



EFFECT OF LEMON AROMATHERAPY ON DECLINE NAUSEA AND VOMITING IN PREGNANT WOMEN IN THE FIRST TRIMESTER AT THE ABEPURA HEALTH CENTER IN JAYAPURA CITY

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ABSTRACT	Keywords
<p>Background: Women typically feel nausea and vomiting during the first trimester of pregnancy, and if these symptoms persist, they might hinder the pregnancy and the development of the fetus. Lemon aromatherapy is one of the non-pharmacological treatments that is both safe and feasible. The purpose of this research is to learn if expectant mother who experiences nausea and vomiting during their first trimester benefit from aromatherapy using lemon essential oil.</p> <p>Methods: This study follows a quasi-experimental, pre-experimental approach. The design is a two-group pretest/posttest with one group receiving lemon aromatherapy and the other serving as a control. A total of 28 pregnant women made up the population, and for the sample, researchers used purposeful sampling to split the population in half. Information on the frequency of morning sickness and vomiting was collected before and after aromatherapy treatment using the Pregnancy Unique Quantification of Emesis/Nausea (PUQE) Scale questionnaire. The Wilcoxon signed-rank test was used for the analysis.</p> <p>Results: If statistical tests for significance yield a value of Sig (2 tailed)=0,000 0,05, then Ha is acknowledged to represent the effect of lemon aromatherapy on reducing nausea and vomiting in women in their first trimester of pregnancy.</p> <p>Conclusion: Finally, we conclude that aromatherapy with lemon has a positive influence on the quality of life for women in their first trimester of pregnancy by reducing their incidences of nausea and vomiting.</p>	<p>Lemon Aromatherapy, Vomiting and Nausea, Pregnant Women</p>

INTRODUCTION

Pregnancy is an ordinary part of a woman's life as she reproduces. There are a number of potential difficulties that might arise during pregnancy, some of which can make it difficult to maintain normal routines, including exercise.

Hormonal activity is mostly responsible for the wide range of pregnancy-related issues and disorders that arise as a result of the body's physiologic changes. Because of the pregnancy process, the mother's body undergoes these modifications because of a hormonal imbalance between progesterone and estrogen. Nausea along with vomiting

during pregnancy, medically known as emesis gravidarum, is one of the issues that can make a mother feel uneasy (Heitmann et al., 2017).

Nausea and vomiting affect 40-60% of multigravid women and 60-80% of first-time mothers. According to 2018 data from the World Health Organization (WHO), the prevalence of vomiting along with nausea in pregnancy ranges from 0.9% in Sweden to 0.5% in California to 1.9% in Turkey to 0.5-2% in the United States to 1-3% in Indonesia (Nurulicha & Aisyah, 2020).

Excessive vomiting and nausea in pregnancy will have a detrimental impact on pregnant women where nutrient intake will be reduced, resulting in abnormal fetal development and if there is sustainability it will result in hyperemesis gravidarum (Putri & Ronalen, 2020).

According to Ivon's (2015) findings, pregnant women who experience nausea and vomiting often end up losing weight as a result. Both pharmacological and non-pharmacological approaches can be used for the prevention and treatment of nausea and vomiting. Vitamin B6 with anti-emetic medication can be used in pharmacological treatment of both light and severe cases of nausea and vomiting. However, there are risks for both the mother and the child when pharmaceutical medications are used. As a result, there may soon be an alternative to using drugs to manage nausea and vomiting (Safajou et al., 2014).

Non-pharmacological therapies include herbal medicine, acupuncture, aromatherapy, hypnotherapy and other therapies (Murphy et al., 2016). Treatment of vomiting and nausea using effective non-pharmacological methods, one of which is complementary therapy. One method that can be given is aromatherapy (Khadijah et al., 2020).

Aromatherapy is a treatment method that makes use of aromatic plant compounds, such as pure oil juices or essential oils, to promote or maintain physical and emotional well-being. Inhaling essential oils used in aromatherapy is a safe, easy, and efficient way to reap their therapeutic benefits.

The essential oils used in aromatherapy come from plants like peppermint, lavender flowers, roses, ginger, and lemon. Lemon aromatherapy oil, for example, has been shown to cure nausea and provide psychological benefits. The essential oil used in lemon aromatherapy is derived from the rind of the citrus lemon tree.

As one of the most popular herbal oils used during pregnancy, lemon essential oil is generally accepted as a safe treatment option. Twenty-six percent of pregnant women who tried lemon aromatherapy reported that it helped them feel better during their pregnancies.

