nausea and vomiting before being given acupressure at the pericardium 6 was 2.56 (SD 0.51) and after being given acupressure at the pericardium 6 there was a decrease in the frequency of nausea and vomiting with an average value of 2.04 (SD 0.35). The results of the Two Sample T Test showed that there was an effect of acupressure on the 6th pericardial point ($p=0.000$).

Conclusion: there is an effect of P6 acupressure to reduce nausea and vomiting in pregnant women.

Suggestion: To keep the pregnancy going with the name, pregnant women should not put aside the complaints they feel, including nausea and vomiting because they can be a serious problem. Acupressure is a non-invasive treatment that is good for pregnant women to reduce nausea and vomiting.

Keywords: Nausea, Pregnant Women, P6 Acupressure, Vomiting,

INTRODUCTION

Nausea and vomiting are common problems in early pregnancy. Although often called 'morning sickness', nausea and vomiting can occur at any time and can last throughout the day (Steele et al., 2001). Symptoms usually begin between four weeks and seven weeks of gestation and disappear by 16 weeks of gestation in about 90% of women (Can Gürkan & Arslan, 2008; Festin, 2014). Most women do not require treatment, and complete pregnancy without special intervention. However, if nausea and vomiting become severe and persistent, this condition can progress to hyperemesis, especially if the woman is unable to maintain adequate hydration, fluid and electrolyte balance, and nutrition. (Adlan et al., 2017a; Grenier et al., 2021; Hollyer et al., 2002). The detrimental impact of severe vomiting on the fetus is premature birth and low birth weight (LBW). Meanwhile, the most frequently encountered impact of nausea and vomiting for pregnant women is anemia (Can Gürkan & Arslan, 2008; Festin, 2014).

Nausea affects about 70% and vomiting about 60% of pregnant women (Davoudi-Kiakalayeh et al., 2017; Festin, 2014). The cause of nausea and vomiting in pregnancy is unknown, one theory is an increase in *human chorionic gonadotrophin* (hCG) concentration, a history of hydatidiform mole (Festin, 2014; Saberi et al., 2013). In addition, endocrine and psychological factors are suspected, but the evidence is inconclusive. Female fetal sex has been found to be a clinical indicator of hyperemesis (Adlan et al., 2017b; Festin, 2014). The severity of symptoms plays an important role in determining treatment. Simple dietary advice and lifestyle changes can be effective treatment options. In addition, alternative approaches such as acupressure, acupuncture, reflexology, hypnosis or osteopathy have also been shown to reduce or even eliminate (Galeshi et al., 2020; Jamigorn & Phupong, 2007; O'Brien et al., 1996).

Acupressure is considered one of the non-pharmacological and non-invasive treatment modalities for nausea and vomiting of pregnancy

(Galeshi et al., 2020; Steele et al., 2001). In recent years, acupressure has been seen as a treatment modality to consider (Adlan et al., 2017a; Galeshi et al., 2020; O'Brien et al., 1996; Saberi et al., 2013). The P6 point is located on the surface of the forearm approximately 4.5 cm above the wrist between the flexor carpi radialis and palmaris longus medialis tendons which is useful for reducing nausea and vomiting (Adlan et al., 2017a; Galeshi et al., 2020; O'Brien et al., 1996). Although the reasons underlying the efficacy of these points in reducing symptoms of nausea and vomiting have not been fully explained, it appears that the use of acupressure at P6 is effective in reducing nausea and vomiting (Adlan et al., 2017a; Fugh-Berman & Kronenberg, 2003; Galeshi et al., 2020; Grenier et al., 2021; O'Brien et al., 1996; Saberi et al., 2013).

