

The effect of lemon aromatherapy inhalation on reducing the degree of emesis gravidarum in first trimester pregnant women at TPMB Puji Astuti Surabaya

Hanny Nur Azizah ¹, Euvangelia Dwilda Ferdinandus ^{1,*}, Bambang Purwanto ² and Farida Fitriana ¹

¹ Midwifery Study Program, Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia.

² Department of Physiology and Biochemistry, Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia.

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Abstract

One of the discomforts that occurs in pregnant women in the first trimester is nausea, vomiting (emesis gravidarum). Emesis gravidarum causes discomfort due to feelings of dizziness, flatulence, and a feeling of weakness in the body. Emesis gravidarum can be treated with nutritional therapy, nonpharmacological therapy and pharmacological therapy. Lemon aromatherapy is a non-pharmacological therapy that can be used by pregnant women to reduce emesis gravidarum. The aim of this research is to determine the effect of lemon aromatherapy inhalation on reducing the degree of emesis gravidarum in pregnant women in the 1st trimester. Method: This research is true-experimental research with a two group pretest-posttest design. The instrument used was the Nausea Vomiting Index Nausea Vomiting and Retching (INVR) questionnaire. Data analysis used the Wilcoxon test to determine the effect of inhalation from the two groups. Results: In the intervention group, after being given treatment, they got a mean score of 1.94 with a standard deviation of 0.659. Based on the Wilcoxon test, a p-value of 0.000 was obtained, which means it is smaller than the significant value, namely <0.05. So it can be concluded that there was an effect in the intervention group before and after giving lemon aromatherapy, compared with the control group, the emesis gravidarum score before was found to be a mean of 2.82 with a standard deviation of 0.728. and after getting a value with a mean of 2.76 with a standard deviation of 0.664, based on the Wilcoxon test, a p-value of 0.317 was obtained, which means it is greater than the significant value, namely >0.05. So it can be concluded that there was no effect on the control group before and after not being given treatment at TPMB Puji Astuti Surabaya. Conclusion: There is an effect of giving lemon aromatherapy inhalation on reducing the degree of emesis gravidarum in pregnant women in the 1st trimester.

Keywords: Lemon aromatherapy; Decreased; Emesis gravidarum; First trimester pregnancy; Two-Groups

1. Introduction

The pain figures in pregnant women still need attention. According to the 2017 Indonesia Demographic and Health Survey (IDHS), approximately 19% of pregnancy complications are experienced by women aged 15 to 49 years. The incidence of excessive bleeding reaches 5%. Additionally, cases of swollen legs, face, hands, or headaches accompanied by seizures reach 3%. The number of cases of vomiting and loss of appetite is also at 3%. Meanwhile, cases of premature rupture of membranes and cramps before 9 months each reach 2%.

Nausea and vomiting, also known as emesis gravidarum, are early signs of pregnancy in normal individuals due to prolonged menstrual cycles. Therefore, some pregnant women only realize they are pregnant after experiencing symptoms of nausea and vomiting. Nausea and vomiting are common signs and symptoms of pregnancy that occur in the early trimester, but in some cases, they may persist into the second and third trimesters, although this is rare [1].

* Corresponding author: Euvangelia Dwilda Ferdinandus

Emesis gravidarum or nausea and vomiting cause discomfort due to dizziness, bloating, and a feeling of weakness, accompanied by the expulsion of stomach contents through the mouth with a frequency of less than 5 times a day in first-trimester pregnant women. If not addressed promptly, emesis gravidarum can become a pathological condition [2].

According to the World Health Organization (WHO), hiperemesis gravidarum occurs worldwide, with varying incidence rates in different countries. In the Americas, the incidence ranges from 0.5% to 2%, 0.3% in Sweden, 0.5% in California, 0.8% in Canada, 10.8% in China, 0.9% in Norway, 2.2% in Pakistan, and 1.9% in Turkey. The incidence of hiperemesis gravidarum in Indonesia ranges from 1% to 3% of all pregnancies, with a general incidence ratio of 4:1,000 (Susanti et al., 2019). Research in Indonesia found that 14.8% of pregnancies involve mothers with hiperemesis gravidarum. Complaints of nausea and vomiting occur in 40 to 60% of multigravida cases [3].