According to studies conducted by Vitrianingsih and Khadijah (2019), aromatherapy with lemon is more effective than other scents at reducing morning sickness and vomiting during pregnancy. Linalool, which is found in lemon, helps to calm the nervous system.

Among 2,203 fully observable pregnancies in Indonesia, 534 pregnant women experienced vomiting and/or nausea. The incidence of vomiting and nausea in Papua Province is not known for certain and there is no data from previous studies that provide an overview of the incidence of vomiting nausea, as well as the incidence of vomiting nausea in Jayapura City.

The preliminary study conducted by the authors at the Abepura Health Center in Jayapura City in March 2021, found that 649

pregnant women who conducted pregnancy checks in 2020 and in 2021 from January to June 2021 there were 248 pregnant women who carried out pregnancy checkups. Among them, 98 patients are first trimester pregnant women, 78 second trimester pregnant women and 72 III trimester pregnant women (KIA Register of Abepura Health Center, 2021).

From the 78 first-trimester pregnant women, 62 experienced vomiting and nausea. Testimony from 6 respondents stated, in overcoming vomiting and nausea, health workers provided counseling for diet and when vomiting the mother handled it by taking medications given by doctors. Mom says I have never tried lemon aromatherapy, have not even heard of lemon aromatherapy that can be used to reduce vomiting and nausea.

With the many variations of methods used in helping the reduction of nausea and vomiting in pregnant women in the 1st-trimester non-pharmacologically, researchers are interested in proving how lemon aromatherapy affects and lessen vomiting and nausea in 1st-trimester pregnant women which was first carried out at the Abepura Health Center, Jayapura City.

METHOD

The research design for this study is a quasi-experimental two-group comparison of pre- and post-test scores. For two weeks, one group (the "intervention group") was instructed to utilize lemon aromatherapy via inhalation for around five minutes every day, whereas the other group (the "control group") did not.

Between March 2022 and October 2022, researchers from the University of Jayapura and the Abepura Health Center in Jayapura City gathered data. "Twenty-four hundred and eighty pregnant women who

visited between January and June of 2021 were included in the study. Purposive sampling was utilized to pick a total of 28 participants, 14 each for the intervention and control groups, based on the recommendations of Gay in Sani (2016), who suggested utilizing at least 15-20 participants each experimental investigation.

For demographic information, such as age, education, occupation, and parity, a questionnaire was utilized; for measuring the prevalence of morning sickness in the first trimester of pregnancy, the Pregnancy Unique Quantification of Emesis / Nausea (PUQE) scale questionnaire was employed. The researcher purchased the lemon aromatherapy (6 ml) used in this investigation from the web store <http://sites.google.com/view/ni-kadek-sriartini-varash>.

In order to characterize the distribution of responders, a univariate analysis was performed (age, education, occupation and parity). Wilcoxon signed-rank test was utilized for bivariate analysis.

The Health Research Ethics Commission of the Jayapura Ministry of Health Police approved this study (IRB No. 126/KEPK-J/VII/2022) after conducting an ethics review and gathering information on ethical feasibility.

RESULTS AND DISCUSSION

Characteristics of Respondents

Table 1. Frequency Distribution of Respondents' Characteristics from First Trimester Pregnant Women

which Experiencing Nausea and Vomiting at the Abepura Health Center in Jayapura City in 2022

Characteristic	Intervention Group		Control Group	
	n	%	n	%
Age				

< 20 year	2	14,3	2	14,3
20-35 year	11	78,6	9	64,3
> 35year	1	7,1	3	21,4
2 Education				
Low (Elemntary, High School)	2	14,3	2	14,3
Intermediate (Senior High School)	8	57,1	10	71,4
Advanced (Graduates)	4	28,6	2	14,3
3 Work				
Work	4	28,6	3	21,4
Not Working	10	71,4	11	78,6
4 Parity				
Primigravida	8	57,1	8	57,1
Multigravida	4	28,6	5	35,7
Grandemultipara	2	14,3	1	7,2
Total	14	100	14	100

Table 1 shows that most of the 28 pregnant women in the intervention group at the Abepura Health Center in Jayapura City who reported experiencing nausea and vomiting during their first trimester were aged 20–35 (11 out of 28; 78.6%), had completed secondary school (8 out of 28; 57.1%), were unemployed (10 out of 28; 71.4%), and were expecting their first child (eight out of 28; 57.1%).