Based on various national and international articles, pressing the P6 point is useful for treating nausea and vomiting in pregnancy, so a simple and low cost innovation is needed so that all people can benefit from this technique. Therefore, this research aims to create a tool based on Appropriate Technology (TTG) to treat nausea and vomiting in the form of a bracelet called the "*Nausea Bracelet (BraSe)*". *BraSe* is a 2 cm wide bracelet with convex plastic buttons that are worn on the skin to press the P point. This bracelet uses the principle of acupressure by placing a small button which functions to provide constant pressure to the P6 point on the wrist.

RESEARCH METHODS

This study identified the effectiveness of acupressure using the Nausea Bracelet (*BraSe*) in reducing nausea and vomiting in first trimester pregnant women. Research variables consist of independent and dependent variables. The independent variable is acupressure with *BraSe*, the dependent variable is nausea and vomiting in first trimester pregnant women. The research design used in this study was a pre-experimental design with a non-randomized uncontrolled trial with pretest-

posttest without control group design, namely an experimental design carried out with a pretest before being given treatment, then given treatment, and then a posttest after the research subjects were given treatment for looked at the effect of wristband acupressure with BraSe at the Neiguan point (P6) on TM I pregnant women who experienced nausea and vomiting. The approach used is cross-sectional. This research was conducted at Taman Sari 6 Clinic, Pekanbaru City. The population in this study were all pregnant women who had a pregnancy check-up at the Taman Sari clinic from February to July 2022. The sampling technique used a total sampling technique. The sample in this study were all 25 pregnant women with TM I who experienced nausea and vomiting. The instrument in this study was the Pregnancy- Unique Quantification of Emesis-24

(PUQE 24) questionnaire. The data collection technique was carried out by giving a pre-test by filling out PUQE 24 then giving an intervention and a post-test by filling in PUQE 24. Data analysis was univariate and bivariate with the T-Test.

RESEARCH RESULTS

This research was conducted at the Taman Sari 6 Clinic, Pekanbaru City, located on Jalan Garuda Sakti Gang Budi Luhur No. 40 Simpang Baru District. Handsome Pekanbaru City. This research began in January to August 2023 with a total of 20 respondents whose data was taken before and after being given acupressure at pericardium point 6 using BraSea. The results obtained are presented in the tables below:

Table 1

Average Frequency of Nausea and Vomiting Before and After Giving Acupressure at Pericardium Point 6 with BraSea to First Trimester Pregnant Women at Taman Sari 6 Clinic, Pekanbaru City

Group	N	Mean	Elementary School	Min	Max
Before Intervention (Pre)	20	2.25	0.44	2	3
After Intervention (Post)	20	1.8	0.41	1	2

In table 1 it can be seen that the average frequency of nausea and vomiting in first trimester pregnant women before being given acupressure at pericardium point 6 with BraSea was 2.25 (SD 0.44)

and after being given acupressure at pericardium point 6 with BraSea there was a decrease in the frequency of nausea and vomiting with the mean value was 1.8 (SD 0.41).

Table 2

The Effect of BraSea on Pericardium Point 6 in Pregnant Women in the First Trimester on Pregnancy Nausea and Vomiting at the Taman Sari 6 Clinic, Pekanbaru City

Group	N	Mean	Elementary School	p-value
Before Intervention (Pre)	20	2.25	0.44	0.001
After Intervention (Post)	20	1.8	0.41	

In table 2 it can be seen that the results of the Two Sample T Test with a confidence level of 95% show that there is an effect of acupressure at pericardium point 6 with BraSea on nausea and vomiting of TM I pregnant women (0.001).

