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The effect of warm ginger on the frequency of nausea and vomiting among pregnancy women

El efecto del jengibre tibio en la frecuencia de náuseas y vómitos en mujeres embarazadas

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SUMMARY

Introduction: *Nausea and vomiting occur commonly during pregnancy and cause inconvenience among pregnant women. Non-pharmacological therapy with warm ginger was used in this quantitative study to relieve nausea and vomiting in pregnant women. The study aimed to determine the effect of using warm ginger on nausea and vomiting in pregnant women.*
Methods: *Quasi-experiment design was used in this study with pre and post-test of 31 respondents in the control group and 31 respondents in the intervention group. The respondent is a pregnant woman of 6-16 weeks and experiences nausea and vomiting. The pregnancy Unique Quantification of Emesis and Nausea (PUQE) questionnaire was used in this study to show nausea and vomiting scores experienced pre and post-intervention warm ginger. The data were analyzed by the Wilcoxon statistical test.*
Results: *The results showed a difference after being given intervention with a p-value less than 0.05, which is 0.0001. An amount of 50 mg of dried ginger consumed for four days with a dose of 2 tablespoons dissolved in 200 mL of warm water and drunk in the morning and evening reduce the frequency of nausea and vomiting in the pregnant woman.*
Conclusion: *This study showed a difference in the frequency of nausea and vomiting of pregnant women before and after consuming warm ginger. Using ginger as a complementary intervention relieve nausea and vomiting in pregnant women.*

Keywords: *Ginger, pregnant woman, vomiting.*

RESUMEN

Introducción: *Las náuseas y los vómitos ocurren comúnmente durante el embarazo y causan molestias entre las mujeres embarazadas. En este estudio cuantitativo se utilizó una terapia no farmacológica con jengibre tibio para aliviar las náuseas y los vómitos en mujeres embarazadas. El estudio tuvo como objetivo determinar el efecto del uso de jengibre tibio sobre las náuseas y los vómitos en mujeres embarazadas.*
Métodos: *En este estudio se utilizó un diseño de cuasi-experimento con pruebas previas y posteriores de 31 encuestados en el grupo de control y 31 encuestados en el grupo de intervención. La encuestada es una mujer embarazada de 6 a 16 semanas y experimenta náuseas y vómitos. En este estudio se utilizó el cuestionario*

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de cuantificación única de emesis y náuseas (PUQE) del embarazo para mostrar las puntuaciones de náuseas y vómitos experimentadas antes y después de la intervención con jengibre tibio. Los datos fueron analizados por la prueba estadística de Wilcoxon.
Resultados: *Los resultados mostraron una diferencia después de recibir la intervención con un valor de p menor a 0,05, que es 0,0001. Cantidad de 50 mg de jengibre seco consumidos durante cuatro días con una dosis de 2 cucharadas disueltas en 200 mL de agua tibia y bebido por la mañana y por la noche reducen la frecuencia de náuseas y vómitos en la mujer embarazada.*
Conclusión: *Este estudio mostró una diferencia en la frecuencia de náuseas y vómitos de las mujeres embarazadas antes y después de consumir jengibre tibio. El uso del jengibre como intervención complementaria alivia las náuseas y los vómitos en mujeres embarazadas.*

Palabras clave: *Jengibre, mujer embarazada, vómitos*

INTRODUCTION

The maternal mortality rate (MMR) in developing countries in 2015 was 239 per 100 000 live births, while in developed countries, it was 12 per 100 000 live births (1). Indonesia, as a developing country, has a maternal mortality rate of 305 per 100 000 live births (2). Pregnancy is a natural process experienced. It needs special care to last with the good because it contains an embryo in the body after the union of the egg and spermatozoa (3-5). Pregnancy is characterized by amenorrhea, nausea and vomiting, cravings, syncope or dizziness, tight breasts, frequent urination, constipation or constipation, pigmentation skin, epulis, and varicose veins or apparition vessels blood veins (6–9). There is a possibility that a first-trimester pregnancy will experience nauseous with or without vomit (10,11). These symptoms begin around the 6th week of pregnancy and usually decrease dramatically in the late trimester first (around the 13th week) (12,13),