Nine of the pregnant women in the control group were between the ages of 20 and 35 (64.3%); ten had completed at least some high school (or its equivalent; 71.4%); eleven were unemployed (78.6%); and eight were expecting their first child.

Nausea and Vomiting Rates in Pregnant Women 1st Trimester Before Lemon Aromatherapy at Abepura Health Center, Jayapura City in 2022

Table 1. Frequency Distribution of Characteristics of Respondents to Pregnant Women in the 1st Trimester Those Who Experience Nausea and Vomiting at the Abepura Health Center, Jayapura City in 2022

Levels of Nausea and Vomiting	Intervention Group	Control Group
(Pre Test)		

	n	%	n	%
Light	0	0	0	0
Keep	1	7,1	2	14,3
Heavy	13	92,9	12	85,7
Total	14	100	14	100

Table 2 shows that the majority of the 28 pregnant women who reported experiencing nausea and vomiting in their first trimester and who were randomly assigned to receive lemon aromatherapy at the Abepura Health Center in Jayapura City reported experiencing severe nausea and vomiting (13 women, 92.9%), with only one reporting moderate nausea and vomiting (one woman, 7.1%) before receiving the treatment.

Twelve pregnant women (85.7%) in the control group reported severe nausea and vomiting, while two pregnant women (14.3%) reported mild nausea and vomiting.

Nausea and Vomiting Rates in Pregnant Women in the 1st Trimester After Being Given Lemon Aromatherapy at the Abepura Health Center, Jayapura City in 2022

Table 3. Distribution of Nausea and Vomiting Rates in Pregnant Women in the 1st Trimester Sehas been given Lemon Aromatherapy at the Abepura Health Center, Jayapura City in 2022

Levels of Nausea and Vomiting (Post Test)	Intervention Group		Control Group	
	n	%	n	%
Light	12	85,7	0	0
Keep	2	14,3	4	28,6
Heavy	0	0	10	71,4
Total	14	100	3	100

Table 3 shows that among the 28 pregnant women in their first trimester who reported experiencing nausea and vomiting after receiving lemon aromatherapy at the Abepura Health Center in Jayapura City, the vast majority (12 women, or 85.7%) reported only mild symptoms, while only two women, or 14.3%, reported experiencing moderate symptoms.

Ten pregnant women (71.4%) in the untreated control group were still experiencing moderate levels of nausea and vomiting, while four (28.5%) were experiencing severe levels.

Effect of Lemon Aromatherapy On Reducing Nausea and Vomiting in 1st Trimester Pregnant Women

Table 4. Wilcoxon Signed Rank Test Statistical Test Analysis Effect of Lemon Aromatherapy On Reducing Nausea and Vomiting In the First Trimester of Pregnant Women at the Abepura Health Center, Jayapura City , 2022

Test Statistics		
	Post Test Nausea and Vomiting Levels Control Group - PreTest Vomiting Nausea Rate Control Group	Post Test Levels of Nausea and Vomiting Intervention – Pre Test Level Mual and Vomiting Intervention Group
Z	-1.414 ^b	-3.494 ^b
Asymp. Sig. (2-tailed)	.157	.000

Since the Sig value (2 tailed) = 0.000 0.05, we may conclude that Ho was rejected and Ha was approved, hence it is safe to say that lemon aromatherapy helps reduce nausea and vomiting in first-trimester pregnant women at the Abepura Health Center in Jayapura City.

DISCUSSION

Nausea and Vomiting Levels in Pregnant Women in the 1st Trimester Before Lemon Aromatherapy is given at the Abepura Health Center, Jayapura City

Every pregnant woman experiences morning sickness and vomiting to varying degrees. Among the 28 respondents of pregnant women in their first trimester who reported experiencing nausea and vomiting at the Abepura Health Center in Jayapura City before receiving lemon aromatherapy, 13 women (92.9%) reported experiencing severe nausea and vomiting, while as many

as 12 women (85.7%) reported experiencing severe nausea and vomiting while in the control group.

These findings corroborate those of Wardani et al. (2019), who studied the effects of lemon oil on nausea and vomiting in pregnant women in the Natar District of South Lampung Regency. They found that, using the Index of Nausea, Vomiting, and Retching (INVR), most women fell into the severe category, with an average value of 17.67, and a minority fell into the moderate category, with an average value of 10.

The mother in this study is experiencing severe nausea and vomiting because she has not received adequate socialization from health care providers in dealing with nausea and vomiting, and she does not know the good and right medication to minimize the nausea and vomiting she is experiencing.