DISCUSSIONS

The results of research conducted at the Tman Sari 6 Pekanbaru Pratama Clinic regarding the effect of acupressure at pericardium point 6 with BraSea on nausea and vomiting in pregnant women in the first trimester from January to September 2023 showed that the average frequency of nausea and vomiting before being given acupressure at pericardium point 6 it was 2.25 (SD 0.44) and after giving acupressure at pericardium point 6 with

BraSea there was a decrease in the frequency of nausea and vomiting with an average value of 1.8 (SD 0.41). This means that there is a decrease in the frequency of nausea and vomiting before and after being given acupressure at pericardium point 6. In the 24 hours before being given acupressure intervention at pericardium point 6, pregnant women experience nausea and vomiting with a minimum score of 4 and a maximum of 9. This is categorized by the level of nausea and vomiting. moderate vomiting. Within 24 hours after being given acupressure intervention at pericardium point 6 with BraSea, pregnant women experienced nausea and vomiting with a minimum score of 3 and a maximum of 6. This was categorized as mild nausea and vomiting. The results of the Two Sample T Test

showed that there was an effect of acupressure at pericardium point 6 ($p=0.001$).

Pregnancy is a continuous process starting from ovulation, conception, nidation or implantation and development of the embryo in the uterus until term. During pregnancy, various complications can occur, including nausea and vomiting known as emesis gravidarum). Based on data from the World Health Organization (WHO) in 2013, the incidence of emesis gravidarum reached 12.5% of the number of pregnancies in the world. Based on data from the Ministry of Health of the Republic of Indonesia in 2013, in Indonesia 60-80% of primigravidas and 40-60% of multigravidas experienced emesis gravidarum, 25% had nausea without vomiting, 35% of women experienced emesis gravidarum (Fadhilah et al., 2021; Rusman et al., 2017).

The first trimester is a critical period, namely the initial stage of fetal organ formation. If the fetus lacks certain nutrients, it can cause organ failure. Nausea and vomiting in pregnancy also cause psychosocial effects, worries about the economy and work, depression, anxiety, fear of pregnancy (Wills and Forster, 2008). Every pregnant woman will experience different degrees of nausea and vomiting. Efforts to overcome this can be done through pharmacology and non-pharmacology. Pharmacology uses vitamin B6 (Jamigorn & Phupong, 2007). Non-pharmacological therapies such as herbs, acupuncture and acupressure. In pregnant women, the tendency to use non-pharmacological therapy has increased (Matthew Heckroth, MD, R. Tyler Luckett, MD, Chris Moser, DO, Dipendra Parajuli, MD, Thomas L. Abell, 2021).

Nausea and vomiting during pregnancy are caused by increased levels of the hormones estrogen and progesterone produced by Chronic Gonadotropin (HCG) in the placenta. Pregnant women who experience complaints of nausea and vomiting are natural symptoms that will be felt in the first trimester, usually the mother will experience signs such as dizziness, excessive salivation, and excreting some of the food or even everything that has been consumed. Apart from that, many cases of pregnant women experience excessive nausea and vomiting which can worsen the mother's general condition and can interfere with the daily activities of pregnant women (Dunbar et al., 2022; Liu et al., 2022). Nausea and vomiting in pregnancy can have serious impacts on the mother and especially on the fetus. Low Birth Weight (LBW) and premature birth are the most common consequences that can harm the fetus due to the severity of nausea and vomiting experienced by the mother (Fadhilah et al., 2021).

Non-pharmacological treatment using the acupressure method is a safe method for pregnant women and their fetuses. This acupressure technique is a development of massage therapy, and is closely related to the development of acupuncture, because the acupressure technique comes from acupuncture. Acupressure therapy is carried out using fingers to replace needles, but is still carried out at the same points in acupuncture therapy (O'Donnell et al., 2016; Sulistiarini et al., 2018).