In pregnant women, there are changes in the mother's body that can cause discomfort. One of the discomforts is nausea and vomiting, known as emesis gravidarum. A number of 50 %-90 % of pregnant women experience emesis gravidarum, which can interfere with daily activities and can even be dangerous for the mother and fetus (14,15). These symptoms begin around the first week of pregnancy and decrease dramatically at the end of the first trimester (week 13) (16). The treatment given by health workers for nausea and vomiting experienced by pregnant women is currently very diverse, ranging from counseling to pharmacological and non-pharmacological treatment (17). One of the recommended non-pharmacological actions is consuming processed ginger in cakes, drinks, sweets, and aromatherapy (18). Many studies have proven that processed ginger is efficacious in reducing nausea and vomiting. For example, one of the studies conducted by Herni stated that ginger aromatherapy affected reducing nausea and vomiting in pregnant women (16).

Ginger is a plant with a million properties known for a long time. The rhizome has many benefits, including as a spice for cooking, drinks, and sweets, and is also used in traditional medicinal herbs (19). There are several terpene components in ginger, such as β-bisabolene, α-curcumene, zingiberene, α-farnesene, and β-sesquiphellandrene, which are considered to be the main constituents of ginger essential oils. In addition it contains gingerol, vitamin A, and bitter resin, which can block serotonin, a neurotransmitter that is synthesized in neuro serotonergic's in the central nervous system and enterochromaffin cells in the digestive tract. It is believed to be able to provide a comfortable feeling in the stomach to overcome nausea and vomiting (17).

The advantage of ginger is that it contains essential oils, which have a refreshing effect and block the gag reflex, gingerols can improve blood circulation, and nerves work well. In addition, the fragrant aroma of ginger produced by essential oils and oleoresin causes a spicy taste that warms the body. This is supported by research conducted by the University of Myland Medical Center, which explains that consuming 1 gram of ginger extract daily during pregnancy is a safe and effective way to reduce nausea and vomiting that is usually felt in the morning (18).

Based on a preliminary study conducted by the Dayak community in Tarakan, they believe that consuming ginger in pregnant women can overcome nausea and dizziness and can launch the birthing process. The Dayak tribe usually consumes ginger by preparing a ginger concoction

which is added with aromatic ginger and brown sugar and mixed into herbal medicine. The incidence of emesis gravidarum in pregnant women throughout 2022 (January-February) conducted brief interviews with several pregnant women. Around 60 % of mothers said they consumed ginger to relieve nausea and vomiting. This study identified the effect of consuming warm ginger on the frequency of nausea and vomiting in pregnant women.

METHODS

This research was a quantitative study using a quasi-experiment pre-post test with a control group design. This design was used to determine differences in the frequency of nausea and vomiting during pregnancy before and after consuming ginger. The sampling method was a consecutive sampling method with criteria of gestational age 6-16 weeks and experiencing nausea and vomiting. The sample of this study was 62 respondents, divided into 31 respondents in the intervention group and the control group (31 respondents). In the intervention group, 31 respondents were given 50 mg of dried ginger consumed for four days with a dose of 2 tablespoons dissolved in 200 mL of warm water and drunk in the morning and evening in the treatment group. At the same time, the control group was not given it. Then given an observation sheet in the form of a checklist per day, which must be filled out. Family or husband support is needed to remind respondents to consume ginger for four days. After four days, the observation sheet was filled in by researchers and then followed by the PUQE questionnaire to see the difference in the score of nausea and vomiting after the intervention. The independent variable in this study was the administration of ginger, and the dependent variable was nausea and vomiting in pregnant women.