The incidence of emesis gravidarum in East Java, specifically in Surabaya, is not precisely known. However, based on previous research by Abidah and Nisa (2019) at RB Zakat Surabaya in 2019, there were 23 cases of hiperemesis gravidarum and 2 cases without hiperemesis gravidarum. Another study in the working area of Keputih Surabaya Community Health Center conducted by Meiri and Kibas (2017) stated that the incidence of emesis gravidarum is 9 out of 10 pregnant women [3].

A study by Parisa Yavari Kia et al. in Iran revealed that 49.2% of women use herbal medicines during pregnancy, with 39.3% using them for digestive issues. About 5.71% attribute their nausea and vomiting to pregnancy. Among non-pharmacological approaches, aromatherapy, a branch of herbal medicine, is a collection of skilled and controlled methods using essential oils to promote physical, emotional, and psychological health.

Lemon essential oil (Citrus lemon) is one of the most commonly used herbal oils during pregnancy and is considered safe. Lemon aromatherapy, with its fresh citrus aroma, has a relaxing effect and alleviates stress. Research in Japan suggests that lemon can inhibit the increase of corticosteroid and cerebral monoamine levels, which are two indicators of stress and one of the triggers for nausea and vomiting in pregnant women [4].

Inhalation is a fast and effective method of applying essential oils. When essential oils are inhaled, the molecules enter the nasal cavity and stimulate the limbic system in the brain. The limbic system affects memory and emotions, as well as parts of the body that regulate heart rate, blood pressure, stress, memory, hormonal balance, and respiration. Lemon contains linalool, which helps stabilize the nervous system, producing a calming effect on anyone who inhales it [5].

Surabaya, the capital of East Java province, is known as the City of Heroes. With 31 districts, Surabaya has various health care facilities such as hospitals, community health centers, clinics, and Independent Midwife Practice Places (TPMB) to improve public health. TPMB Puji Astuti is one health care facility providing services such as antenatal care, childbirth, postpartum care, infant care, family planning, and reproductive health.

Based on a preliminary study conducted at BPM Puji Astuti in March 2023, out of 11 pregnant women, 73% experienced emesis gravidarum. Eight pregnant women with emesis gravidarum had previously consumed vitamin B6 provided by midwives to alleviate their nausea and vomiting. Additionally, these pregnant women mentioned not receiving information about non-pharmacological interventions, such as inhalation of lemon aromatherapy, to reduce nausea and vomiting in the first trimester of pregnancy.

Given the background and results of the preliminary study, the researcher is interested in conducting a study titled "The Influence of Aromatherapy Inhalation on the Reduction of Emesis Gravidarum Severity in First-Trimester Pregnant Women at TPMB Puji Astuti Surabaya."

2. Material and methods

2.1. Types of research

This type of research is Experimental Designs, which is a research design aimed at establishing a cause-and-effect relationship by manipulating the independent variable, thereby influencing the formation of the dependent variable. Subjects in research using True Experimental design are selected randomly. This study employs the Two Group Pretest-Posttest Design approach, involving two groups of subjects: the control group and the treatment group. The control group serves as a comparative group, while the treatment group undergoes an intervention in the form of inhalation of lemon aromatherapy. After a certain period, a posttest will be administered to both groups to assess the changes that occur following the experiment [6].

2.2. Population and Sample

2.2.1. Population

Population is the entire collection or combination of cases that are interested in investigating according to specified criteria and is accessible for research [7]. The population in this study consists of 35 first-trimester pregnant women experiencing nausea and vomiting (Emesis Gravidarum) at TPMB Puji Astuti Surabaya.

2.2.2. Sample

Sample is a portion or representative of the population under study. Sampling in research involves selecting a subset from the population to represent the entire population, aiming to draw research conclusions that are applicable to the population as a whole [7]. The sampling in this study is conducted using the Random Sampling technique, which involves selecting samples based on the criteria and objectives of the research.

2.2.3. Sampling Techniques

The sampling technique employed in this study is purposive sampling. Purposive sampling involves selecting samples based on a specific purpose, not relying on strata, randomness, or geographical area. According to Sugiono (2014), purposive sampling is a technique of selecting samples with specific considerations. It means that each subject taken from the population is intentionally chosen based on the purpose and considerations of subject/sample selection [6].