One of the earliest, most prevalent, and most stressful symptoms of pregnancy is nausea and vomiting, as reported by Nurulicha & Aisyah (2020). Nausea, often accompanied by vomiting, is a common pregnancy symptom that typically begins about week 5 of pregnancy (determined by the date of the woman's last menstrual period, or HPHT), peaks between weeks 8 and 12, and subsides around weeks 16 and 18. The term morning sickness is commonly used to refer to the nausea and vomiting that some pregnant women experience.

Under normal circumstances, nausea and vomiting during pregnancy do not pose any serious risks to the mother or fetus. However, severe nausea and vomiting that leads to dehydration, weight loss, hypothermia, hypochloremia, and decreased urine chloride levels must be treated immediately to prevent serious complications, including the death of the mother and fetus (Materniti et al., 2016).

In the first trimester of pregnancy, nausea and vomiting are common due to hormonal changes, namely an increase in the hormone HCG (human chorionic gonadotropin). Production starts early in pregnancy, around the day of implantation, and peaks between the 60th and 70th day. After that, it gradually drops until it reaches its lowest point around the 100th day (Rofiah, 2019).

Saragih (2016) reports that the digestive system undergoes modifications during pregnancy. Saliva becomes more acidic and abundant in response to high progesterone levels, and stomach acid decreases. In addition to abnormal levels of stomach acid, the afferent fibers of the gastrointestinal tract can also trigger vomiting.

According to Widiyari's (2017) research, the frequency and severity of nausea and vomiting during pregnancy varies from woman to woman due to the fact that each pregnant woman is an individual.

Based on the description above, researchers assume that nausea and vomiting are common things experienced by a woman in early pregnancy." The level of nausea and vomiting detected by pregnant women in the first-trimester varies, ranging from mild vomiting nausea, to nausea accompanied by moderate vomiting, even if it continues it can become *emesis gravidarum*.

In this study, numerous factors influenced the occurrence of nausea and vomiting in pregnant women, where nausea and vomiting occurred due to changes in the hormones estrogen and progesterone besides that it was also influenced by age factors, where there were respondents with less than 20 years of age which is an age that is very risky for pregnancy because the reproductive organs and physiological functions are immature in reproduction.

In addition, in this study there were also respondents with an age of more than 35 years, where reproductive function has also regressed so that they are also at risk of complications during pregnancy. This is supported by Retnowati's research (2019), that pregnancies with vomiting nausea are usually suffered by pregnant women whose age is <20 years and >35 years.

In addition to the causes above, there are also several factors that affect vomiting nausea in pregnant women such as parity factors where in this study there are respondents with primigravida parity where pregnant women who are pregnant for the first time have estrogen hormones that circulate higher and are more likely to experience nausea and vomiting where primigravida has not capable to adapt to estrogen and chorionic gonadotropin hormones, In addition, the psychological factor of pregnant women who are still not ready for their pregnancy, still adjusting to become parents with greater responsibility so that it can trigger vomiting nausea.

In addition, there are also respondents with a parity of more than three (grandemultipara) who still experience vomiting nausea due to decreased function of body organs which causes reduced endurance so that it can cause various risk factors during pregnancy.

Nausea and Vomiting Rates in First Trimester Pregnant Women After Being Given Lemon Aromatherapy at the Abepura Health Center, Jayapura City

According to a study, 12 pregnant women (85.7% of the total) and 2 pregnant women (14.3%) who reported moderate nausea and vomiting responded positively to lemon aromatherapy, reporting a reduction in their symptoms to mild.

Similar findings were found by Vitrianingsih and Khadijah (2019) in the Berbah Sleman Yogyakarta district, where they found a reduction in vomiting nausea scores in pregnant women between pre and post-lemon aromatherapy treatment, with a paired t-test achieving a p-value of 0.0170.05. This is consistent with the findings of Afriyanti & Rahendza (2020), who conducted their study in PBM "R" Bukit Tinggi City and found that the average frequency of vomiting nausea following administration of electric lemon aromatherapy was 3.27 (with the lowest nausea frequency being 1 time and the highest being 8 times; p value = 0.0005).

Pregnant women often experience nausea and vomiting in their first trimester. "The quality of a woman's life can suffer, her ability to go about her everyday activities can be impaired, and her relationships with her loved ones can suffer as a result. A pregnant lady may feel pressure or tension as a result of this (Retnowati, 2019).