The instrument in this study was Birkeland (2015) modified and translated to the Indonesian version (20). Characteristics Respondents in this study were gestation age, education, parity, and age. The independent variable in this study was ginger. While the dependent variable was the frequency of nausea and vomiting. There were confounding variables in this study, including husband support and physical illness. Respondents were analyzed by researchers using the Pregnancy Unique Quantification of Emesis and Nausea (PUQE) Questionnaire to show nausea and vomiting scores experienced in pregnancy (20). The questionnaire has three questions related to how long the mother feels nausea in a day, how long the mother experiences vomiting in a day, and how many times a day she experiences vomiting or shortness of breath when not doing activities. Each question has five answer choices. This questionnaire was used pre and post-intervention to show the difference in the frequency of nausea and vomiting during teenage pregnancy before and after consuming ginger.

After the data was collected, the next step was data processing and analysis. The homogeneity test in this study was applied to see the data variance between the intervention group and the control group. Univariate analysis in this study was described in mean (median) or median, standard deviation (SD), and maximum, and minimum values for numerical data such as maternal age and frequency of nausea and vomiting. Categorical data is explained using proportions and percentages such as the provision of honey ginger biscuits, gestational age, parity, education, and pregnancy planning. Bivariate analysis was conducted using a Wilcoxson (paired test). The use of this test was because the research design used a pre-post test with a control group design with numerical. This study applies ethical principles and has obtained ethical approval at Universitas Borneo Tarakan, with ethical test number 06/KEPK-FIKES UBT/IV/2022.

RESULTS

The following tables presented the study findings, including the homogeneity test of the characteristic respondents, the difference in frequency of nausea and vomiting in pregnancy before and after consuming ginger in the intervention group, the difference in mean frequency of nausea and vomiting between the intervention group and the control group, the difference in the frequency of nausea, vomiting before and after consuming ginger based on the characteristics of respondents in the intervention group.

The subjects of this study were 62 pregnant women who had nausea and vomiting during this pregnancy at Tarakan, North Kalimantan, in 2022. The frequency distribution of research subjects showed that most of 16 (51.6 %) were pregnant more than once or multigravida in the control group, and 21 (67.7 %) were pregnant more than once or multigravida in the intervention group. Most of the pregnant women of reproductive age 20-35 years 24 (77.4 %) in the control group and 29 (93.5 %) in the intervention group. Most of the pregnant women had junior school, 20 (64.5 %) in the control group and 15 (48.4 %) in the intervention group (Table 1)

Table 1

Characteristic of responden

Characteristics	Control	Group	Intervention	Group
Parity				
Primigravida	15	48.4	10	32.3
Multigravida	16	51.6	21	67.7
Age (years)				
<20 and >35	7	22.6	2	6.5
20-35	24	77.4	29	93.5
Education				
Elementary school	6	19.4	9	29.0
Junior school	20	64.5	15	48.4
High school	5	16.1	7	22.6
Total	31	100.0	31	100.0

Table 2 showed that based on the results of the Kolmogorov-Smirnov normality test. It was found that the data were not normally distributed because there were data < 0.05 in the post-experimental data, while the data were normally distributed, i.e.> 0.05. The normality test uses the Kolmogorov-Smirnov because the sample is > 50 respondents.

Table 2

Homogeneity Test

Variable	Kolmogorov-Smirnov Statistic	p-value
Pre experiment	0.137	0.144
Post experiment	0.187	0.008
Pre control	0.149	0.077
Post control	0.153	0.064

Based on the results of the Wilcoxon test (Table 3), there was a difference after being given treatment/experiment with a p-value <0.05, which is 0.0001, so it can be concluded that there was an effect of using the method after being given treatment.

Table 3

	Experiment					Control				
	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD
Pre	31	2	12	8.26	2.408	31	5	12	8.58	1.785
Post	31	2	6	3.84	1.157	31	5	11	8.55	1.710
Negative rank	19.68									
Positive rank	649.50									
Z-hitung	-4.9991									
p-value	0.000									

DISCUSSION

The results showed that after eight times interventions for four days, the majority of pregnant women in the third-trimester experience reduced nausea and vomiting. Based on the results, there was a difference after being given warm ginger. The PUQE score in the intervention group before being given warm ginger was 12, and after being given warm ginger, the PUQE score was 6. In pregnant women, emesis gravidarum or nausea and vomiting is the most common symptom in the first trimester, around 50 %-90 % (21). Ginger can prevent nausea and vomiting because ginger can be a barrier to serotonin, a chemical that can cause the stomach to contract, causing nausea (22). This research shows the truth of the results study that in content ginger is an essential oil containing the compound gingerol capable of reducing nausea and vomiting.