Acupressure at the pericardium point 6 is located three fingers above the wrist between the flexor carpi radialis tendon and the palmaris longus muscle. The mechanism of action of Acupressure at the P6 point is to provide low electrical stimulation to the sensory receptors in the skin thereby activating the α and fiber α . These fibers synapse with the dorsal portion of the central nervous system, causing endorphogenic cells to release endorphins from the hypothalamus. The release of endorphins from serotonergic and norepinephrine inhibits the CTZ (chemoreceptor trigger zone) which is located in the tractus solitarius nucleus postrema in the brainstem. Signals to inhibit nausea and vomiting are transmitted to the gray area of the midbrain, causing the release of enkephalin. Enkephalin stimulates type I and type II afferent nerves to release monoamine neurotransmitters: serotonin and norepinephrine in the spinal cord. Both endorphins and adrenocorticotrophic hormone (ACTH), from the pituitary gland are found in the bloodstream and cerebrospinal fluid (CSF). The opposite effect of CTZ is that dopaminergic receptors signal the 5-HT₃ antagonist chemoreceptors in the upper mucosa of the digestive tract, to increase gastric motility and stop the vomiting reflex due to pressure at the P6 point (Putra et al., 2021).

Various studies have been carried out to see the effectiveness of stimulation at the P6 point on the incidence of nausea and vomiting in pregnant women, including research by Ni Ketut Somoyani (2018) with the title Complementary Therapy to Reduce Nausea and Vomiting during Pregnancy stating that the application of acupressure at the PC6 point, it shows that there is an influence of PC 6 point acupressure on emesis gravidarum with p -value = 0.000 (Somoyani, 2018). Similar research conducted by Adlan *et.al.* (2017) with the title Acupressure as adjuvant treatment for the inpatient management of nausea and vomiting in early pregnancy: A double-blind randomized controlled trial showed results of using acupressure bands at the Neiguan point (P6) for 12 hours every day for three days in patients Hospitalization with hyperemesis gravidarum significantly reduces

symptoms of nausea, vomiting and vomiting as well as ketonuria and leads to a reduction in hospital stay. There was a statistically significant increase in the Emesis and Nausea Quantification of Pregnancy scores from the first to the third day of hospital admission in the treatment group compared to the placebo group. Patients who received Neiguan point acupressure also showed a significant increase in ketonuria scores. The treatment group required a shorter hospital stay compared to the placebo group. The only reported side effect of acupressure bands is wrist redness (Adlan et al., 2017b) .

Other supporting research was also conducted by Ana Mariza et al (2019) regarding " The application of acupressure at point P6 for emesis gravidarum in pregnant women in the 1st trimester" shows vomiting before being given the intervention Mean 10.53 Min 9 Max 13 and Standard Deviation 1.408 and Standard Error 0.257, after being given acupressure Mean 7.30 Min 5 Max 10 and Standard Deviation 1.317 and Standard Error 0.240. The statistical test results showed that the P-value = 0.000, meaning that there was an effect of administering acupressure at the p6 point on nausea and vomiting in TM I pregnant women at BPM Wirahayu Panjang in 2018. Conclusion: Acupressure stimulates the regulatory system and activates endocrine and neurological mechanisms, by stimulating work hypothalamus to release endorphins which provide a feeling of relaxation (Mariza & Ayuningtias, 2019) . The same research by Akhu -Zaheya, Laila M. Khater, Wejdan A. Lafi, Asma Y. (2017) with the title " *The Effectiveness of Hologram Bracelets in Reducing Chemotherapy-Induced Nausea and Vomiting Among Adult Patients With Cancer* : shows that The use of hologram bracelets in cancer patients has a positive influence on nausea and vomiting. Rates of nausea and vomiting decreased and activities of daily living scores increased (Akhu-Zaheya et al., 2017) .

Other research that supports this is research conducted by Indah Sari, Dita and Wahyuningsih, Sri (2021) with the title " The Effectiveness of Acupressure Therapy on Decreasing Complaints of Nausea and Vomiting in Pregnant Women" shows that from the nine papers reviewed it was found that acupressure therapy at point P6, point KID21 , Zu San Li, and Gong Sun points are effective in reducing complaints of nausea and vomiting in pregnant women who are carried out regularly. The conclusion from this literature review is that non-pharmacological acupressure therapy is effective in reducing nausea and vomiting in pregnant women (Indah Sari & Wahyuningsih, 2021) . Research conducted by Nadiah Fadhillah, Mayetti, Rosfita