Pharmaceutical and nonpharmaceutical treatments are commonly used to help women through the first trimester of pregnancy when they experience nausea and vomiting. Antiemetics, antihistamines, anticholinergics, and corticosteroids are all examples of pharmacological therapy, while non-pharmacological therapies including aromatherapy, acupressure, and psychological support are examples of non-pharmacological therapies (Saridewi, 2018).

Due to its low cost, simplicity, and rapid growth, aromatherapy is only one of the many alternative treatments currently on the rise. Aromatherapy is the practice of treating medical conditions with chemical medications made from plant extracts. When used therapeutically, essential oils can have a positive effect on a person's emotional

well-being as well as their physical health (Buckle et al., 2014).

Khadijah et al. (2020) claim that aromatherapy has a number of impacts on inhalers, including serenity and freshness and the ability to alleviate nausea in pregnant women. Different essential oils produce varying pharmacological effects, including but not limited to: antibacterial, antiviral, diuretic, vasodilator, sedative, and adrenaline-stimulating.

Citrus lemon (lemon peel) essential oil, extracted from the rind, is commonly used to alleviate motion sickness and nausea in aromatherapy. One of lemon's pharmacological effects is its ability to prevent nausea and vomiting. Furthermore, lemon's ability to regulate nausea and vomiting by enhancing gastrointestinal peristalsis makes it a potent aromatic stimulant (Medforth et al., 2013).

Participants in the study reported morning sickness and vomiting as a common occurrence, with remedies including rest, the consumption of sour fruits, and the frequent use of vitamin B6 provided by the health facility. Because of its safety for usage during pregnancy, lemon aromatherapy was selected for this investigation.

This study's intervention involved advising pregnant women to use lemon aromatherapy three times daily for a week. The women were to put two to three drops of the therapy onto an alcohol-free tissue and inhale through their noses for five minutes. The researcher played a dual role in this study, first educating participants on the prevalence of nausea and vomiting in the first trimester of pregnancy and then facilitating the use of lemon aromatherapy to alleviate the mother's symptoms.

The results showed that after the application of lemon aromatherapy to

pregnant women, respondents argued that when the intervention was carried out, they felt much more comfortable, and the intensity of the degree of vomiting nausea felt by respondents had decreased, unlike before the intervention was carried out, although the change in the decrease in vomiting nausea based on the results of observations in each respondent varied, this is closely related to the factors that influence vomiting nausea carried by respondents both from oneself and from the outside environment.

This is reinforced by the research of Safajou et al. (2014) from Birjand Iran health centers, which according to researchers after being given lemon aromatherapy interventions, in respondents of pregnant women who experienced symptoms of nausea and vomiting in the 1st trimester of pregnancy, got the fact that there was a decrease in the frequency of nausea and vomiting, this was because researchers carried out action procedures by adjusting to the content of the Standard Operating Procedures.

With the regularity of pregnant women respondents to intervene for two weeks, there will be a decrease in the intensity of the degree of nausea and vomiting, this is in line with the statement by the respondents of pregnant women, that the feeling of nausea experienced after being given lemon aromatherapy, gradually decreases on the third day.

According to Ayudia & Rahmadhani (2020), lemon aromatherapy oil contains 66-80% *limonene*, *geranilasetate*, *nerol*, *linalilasetate*, 0.4-15% *apinene*, 1-4% *apinene*, 6-14% *terpinene* and *myrcene*. *Limonene* is the main component in citrus chemical compounds that can inhibit the work of prostaglandins so that it can reduce pain. In addition *limonene* controls

cyclooxygenase I and II, prevents the activity of prostaglandins and reduces pain including vomiting and nausea.

When lemon aromatherapy is inhaled, the volatile molecules of the oil are carried by air currents into the nose where soft cilia emerge from the receptor cells. When the molecules attach to these hairs, an electrochemical message will be transmitted through the *olfactory* spheres and channels and stimulate the limbic system in the brain (Astuti et al., 2015).

Based on the description above, researchers assume that lemon aromatherapy is one of the non-pharmacological therapeutic methods that can be used to reduce nausea and vomiting experienced by pregnant women in the 1st trimester. In this study, the rate of nausea and vomiting after lemon aromatherapy administration has decreased where most pregnant women with nausea and vomiting gradually decreased on day three when researchers made direct observations, and pregnant women said that the aromatherapy provided great benefits where the mother felt more comfortable.