The results of this study are consistent with other studies that stated that ginger effectively treats nausea and vomiting symptoms that arise during pregnancy. Ginger has the effect of relaxing and weakening the muscles in the digestive tract, thereby reducing nausea and vomiting in pregnant women. The use of various ginger products greatly helps pregnant women reduce the nausea and vomiting that they complain of (23). The results of this study are in line with those carried out by a previous study where regular consumption of ginger has been shown to reduce nausea and vomiting among pregnant women as the effect of ginger (23).

The results of this study showed that there are significant differences in the frequency of nausea and vomiting of pregnant women before and after consuming ginger dried. The results of this study indicate a change in the average frequency of lower nausea and vomiting after consuming ginger. This study's results align with previous studies conducted on 62 pregnant women who were given ginger. The study showed a decrease in nausea as much as 85 % in nausea scores and by 50 % in vomiting scores (24). These results reinforce this study that ginger is effective in reducing nausea and vomiting in pregnancy. Another research that is in line with this research is a study conducted by 32 pregnant women in the intervention group given five ginger and honey biscuits to consume as many as five biscuits a day for four days. Ginger contains essential oil and oleoresin content in addition ginger also contains analgesic, anti-inflammatory, antithrombotic, and cholesterol-lowering (25). Therefore the antiemetic effect is thought to be caused by work anticholinergic and antihistamine, where the antiemetic reduces nausea and vomiting.

CONCLUSION

In conclusion, there are differences in the frequency of nausea and vomiting among pregnant women before and after consuming warm ginger. This research recommends using ginger as an alternative intervention to relieve nausea and vomiting among pregnant women.

