



Article **CITRUS HYSTRIX AROMATHERAPY ON REDUCING NAUSEA FREQUENCY IN FIRST TRIMESTER OF PREGNANCY**

Wiwit Fetrisi<sup>1</sup> Oktaliza Elektrina<sup>2</sup>

<sup>1-2</sup>Faculty of Midwifery, Prima Nusantara Bukittinggi Health Institute, Indonesia

**SUBMISSION TRACK**

Received: November 2020  
Final Revision: December 2020  
Available Online: December 2020

**KEYWORDS**

Citrus hystrix aroma therapy, nausea, first trimester of pregnancy

**CORRESPONDENCE**

Phone Number: +62 853-7572-7272  
E-mail: wiwitfetrisia62@gmail.com

**A B S T R A C T**

Nausea and Vomiting occur due to increased serum levels of the hormones estrogen, progesterone, and Human Chorionic Gonadotropine (HCG) from the placenta in 5-9 out of 10 pregnancies. Nausea and vomiting have a significant impact on the mother's body, where the mother becomes weak, pale and her body fluids decrease so that the blood becomes thick (hemoconcentration). Kaffir lime peel (Citrus Hystrix) is a way to relieve nausea and vomiting during pregnancy. The aim of this study was to determine the effect of citrus skin scent (Citrus Hystrix) on the frequency of nausea and vomiting in first trimester pregnant women in the Sangaran Agung Public Health Center. Kerinci Regency in 2020. The research method is a Quasi Experiment, purposive sampling technique, with a One Group Pretest Posttest design. The study population was all pregnant women in the first trimester in the work area of the Puskesmas Sanggar Agung, with the sample in this study were 6 trimester I pregnant women who experienced nausea and vomiting in the work area of the Puskesmas Denpasar Agung in 2020. The sampling technique in this study was total sampling. Univariate analysis showed that the pre-test average value was 10.00 (moderate), and the post-test average value was 5.17 (mild), while the Bivariate analysis used the Paired test, namely p value 0.001 means <0.05 This indicates that Ha is accepted and H0 is rejected, which shows that there is an effect of giving Purut citrus peel aroma (Citrus Hystrix) on the frequency of nausea and vomiting in trimester I pregnant women in the working area of the Sangaran Agung Public Health Center, Kerinci Regency in 2020. Suggestions for pregnant women to be able to use kaffir lime peels , dc) to reduce nausea and vomiting.

## I. INTRODUCTION

Pregnancy is a natural process that every woman experiences in her reproduction cycle. Pregnancy begins with conception and ends with the onset of labor. Pregnancy is a continuous process consisting of ovulation, release of eggs, migration of spermatozoa and ovum, conception of the zygote and growth, implantation of the uterus, formation of the placenta, and growth of conception to menstruation (Sulis W.H, 2017)

The gestation period starts from conception until the birth of the fetus. The normal duration of pregnancy is 280 days (40 weeks or 9 months 7 days) calculated from the first previous menstrual period. Pregnancy is divided into the first 3 quarters starting from conception to 3 months, the second quarter from 4 months to 6 months, the third quarter from the seventh to the ninth month.(Sulis W.H, 2017)

In the process of pregnancy, changes in physiological anatomy occur. In addition to these changes, pregnant women experience discomfort in pregnancy such as fatigue, vaginal discharge, cravings, frequent urination and nausea and vomiting (emesis gravidarum). These changes occur due to an imbalance of the hormones progesterone and estrogen, namely the female hormones in the mother's body since the onset of the pregnancy process. Some complaints that make the mother feel uncomfortable include nausea and vomiting. (Dhilon, et al, 2018)

Nausea and vomiting (Emesis Gravidarum) are common symptoms and are often found in the first trimester of pregnancy. In the first trimester, 66% of women experience nausea, 60-80% occur in primigravidas and 40-60% in multigravidas. Nausea and vomiting occur due to changes in the gastrointestinal tract and increased levels of Human Chorionic Gonadotropin (hCG) in the blood which makes the mother uncomfortable. Emesis Gravidarum causes a decrease in appetite so that there is a change in electrolyte balance with potassium, calcium and sodium which causes changes in body metabolism (Parwitasari, et al., 2014 in Soa, et al. 2018).

Emesis gravidarum can get worse into hyperemesis gravidarum which causes the mother to vomit continuously every time she drinks or eats, as a result the mother's body gets weaker, paler, and the frequency of urination decreases drastically so that body fluids decrease and the blood becomes thick (hemoconcentration) which results in blood circulation. slows down so that it can cause tissue damage that can harm the fetus it is carrying. (Hidayat, 2009 in Soa, et al 2018)

Pregnancy complicated by nausea and vomiting is a common symptom in about 70% to 85% of all pregnancies. The incidence of cases of hyperemesis gravidarum is 0.8% to 3.2% of all

pregnancies or about 8 to 32 cases per 1000 pregnancies (Nisak ana zumrotun and wigati atun, 2018 in Kadir et al, 2019).