Rasyid (2020) with the title " Effect of Pericardium Point Acupressure 6 on Gravidarum Emesis Trimester I Pregnant Women at the Working Area Public Halth Center Koto Berak In 2020" resulted in the average emesis gravidarum score before acupressure in the experimental group was 8.69 ± 0.48 and in the control group was 7.62 ± 1.19 . The mean emesis gravidarum score after acupressure in the experimental group was 3.31 ± 0.48 and in the control group was 5.69 ± 1.75 . The mean reduction in the emesis gravidarum score for the experimental group was 5.38 ± 0.50 and for the control group was 1.92 ± 1.80 . There was a significant difference in emesis gravidarum scores between the experimental group and the control group ($p < 0.05$). The conclusion of this study is that there is an effect of acupressure on pericardium point 6 in the form of a significant reduction in the frequency of nausea and vomiting in first trimester pregnant women who experience emesis gravidarum (Fadhilah et al., 2021) .

According to the researchers' analysis, acupressure at the pericardium point using BraSe can produce good evaluations in pregnant women who experience nausea and vomiting in the categories of mild and moderate nausea and vomiting. Acupressure at the Pericardium 6 point with BraSe is a more practical method, without side effects and focuses more on the body's nerve points so that it can be used as the right solution to reduce nausea and vomiting in pregnant women. In addition, acupressure at the 6 pericardium point has been widely studied with many positive results for relieving nausea and vomiting in pregnant women. The duration of P6 acupressure therapy using BraSe was given in 15 minutes for 3 cycles to research respondents for 3 days. This intervention can be carried out in a sitting, standing or lying position in a position that is comfortable for the patient. As a complementary therapy, acupressure is holistic because it applies a form of caring behavior in the form of healing touch which can provide calm and comfort for the patient, thereby bringing the therapeutic relationship between nurse and client closer. If viewed from a legal perspective, nurses are allowed to apply acupressure as a complementary therapy as regulated in Law no. 38 of 2004 so that nurses have the opportunity to learn and apply this therapy.

CONCLUSION

Acupressure is a development of massage therapy that took place along with the development of the science of acupuncture. With this therapy, acupressure is more attractive as a safe and non-

invasive alternative. However, as time goes by, new breakthroughs are needed to make it easier to carry out this technique. A simple and low cost innovation is needed so that all people can benefit from this technique. Therefore, this research aims to create a tool based on Appropriate Technology (TTG) to treat nausea and vomiting in the form of a bracelet called the "Nausea Bracelet (BraSe)". The results of the Two Sample T Test showed that there was an effect of acupressure at pericardium point 6 (p=0.001).

SUGGESTIONS

It is hoped that other researchers can use other acupressure methods to reduce nausea and vomiting, such as the acupressure techniques KID point 21 (Youmen), St 36 (Zu San Li), and point Sp 3 (Gong Sun). Or you can compare the effectiveness of each point to get more optimal effectiveness.