Effect of Lemon Aromatherapy on Reducing Nausea and Vomiting in Pregnant Women in the 1st Trimester at the Abepura Health Center, Jayapura City

The goal of aromatherapy is to facilitate a more rapid recovery by enhancing the body's resilience and reducing the severity of any underlying disturbances or issues. Like other forms of natural medicine, the ideas behind aromatherapy are simple.

H_0 is rejected and H_a is accepted because the Wilcoxon Signed Rank Test's Sig value (2 tailed) = 0.000 < 0.05, so pregnant women in their first trimester at the Abepura Health Center in Jayapura City who undergo

lemon aromatherapy report a significant decrease in their symptoms of nausea and vomiting.

Consistent with these findings, Sari et al. (2019) conducted a study in the same working environment of the Babelan I Health Center, Bekasi Regency, and found that the number of pregnant women experiencing vomiting and nausea decreased significantly after receiving lemon aromatherapy ($p = 0.004$ $p = 0.05$; paired t-test). Pregnant women who utilize lemon aromatherapy throughout their first trimester report fewer episodes of nausea and vomiting.

Since lemon aromatherapy has been used as an anti-vomiting and anti-disease carrier medicine, and since its usage does not increase the negative risk to the fetus, their study provides further evidence that lemon aromatherapy has an influence to reduce nausea and vomiting.

Ayudia and Rahmadhani's (2020) research shows that lemon aromatherapy helps reduce nausea and vomiting in early pregnancy. This is in line with the claim made by Rofiah (2019), who says that the fresh scent of lemon can aid alleviate morning sickness in pregnant women.

At least 25% of women have claimed that using lemon aromatherapy helped them get control of their nausea and vomiting. Aromatherapy with lemon oil has a balancing effect on the body and the mind because of its natural and comprehensive effect on the body.

According to Afriyanti and Rahendza's (2020) research, emesis gravidarum symptoms in first-trimester pregnant women at PMB Siti Hajar in Natar were reduced by lemon aromatherapy. This finding was corroborated by Whardani et al(2019) .'s study, in which the t-dependent

test's statistical test yielded a p-value of 0.000 (0.005).

The researchers hypothesized that the uplifting scent of lemon essential oil would make pregnant women feel better overall, so they conducted an experiment to test this notion. They found that the aromatherapy treatment helped lessen nausea and vomiting after delivery. Aromatherapy using lemon is another one of those smells that everyone recognizes.

Pregnant women who suffer from nausea and vomiting often look for ways to alleviate their symptoms, and lemon aromatherapy is not only refreshing but also inexpensive and accessible. When it comes to reducing nausea and vomiting in pregnancy, nothing works better than lemon aromatherapy, and the more often it is administered (up to three times in 24 hours), the better the results for the mother.

From the results of interviews with several research respondents, about their experiences, impressions and responses after being given lemon aromatherapy, respondents said that lemon aromatherapy is very helpful in reducing nausea and vomiting felt during the two weeks of intervention, besides that respondents also said when inhaling lemon aromatherapy, which usually their body is weak, now the body becomes fresher, uplifting, relieves frequent headaches and soothes the psyche.

When giving lemon aromatherapy, all respondents were willing to follow to the

Afriyanti, D., & Rahendza, N. H. (2020). Pengaruh Pemberian Aroma Terapi Lemon Elektrik Terhadap Mual Dan Muntah Pada Ibu Hamil Trimester I. *Maternal Child Health Care*, 2(1), 1–10.

Astuti, W., Rahayu, H. S. E., & Wijayanti,

end, this was evidenced by the absence of respondents who *drop-out*. Respondents also said that giving lemon aromatherapy does not interfere with daily activities, in an easy way mothers can feel the reduction in nausea and vomiting felt without having to resort to pharmacological therapy and be able to regain adequate nutritional intake for their pregnancy.

Since lemon aromatherapy oil has distinct pharmacological properties, including antibacterial, antiviral, diuretic, vasodilator, sedative, and adrenal-stimulating, it can be used as an extra alternative to alleviate nausea and vomiting.

CONCLUSIONS

Results from the Wilcoxon Signed Rank Test showed that aromatherapy with lemon had a significant effect on decreasing morning sickness and vomiting in first-trimester pregnant women (Sig value (2 tailed) = 0.000 0.05), suggesting that aromatherapy with lemon is effective in alleviating morning sickness and vomiting during pregnancy.

As a result, lemon aromatherapy is suggested as an alternative in obstetric services.” Lemon aromatherapy is recommended for pregnant women as a non-pharmaceutical method to lessen nausea and vomiting, provided in this study there are no contraindications to the use of lemon aromatherapy.

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