2.2.4. Research Location and Time

Research Location

This study was conducted at TPMB Puji Astuti Surabaya. Based on the preliminary study, TPMB Puji Astuti Surabaya has many first-trimester pregnant women, and a considerable number of them experience nausea and vomiting complaints.

Research time

Data Collection : October - December 2023

Data Processing : December 2023 - January 2023

2.2.5. Data analysis

To conduct hypothesis testing, the data analysis that can be performed includes:

2.2.6. Univariate Analysis

Data analysis is carried out using univariate analysis. Univariate analysis aims to explain or describe the 40 characteristics of each variable. Generally, this analysis only produces the frequency distribution and percentage of each variable [8].

2.2.7. Bivariate Analysis

To determine the statistical test, it must be adjusted to the measurement scale of the research type. Data processing and analysis in this study involve bivariate analysis. Bivariate analysis is used to determine the relationship between independent and dependent variables, using the Mann-Whitney U test. The Mann-Whitney U test is employed to determine whether there is a difference between two independent samples. It is a non-parametric test used to examine differences in median and mean values.

3. Results

3.1. Research Overview

TPMB Pudji Astuti is located on Jl. Kedinding Lor Gang. Arbei, Tanah Kali Kedinding, Kenjeran District, Surabaya City, East Java Province. The boundaries of the Tanah Kali Kedinding Subdistrict include:

- To the north: Tambak Wedi Subdistrict

- To the south: Bulak District
- To the west: Bulak Banteng Subdistrict and Sidotopo Wetan Subdistrict
- To the east: Bulak District and the Madura Strait

The research titled "The Effect of Lemon Aromatherapy Inhalation on the Reduction of Emesis Gravidarum Severity in First-Trimester Pregnant Women at TPMB Puji Astuti Surabaya" was conducted from October to December 2023 at TPMB Puji Astuti in the Kenjeran District of Surabaya City. This quantitative research used a true experimental approach with a two-group pretest-posttest design. Secondary data was obtained from TPMB Puji Astuti in the Kenjeran District of Surabaya City, with a total of 34 respondents. Seventeen respondents received the treatment (Intervention Group), while 17 respondents did not receive any treatment (Control Group).

Before the treatment, respondents were given a nausea and vomiting questionnaire. Subsequently, aromatherapy inhalation was administered for four days, followed by another observation using an emesis gravidarum questionnaire to assess the impact of aromatherapy inhalation on the reduction of emesis gravidarum severity in first-trimester pregnant women.

3.2. Frequency Characteristics Frequency of Respondents based on Age, Occupation and Pregnancy Age

Based on the above table, it is illustrated that the characteristics of respondents experiencing emesis gravidarum in the intervention group are mostly under the age of 30, with 11 respondents (64.7%) experiencing emesis gravidarum. Similarly, in the control group, the majority are under the age of 30, with 10 respondents (41.1%) experiencing emesis gravidarum.

Regarding the characteristics of respondents based on education, the majority of respondents have completed junior high school, with 6 respondents (35.2%) experiencing emesis gravidarum in the intervention group. Similarly, in the control group, the majority have completed junior high school, with 8 respondents (41.1%) experiencing emesis gravidarum.

Table 1 Respondent Frequency Distribution Based on Age, Education and Gestational Age

Characteristics	Intervention	%	Control	%
Age				
<30	11	64.7	10	58.8
>30	6	35.2	7	41.1
Total	17	100.0	17	100.0
Education				
SD	3	17.6	3	17.6
SMP	6	35.2	8	47.0
SMA	5	29.4	4	23.5
PT	3	17.6	2	11.7
Total	17	100.0	17	100.0
Gestational Age				
1-4 Week	4	23.5	3	17.6
5-8 Week	8	47.0	5	29.4
9-13 Week	5	29.4	9	52.9
Total	17	100.0	17	100.0

Primary data source December 2023

In terms of the characteristics of respondents based on gestational age, the majority of pregnant women experiencing emesis gravidarum in the intervention group are at a gestational age of 5-8 weeks, with 8 respondents (47.0%).

Meanwhile, in the control group, the majority of pregnant women experiencing emesis gravidarum are at a gestational age of 9-13 weeks, with 9 respondents (52.9%).