REFERENCES

- Adlan, A. S., Chooi, K. Y., & Mat Adenan, N. A. (2017a). Acupressure as adjuvant treatment for the inpatient management of nausea and vomiting in early pregnancy: A double-blind randomized controlled trial. *Journal of Obstetrics and Gynaecology Research*, 43(4), 662–668. <https://doi.org/10.1111/jog.13269>
- Adlan, A. S., Chooi, K. Y., & Mat Adenan, N. A. (2017b). Acupressure as adjuvant treatment for the inpatient management of nausea and vomiting in early pregnancy: A double-blind randomized controlled trial. *Journal of Obstetrics and Gynaecology Research*, 43(4), 662–668. <https://doi.org/10.1111/jog.13269>
- Akhu-Zaheya, L. M., Khater, W. A., & Lafi, A. Y. (2017). The effectiveness of hologram bracelets in reducing chemotherapy-induced nausea and vomiting among adult patients with cancer. *Cancer Nursing*, 40(2), E17–E29. <https://doi.org/10.1097/NCC.0000000000000374>
- Can Gürkan, Ö., & Arslan, H. (2008). Effect of acupressure on nausea and vomiting during pregnancy. *Complementary Therapies in Clinical Practice*, 14(1), 46–52. <https://doi.org/10.1016/j.ctcp.2007.07.002>
- Davoudi-Kiakalayeh, A., Mohammadi, R., Pourfathollah, A. A., Siery, Z., & Davoudi-Kiakalayeh, S. (2017). Alloimmunization in thalassemia patients: New insight for healthcare. *International Journal of Preventive Medicine*, 8, 1–10. <https://doi.org/10.4103/ijpvm.IJPVM>
- Dunbar, K., Yadlapati, R., & Konda, V. (2022). Heartburn, Nausea, and Vomiting During Pregnancy. *The American Journal of Gastroenterology*, 117(10), 10–15. <https://doi.org/10.14309/ajg.0000000000001958>
- Fadhilah, N., Mayetti, & Rasyid, R. (2021). Effect of Pericardium Point Acupressure 6 on Gravidarum Emesis Trimester I Pregnant Women at the Working Area Public Health Center Koto Berapak In 2020. *Midwifery.iocspublisher.Org*, 10(1), 367–378. <https://midwifery.iocspublisher.org/index.php/midwifery/article/view/221%0Ahttps://midwifery.iocspublisher.org/index.php/midwifery/article/view/221/186>
- Festin, M. (2014). Nausea and vomiting in early pregnancy. *BMJ Clinical Evidence*, 2014(September 2013). <https://doi.org/10.1097/00006250-200005000-00028>
- Fugh-Berman, A., & Kronenberg, F. (2003). Complementary and alternative medicine (CAM) in reproductive-age women: A review of randomized controlled trials. *Reproductive Toxicology*, 17(2), 137–152. [https://doi.org/10.1016/S0890-6238\(02\)00128-4](https://doi.org/10.1016/S0890-6238(02)00128-4)
- Galeshi, M., Ghanbarpour, A., Naeimi Rad, M., & Asghari, S. (2020). A comparison of the effect of pressure on the KID21 (Youmen) and P6 (Neiguan) points on the severity of nausea and vomiting of pregnancy. *Journal of Complementary and Integrative Medicine*, 17(2), 1–9. <https://doi.org/10.1515/jcim-2019-0035>
- Grenier, L. N., Atkinson, S. A., Mottola, M. F., Wahoush, O., Thabane, L., Xie, F., Vickers-Manzin, J., Moore, C., Hutton, E. K., & Murray-Davis, B. (2021). Be Healthy in Pregnancy: Exploring factors that impact pregnant women's nutrition and exercise behaviours. *Maternal and Child Nutrition*, 17(1), 1–9. <https://doi.org/10.1111/mcn.13068>
- Hollyer, T., Boon, H., Georgousis, A., Smith, M., & Einarson, A. (2002). BMC Complementary and Alternative Medicine The use of CAM by women suffering from nausea and vomiting during pregnancy. *BMC Complementary and Alternative Medicine*, 2, 1–6.
- Indah Sari, D., & Wahyuningsih, S. (2021). The Effectiveness of Acupressure Therapy on Decreasing Complaints of Nausea and Vomiting in Pregnant Women. *Nursing and*