In the United States and Canada, between 400,000 and 350,000 pregnant women experience episodes of nausea and vomiting each year. In western countries and urban residents, according to Hernawati, et al. (2014), Indonesia has 69.2% of pregnant women who experience nausea and vomiting during pregnancy, from 52 samples taken (Dhilon, et al, 2018)

Various preventive efforts made by health workers for pregnant women who experience nausea and vomiting, one of which is by using aroma therapy, which has nerve receptors that are connected to the channel to the brain so that the effect given can be directly felt by pregnant women who experience nausea and vomiting. Therapy that uses essential oils or pure oil extracts that help improve or maintain health, raise the spirit, refresh and soothe the mind and body. (dhilon et al, 2018)

Kaffir lime has the Latin name *Citrus Hystrix*. Citrus fruits are round, small, dark green in color, with thick skin. Kaffir lime is known as lime or Kaffir Lime which has a slightly salty and chelish taste and is stimulant and refreshing. Some of the chemicals found in kaffir lime include 1-1.5% essential oil leaves, triterpenoid steroids, and 1.8% tannins. Fruit skin contains saponins and tannins 1%, triterpenoid steroids, and essential oils with citrate content of 2-2.5%. Among the pharmacological effects of kaffir lime is antispasmodic. Antipasmotics are drugs used to treat spasms in the gastrointestinal tract that may be caused by gastritis, diarrhea, peptic ulcers and so on (Susilo, 2017).

One of the beneficial substances contained in orange peel is essential oil. the content of orange peel is very beneficial for humans. This oil is useful for releasing a very distinctive aroma and is used for treatment. In relation to the health sector, essential oils are useful for stabilizing the nervous system so that it can cause a calm effect for anyone who breathes it (Koensomardiyah, 2009 in Dhilon, Dkk. 2018).

The aroma components of essential oils interact quickly when inhaled, these compounds rapidly interact with the central nervous system and directly stimulate the olfactory system, then this system will stimulate the nerves in the brain under the balance of the cerebral cortex. Fragrant compounds or fragrances of essential oils are plant substances that have been shown to affect locomotor activity. Locomotor activity is a movement activity as a result of changes in electrical activity caused by changes in post-synaptic membrane permeability and by the release of transmitters by presynaptic neurons in the central nervous system (Taslim, 2011).

## II. METHODS

This type of research was a quantitative study that used quasi experimental Design method with the pretest-posttest one group. The populations in this study were pregnant women that experience nausea and vomiting. The total sample was 6 respondents, sampling using non-probability techniques, purposive sampling. Nausea and vomiting were observed by using PUQE (Pregnancy-Unique Quantification of emesis and nausea )-24 scoring system.

Citrus Hystrix aromatherapy were given one time for 20 minutes. Data collection tools used in this study were observation sheet. The analysis was done by univariate and bivariate using SPSS for Windows applications. Data were normally distributed based on the normality test with Saphiro Wilk, so the data was processed by Paired T-Test to see the difference in the mean difference between the two paired samples.

## III. RESULT

**Table 1. Average of Frequency of nausea and vomiting before Intervention**

Frequency of nausea and vomiting	N	Mean	Min	Max
Pretest	6	10.00	7	13

Based on Table 1 we know that the average of nausea and vomiting frequency before intervention were 10 time. Minimal value was 7 and maximal value was 13

**Table 2. Average of Frequency of nausea and vomiting post Intervention**

Frequency of nausea and vomiting	N	Mean	Min	Max
Pretest	6	5,17	4	7

Based on Table 1 we know that the average of nausea and vomiting frequency after intervention were 5.17time. Minimal value was 4 and maximal value was 7.

**Table 3. The Effect of Citrus Hystrix aromatherapy on nausea and vomiting reducing**

Frequency of nausea and vomiting	N	mean	Mean Difference	P-Value
Pretest	6	10.00	4.833	0,001
Posttest	6	5.17		

Based on Table 3, we know that The frequency of nausea and vomiting in 6 respondents experienced a decrease in the scale from pre-test to post-test. Due to the p value  $<0.05$  ( $P = 0.001$ ) it can be concluded that the hypothesis is accepted, meaning that there is an effect of

cyrus *Hystrix* aromatherapy on reducing nausea and vomiting frequency in first trimester of pregnant women.