3.3. Distribution of Degrees of Emesis Gravidarum in Pregnant Women in the 1st Trimester Before Giving Lemon Aromatherapy Inhalation

Table 2 Distribution of Degrees of Emesis in Pregnant Women in the 1st Trimester Before Giving Lemon Aromatherapy Inhalation up

Degree of Emesis	Intervention Group		Control Group		P-Value
	Frek	%	Frek	%	
Gravidarum					
No Nausea Vomiting	11	64.7	10	5	8.8
Mild Nausea Vomiting	6	35.2	7	4	1.1
Moderate Nausea Vomiting	17	100.0	17	100.0	
Severe Nausea and Vomiting					
Nausea Vomiting Bad	3	17.6	3	1	7.6
Total	17	100.0	17	100.0	

Based on the above table, it is shown that the severity of Emesis Gravidarum before the treatment in the intervention group indicates that the categories of no nausea and vomiting and mild nausea and vomiting were not experienced by respondents. However, for the moderate nausea and vomiting category, there were 7 respondents (41.18%), and similarly, for the severe nausea and vomiting category, there were 7 respondents (41.18%). Meanwhile, for the category of very severe nausea and vomiting, there were 3 respondents (17.64%). In the control group, the categories of no nausea and vomiting and mild nausea and vomiting were not experienced by respondents. However, for the moderate nausea and vomiting category, there were 6 respondents (35.29%), and similarly, for the severe nausea and vomiting category, there were 8 respondents (47.07%). Meanwhile, for the category of very severe nausea and vomiting, there were 3 respondents (17.64%).

3.4. Analysis of Research Results

This analysis is employed to determine the relationship between the independent variable and the dependent variable. In this study, the independent variable is the administration of Lemon Aromatherapy Inhalation using Lemon Essential Oil Aromatherapy method, while the dependent variable is the severity of emesis gravidarum in first-trimester pregnant women. The data analysis used in this research is Nonparametric Tests with the Wilcoxon Signed Rank Test.

3.4.1. Analysis of the Distribution of Respondents Who Experienced Emesis Gravidarum Before Giving Lemon Aromatherapy Inhalation in the Intervention Group and Control Group

Table 3 Distribution of Respondents Who Experienced Emesis Gravidarum Before Giving Lemon Aromatherapy Inhalation in the Intervention Group and Control Group

Variable	Mean	Standard Deviation	Min	Max	P-Value
Intervention Group	2.76	0.752	2	4	0.805
Control Group	2.82	0.728	2	4	

Primary data source December 2023

The table above indicates that the respondent values in the intervention group have a mean of 2.76 with a standard deviation of 0.752. The highest value for the severity of emesis gravidarum before inhalation is 4, indicating severe nausea and vomiting. Meanwhile, the lowest value for the severity of emesis gravidarum before inhalation is 2, indicating moderate nausea and vomiting.

The respondent values in the control group have a mean of 2.82 with a standard deviation of 0.728. The highest value for the severity of emesis gravidarum before inhalation is 4, indicating severe nausea and vomiting. Meanwhile, the lowest value for the severity of emesis gravidarum before inhalation is 2, indicating moderate nausea and vomiting.

Based on the Homogeneity test conducted in the intervention group, a significant result of 0.805 was obtained, meaning that this value is greater than the significance level (>0.05). Therefore, it can be concluded that both the intervention and control groups have the same or homogenous variance. This implies that there is no difference before the treatment between the intervention and control groups.

3.4.2. Analysis of the Degree of Emesis Gravidarum Before and After Giving Lemon Aromatherapy Inhalation to the Intervention Group

Table 4 Degrees of Emesis Gravidarum Before and After Giving Lemon Aromatherapy Inhalation to the Intervention Group

Variable	Mean	Standard Deviation	P-Value
Intervention Group	2.76	0.752	0.000
Control Group	1.94	0.659	

Primary data source, December 2023*Wilcoxon test

The table above shows that the values of respondents in the intervention group, the emesis gravidarum score before the intervention had a mean of 2.76 with a standard deviation of 0.752. Meanwhile, in the intervention group after the treatment, the mean score obtained is 1.94 with a standard deviation of 0.659. Based on the Wilcoxon test, a p-value of

0.000 was obtained, which is smaller than the significance level (<0.05). Therefore, it can be concluded that there is an effect in the intervention group before and after the administration of lemon aromatherapy at TPMB Puji Astuti in the Kenjeran District of Surabaya City.