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REFERENCES

1. WHO. Maternal, newborn, child and adolescent health: Adolescent pregnancy. 2016 p. http://www.who.int/maternal_child_adolescent/topic.
2. Kementerian Kesehatan RI. Riskesdas Report. Riskesdas National Report 2018. The Ministry of Health of the Republic of Indonesia. 2018;53:181-222.
3. Retnowati Y, Yulianti I, Ariyanti R. Introduction to Pregnancy Care. Yogyakarta: CV. Bromomurup; 2019.
4. Mardiyanti I, Nursalam, Devy SR, Ernawati. The independence of pregnant women in early detection of high-risk pregnancy in terms of parity, knowledge, and information exposure. J Public Health Africa. 2019;10(S1).
5. Rohmah N, Yusuf A, Hargono R, Laksono AD, Masruroh, Ibrahim I, et al. Determinants of teenage pregnancy in Indonesia. Indian J Forensic Med Toxicol. 2020;14(3):2080-2085.
6. Putri NR, Amalia R, Kusmawati II. Kelas Ibu Hamil Terhadap Kesehatan Psikologis Ibu Hamil dan Persiapan Persalinan: Systematic Review Pregnant Women Class on Psychological Health of Pregnant Women and Childbirth Preparation: Systematic Review. Indones J Midwifert. 2022;5(1):29-38.
7. Ariyanti R, Jalilah NH. Class for Pregnant Women During the COVID-19 Pandemic. J Servant of Masy BORNEO.2021;5(01):51-56.
8. Wulandari RD, Laksono AD. Determinants of knowledge of pregnancy danger signs in Indonesia. PLoS One. 2020;15(5):e0232550.
9. Joewono HT, Sulistyono A, Haslinda Y, Aditiawarman. Maternal and perinatal outcome of women with obesity in pregnancy. Syst Rev Pharm. 2020;11(2):690-694.
10. Santi DR. The Effect of Peppermint and Ginger Blended Aromatherapy Oils on Nausea at the First Trimester Gravida in Puskesm. J Said Med. 2013;5(2):2011-2014.
11. Ariestini TR, Purnomo W. The Effect of Young Coconut Water against Morning Sickness among Women in the First Trimester of Pregnancy. Indian J Public Heal Res Dev. 2018;9(11):48.
12. Rufaridah A, Herien Y, Mofa E. The Effect of Zingiber Offcinale (Ginger) Steep on Decreasing Emesis Gravidarum. J Endur. 2019;4(1).
13. Diana S, Wahyuni CU, Prasetyo B. Maternal complications and risk factors for mortality. J Public health Res. 2020;9(2):195-198.
14. Indrayani IM, Burhan R, Widiyanti D. The Effectiveness of Giving Wedang Ginger to the Frequency of Nausea and Vomiting in First Trimester Pregnant Women in North Bengkulu Regency in 2017. J Health Science and Technology. 2018;5(2):201-211.
15. Triharini M, Sulistyono A, Adriani M, Hsieh P-L. Perceived Benefits and Intakes of Protein, Vitamin C and Iron in Preventing Anemia among Pregnant Women. J Ners. 2018;13(2):156-161.
16. Herni K. Effect of Ginger Aromatherapy on Nausea and Vomiting in First Trimester Pregnant Women. J Ris Health Poltekkes Bandung. 2019;11(1):44-51.
17. Anh NH, Kim SJ, Long NP, Min JE, Yoon YC, Lee EG, et al. Ginger on human health: A comprehensive systematic review of 109 randomized controlled trials. Nutrients. 2020;12(1):1-28.
18. Sharifzadeh F, Kashanian M, Koohpayehzadeh J, Rezaian F, Sheikhansari N, Eshraghi N. A comparison between the effects of ginger, pyridoxine (vitamin B6) and placebo for the treatment of the first trimester nausea and vomiting of pregnancy (NVP). J Matern Neonatal Med. 2018;31(19):2509-2514.
19. Khorasani F, Aryan H, Sobhi A, Aryan R, Abavi-Sani A, Ghazanfarpour M, et al. A systematic review of the efficacy of alternative medicine in the treatment of nausea and vomiting of pregnancy. J Obstet Gynaecol (Lahore). 2020;40(1):10-19.
20. Birkeland E, Stokke G, Tangvik RJ, Torkildsen EA, Boateng J, Wollen AL, et al. Norwegian PUQE (pregnancy-unique quantification of emesis and nausea) identifies patients with hyperemesis gravidarum and poor nutritional intake: A prospective cohort validation study. PLoS One. 2015;10(4):1-15.
21. Kusmiyati, Radiati A, Februanti S. Effectiveness of Ginger Kepok Banana Cookies Consumption To Decrease Pregnant Women Emesisl. Malaysian J Nurs. 2020;11(03):8-12.
22. Lacasse A, Rey E, Ferreira E, Morin C, Berard A. Validity of a Modified Pregnancy Unique Quantification Of Emesis dan Nausea (PUQE) Scoring Index to asses severity of nausea and vomiting of pregnancy. Am J Obs Gynecol. 2008; 198(1):71.e1-7.
23. Supatmi, Setia Suhartikah F, Sumarliyah E. Effect of Giving Gingercookies on Nausea and Vomiting of First Trimester Pregnant Women. J Keperawatan Muhammadiyah. 2017;2(1):75-79.
24. Wulandari DA, Kustriyanti D, Aisyah R. Hot Ginger Drink To Reduce Emesis Gravidarum In Pregnant Women At Nalumsari Health Center Jepara. J Smart Kebidanan. 2019;6:42.
25. Fitriwati C, Setyowati S, And TB-J of MC, 2019 U. the Effect of Consume Ginger and Honey Biscuits on the Frecuency of Nausea and Vomiting in Teenage Pregnancy. Mcrhjournal.orId. 2019;2(4):296-306.