- Health Sciences Journal (NHSJ)*, 1(1), 20–30.
<https://doi.org/10.53713/nhs.v1i1.5>
- Jamigorn, M., & Phupong, V. (2007). Acupressure and vitamin B6 to relieve nausea and vomiting in pregnancy: A randomized study. *Archives of Gynecology and Obstetrics*, 276(3), 245–249. <https://doi.org/10.1007/s00404-007-0336-2>
- Liu, C., Zhao, G., Qiao, D., Wang, L., He, Y., Zhao, M., Fan, Y., & Jiang, E. (2022). Emerging Progress in Nausea and Vomiting of Pregnancy and Hyperemesis Gravidarum: Challenges and Opportunities. *Frontiers in Medicine*, 8(January), 1–17. <https://doi.org/10.3389/fmed.2021.809270>
- Mariza, A., & Ayuningtias, L. (2019). Penerapan akupresur pada titik P6 terhadap emesis gravidarum pada ibu hamil trimester 1. 13(3), 218–224.
- Matthew Heckroth, MD, R. Tyler Luckett, MD, Chris Moser, DO, Dipendra Parajuli, MD, Thomas L. Abell, M. (2021). Nausea and Vomiting in 2021: A Comprehensive Update Matthew. In *HHS Public Access* (Vol. 176, Issue 1). HHS Public Access. <https://doi.org/10.1097/MCG.0000000000001485>.
- O'Brien, B., Relyea, M. J., & Taerum, T. (1996). Efficacy of P6 acupressure in the treatment of nausea and vomiting during pregnancy. *American Journal of Obstetrics and Gynecology*, 174(2), 708–715. [https://doi.org/10.1016/S0002-9378\(96\)70454-4](https://doi.org/10.1016/S0002-9378(96)70454-4)
- O'Donnell, A., McParlin, C., Robson, S. C., Beyer, F., Moloney, E., Bryant, A., Bradley, J., Muirhead, C., Nelson-Piercy, C., Newbury-Birch, D., Norman, J., Simpson, E., Swallow, B., Yates, L., & Vale, L. (2016). Treatments for hyperemesis gravidarum and nausea and vomiting in pregnancy: A systematic review and economic assessment. *Health Technology Assessment*, 20(74), vii–268. <https://doi.org/10.3310/hta20740>
- Putra, P. W. K., Widianegara, I. K. A., & Kusuma, A. N. (2021). Penggunaan Acupressure Wristband di Titik Neiguan (P6) Terhadap Postoperative Nausea Vomiting (PONV) Pada Pasien Bedah Ortopedi Article Info: *Journal Of Holistic Nursing Science*, 8(1), 31–38.
- Rusman, A. D. P., Andiani, D., & Fakultas Ilmu Kesehatan, U. (2017). Prosiding Seminar Nasional IKAKESMADA “Peran Tenaga Kesehatan dalam Pelaksanaan SDGs” EFEKTIFITAS PEMBERIAN JAHE HANGAT DALAM MENGURANGI FREKUENSI MUAL MUNTAH PADA IBU HAMIL TRIMESTER I. *Prosiding Seminar Nasional*, 978–979.
- Saberi, F., Sadat, Z., Abedzadeh-Kalahroudi, M., & Taebi, M. (2013). Acupressure and ginger to relieve nausea and vomiting in pregnancy: A randomized study. *Iranian Red Crescent Medical Journal*, 15(9), 854–861. <https://doi.org/10.5812/ircmj.12984>
- Somoyani, N. K. (2018). Literature Review: Terapi Komplementer untuk Mengurangi Mual Muntah pada Masa Kehamilan. *Jurnal Ilmiah Kebidanan*, 8(1), 10–17.
- Steele, N. M., French, J., Gatherer-Boyles, J., Newman, S., & Leclair, S. (2001). Effect of acupressure by Sea-Bands on nausea and vomiting of pregnancy. *Journal of Obstetric, Gynecologic, and Neonatal Nursing : JOGNN / NAACOG*, 30(1), 61–70. <https://doi.org/10.1111/j.1552-6909.2001.tb01522.x>
- Sulistiarini, U., Widyawati, M. N., & Rahayu, D. L. (2018). Studi Literatur: Acupressure Pericardium Dan Aromatherapy Citrus Untuk Mengurangi Mual Muntah Ibu Hamil. *Jurnal Kebidanan*, 8(2), 146. <https://doi.org/10.31983/jkb.v8i2.3744>