#### IV. DISCUSSION

Based on *Emesis gravidarum* occurs due to an increase in the serum estrogen, progesterone and Human Chorionic Gonadotropine (HCG) hormones from the placenta. The frequency of the occurrence of nausea and vomiting is not only in the morning but also during the day and even at night *Emesis gravidarum* can increase in weight to become *hyperemesis gravidarum* so that the mother's body becomes weaker, paler, and the frequency of urination decreases drastically which results in decreased body fluids and thickened blood (hemoconcentration), so that blood circulation slows down which causes tissue damage that can endanger the fetus she is carrying. . (Hidayat, 2009 in Soa, et al 2018).

The results of the study are in line with the research conducted by Dhillon, et al. (2018) concerning the effect of grapefruit scent on the intensity of nausea and vomiting in pregnant women in the work area of Harapan Jaya Community Health Center that before giving orange aroma therapy was 5.25 )

According to the researchers' assumption, nausea and vomiting in pregnant women occurs due to an increase in the hormone Hcg and estrogen, which is found in the first month of pregnancy which is followed by the onset of vomiting. Efforts to overcome nausea and vomiting in mothers need to be carried out by providing confidence that nausea and sometimes vomiting are physiological symptoms in young pregnancy and will disappear after 4 months of pregnancy. During pregnancy the mother's nutritional needs increase so that food intake must also increase.

Every pregnant woman will have a different degree of nausea, some don't really feel anything, but there are also those who feel nauseous, very nauseous and want to vomit all the time. The majority of mothers who experience nausea and vomiting are primigravida mothers with moderate to severe nausea and vomiting. Respondents who have primigravida parity status are pregnant women aged 20-30 years. because primigravida mothers have not experienced the hormonal changes they experience.

Nausea and vomiting can make pregnant women uncomfortable because their appetite decreases after nausea and vomiting occurs. Respondents also find it difficult to take anti-vomiting drugs because when taking these drugs will trigger nausea and vomiting. Respondents should provide initial treatment for nausea and vomiting as an effort to reduce discomfort. One of them is by using complementary therapies, among others, with fruits and herbal or traditional plants that can be done easily at home.

The cause of nausea and vomiting is not known with certainty, but in general the cause is associated with hormonal changes associated with pregnancy, namely an increase in human chorionic gonadotropin (HCG), which can cause nausea, leading to vomiting. Nausea and vomiting experienced if not resolved can lead to dehydration, hypokalemia, hemoconcentration and hyperemesis gravidarum. These conditions can have an effect on fetal growth and development due to inadequate nutrition. (Djanah, et al 2015).

Kaffir lime (*Citrus hystrix*) has the potential to produce essential oils, including the skin (Astarini, et al, 2009). This oil is useful for stabilizing the nervous system so that it can have a calming effect on anyone who inhales it. (Koensomardiyah, 2009 in dhilon, et al. 2018)

The results of this study are in line with research conducted by Indriani et al. (2012) on the effect of using kaffir lime peel (*Citrus hystrix*, DC) in reducing nausea and vomiting in pregnant women in the first trimester of PKD in the working area of the Srumbung Magelang Public Health Center, Central Java after the use of kaffir lime peel. is 26.92.

According to the assumption of the researcher, it was found that there was a reduction in the nausea and vomiting felt by respondents after being given the intervention. Respondents like the scent of kaffir lime peels (*Citrus hystrix*,) because kaffir lime gives off a distinctive aroma, after inhaling this aroma the effect is that respondents feel calm, refreshed positively affecting mood, sleep patterns, energy levels and self-confidence so that it can reduce nausea and vomiting.

The majority of respondents in this study were primigravidas who had no experience in dealing with nausea and vomiting so that the respondents followed the direction of the researchers and the feeling of wanting to manage the nausea and vomiting was greater. According to researchers, giving the scent of kaffir lime peel (*Citrus hystrix*) is more effective and efficient to reduce the frequency of nausea and vomiting because the more often it is inhaled, the greater the benefits the mother will get in reducing the nausea and vomiting she feels.

So it can be concluded that the frequency of pretest nausea and vomiting has decreased with an average difference of 4.833 and a significant level of  $p\text{-value} = 0.001$  ( $p < 0.05$ ). This shows that  $H_a$  is accepted and  $H_0$  is rejected, which means that there is an effect of giving Purut Orange Skin Aroma (*Citrus Hystrix*) on the Frequency of Nausea and Vomiting in Trimester I Pregnant Women in the Work Area of the Siulah Mukai Puskesmas, Kerinci Regency in 2020

The cause of nausea and vomiting during pregnancy is not known with certainty. These annoying symptoms usually begin about 6 weeks after the first day of the last menstrual period, and usually disappear spontaneously 6-12 weeks later (Prawirohardjo, 2016).

Various preventive efforts have been made by health workers for pregnant women who experience nausea and vomiting, one of which is by using olfactory aromatherapy which has nerve receptors that are connected to the channel to the brain, so that the effect given can be felt immediately by pregnant women who experience nausea and vomiting. Therapy uses essential oils or pure oil extracts that help improve or maintain health, arouse enthusiasm, refresh and soothe the mind and body. Aroma therapy has very diverse benefits, ranging from first aid to arousing a sense of joy (Koensoemardiyah, 2009 in dhilon et al, 2018)

This is in line with research conducted by Indriani, et al. (2012) on the effect of using kaffir lime peel (*Citrus Hystrix*, Dc) in reducing nausea in pregnant women in the first trimester of PKD in the working area of Puskesmas Srumbung Magelang, Central Java. The results found that there was an effect of using kaffir lime peel on reducing nausea with p value = 0.000.

## V. CONCLUSION

*Citrus Hystrix* contains saponins and tannins 1%, triterpenoid steroids, and essential oils with citrate content of 2-2.5%. Among the pharmacological effects of kaffir lime is antispasmodic. Antispasmodics are drugs used to treat spasms in the gastrointestinal tract that may be caused by gastritis, diarrhea, peptic ulcers and so on. Application of *Citrus Hystrix* aromatherapy helps on reducing frequency of nausea and vomiting. It is recommended for pregnant women as one of non-pharmacologic treatment.

## REFERENCES

- Abrahams,2010. *Panduan kesehatan dalam kehamilan*. Ciputat - tangerang : KARISMA Publishing Group.
- Dhilon,dkk.2018. Jurnal tentang pengaruh pemberian aroma terapi jeruk terhadap intensitas rasa mual dan muntah pada ibu hamil diwilayah kerja puskesmas harapan jaya.
- Ghani,dkk 2013. *the effect of aromatherapy inhalation of nausea and vomiting in early pregnancy: a pilot randomized controlled trial*.
- Haridawati,2020. Jurnal tentang pengaruh jahe (*zingiber officinale*) hangat dalam mengurangi *emesis gravidarum* di wilayah kerja puskesmas harapan raya pekanbaru.
- Indiarti, dkk 2014.Buku Babon Kehamilan.bantul,yogyakarta.indoliterasi
- Indriani,dkk,2012 Jurnal Tentang Pengaruh Penggunaan Kulit Jeruk Purut (*Citrus Hystrix*) Dalam Mengurangi Rasa Mual Pada Ibu Hamil Trimester I Di Pkd Wilayah Kerja Puskesmas Srumbung Magelang

- Iryani ,dkk,2018.Jurnal Tentang Pembuatan Minyak Atsiri Dari Kulit Jeruk Purut (*Citrus Hystrix*) Dengan Metode Ekstraksi.
- joko susilo,2017.Bertani Jeruk Purut.Bantul.yogyakarta.pustaka baru press.
- Kadir,dkk,2019. Jurnal midwifery Manajemen Asuhan Kebidanan Antenatal Care pada Ny.”N” dengan hyperemesis Gravidarum Tingkat III di RSUD Syekh Yusuf Gowa Tanggal 3 juni-12 Juli 2019
- latifah, 2017. Jurnal Tentang Fektifitas *Self Management Module* Dalam Mengatasi Morning Sickness.
- Maritalia . 2012. *Biologi reproduksi*: Yogyakarta: Pustaka Rihama.
- Manuaba,dkk (2010).Ilmu Kandungan,Penyakit Kandungan Dan Kb.Jakarta.EGC
- Morgan, Margery.(2013).Asuhan Antenatal.Jakarta.EGC
- Notoatmodjo,soekidjo.(2012).Metodologi Penelitian Kesehatan. Jakarta : Rineka Cipta
- Nursalam.(2013).Metodologi Penelitian Keperawatan.Edisi 3 .Jakarta : Salemba Medika
- Sulis W.H (2017). 30 Langkah Cepat Hamil, Sleman Yogyakarta.Cemerlang Publishing
- Sukarni, dkk (2015). Kehamilan, persalinan dan nifas, prenggan kotagede yogyakarta nuha medika.
- Soa, dkk (2018). Jurnal Tentang Perbandingan Efektivitas Pemberian Rebusan Jahe Merah Dan Daun Mint Dengan Jeruk Nipis Dan Madu Terhadap Mual Dan Muntah Pada Ibu Hamil Trimester I Di Puskesmas Waepana Ngada Ntt.
- Shanti,dkk.(2018). Jurnal Tentang Efektivitas Pemberian Pisang Ambon Dan Vitamin B Untuk Menurunkan Hyperemesis Gravidarum Di Bpm Endah Bekti,Media Ilmu Kesehatan Vol.7,No.1
- Taslim,(2011). Jurnal Tentang konsep pemakaian minyak essensial dalam Aromaterapi.
- Prawirohardjo, Sarwono. 2009. *Ilmu Kebidanan*: Jakarta: PT Bina Pustaka.
- Vitrianingsih, 2019. Jurnal tentang efektivitas aroma terapi lemon untuk menangani emesis gravidarum.