3.4.3. Analysis of the Degree of Emesis Gravidarum Before and After Giving Lemon Aromatherapy Inhalation to the Control Group

Table 5 Degrees of Emesis Gravidarum Before and After Giving Lemon Aromatherapy Inhalation to the Control Group

Variable	Mean	Standard Deviation	P-Value
Intervention Group	2.82	0.728	0.317
Control Group	2.76	0.664	

Primary Data Source December 2023

The table above indicates that the values of respondents in the control group, the emesis gravidarum score before the intervention had a mean of 2.82 with a standard deviation of 0.728. After the intervention, the mean score obtained is

2.76 with a standard deviation of 0.664. Based on the Wilcoxon test, a p-value of 0.317 was obtained, which is greater than the significance level (>0.05). Therefore, it can be concluded that there is no effect in the control group before and after no treatment was given at TPMB Puji Astuti in the Kenjeran District of Surabaya City.

3.4.4. Analysis of the Distribution of Respondents Who Experienced Emesis Gravidarum After Giving Lemon Aromatherapy Inhalation in the Intervention Group and Control Group

Table 6 Distribution of Respondents Who Experienced Emesis Gravidarum Before Giving Lemon Aromatherapy Inhalation in the Intervention Group and Control Group

Variable	Mean	Standard Deviation	P-Value
Intervention Group	1.94	0.659	0.005
Control Group	2.76	0.664	

The table above shows that the values of respondents in the intervention group, the emesis gravidarum score in the intervention group has a mean of 1.94 with a standard deviation of 0.659. Meanwhile, in the control group, the mean score obtained is 2.76 with a standard deviation of 0.664. A p-value of 0.005 was obtained, which is smaller than the

significance level (<0.05), indicating that there is an effect after the administration of lemon aromatherapy in both the intervention and control groups at TPMB Puji Astuti in the Kenjeran District of Surabaya City.

4. Discussion

4.1. Characteristics of Respondents

The participants in this study were 34 first-trimester pregnant women who visited TPMB Puji with complaints of experiencing emesis gravidarum. Data from the first-trimester pregnant women investigated include characteristics such as age, gestational age, occupation, and the degree of emesis gravidarum.

The characteristics of the respondents illustrate that the majority of those experiencing emesis gravidarum in the intervention group are under the age of 30, with 11 respondents (64.7%) falling into this category. Similarly, in the control group, the majority are under the age of 30, with 10 respondents (41.1%) experiencing emesis gravidarum.

Regarding the characteristics based on education, most respondents have completed up to junior high school, with 6 respondents (35.2%) experiencing emesis gravidarum in the intervention group. Similarly, in the control group, the majority have completed junior high school, with 8 respondents (41.1%) experiencing emesis gravidarum.

In terms of the characteristics based on gestational age, the majority of pregnant women experiencing emesis gravidarum in both groups are at a gestational age of 5–8 weeks, with 8 respondents (47.0%) in the intervention group and 9 respondents (52.9%) in the control group at a gestational age of 9–13 weeks. Based on the characteristics of the respondents in this study, the majority are under the age of 30, have education up to junior high school, and have gestational ages of 5–8 and 9–13 weeks.

In a study conducted by Rudiyantri et al., 2019, the analysis of the relationship between age and emesis gravidarum showed that among respondents experiencing abnormal emesis gravidarum, 70.4% (19 individuals) were at risk age (age < 20 years and > 35 years), and 42.9% (27 individuals) were at non-risk age (age 20 – 35 years). The statistical test result obtained a p-value of 0.031, concluding that there is a statistical relationship between age and emesis gravidarum. Furthermore, the analysis also yielded an odds ratio (OR) value of 3.167, meaning that respondents at risk age have 3.167 times the chance of experiencing abnormal emesis gravidarum compared to respondents at non-risk age.

4.2. The Influence of Lemon Aromatherapy Inhalation on the Reduction of Emesis Gravidarum Degree in First Trimester Pregnant Women

Based on Table 5.5, the analysis using the Wilcoxon Signed Rank Test indicates a significant decrease in the degree of emesis gravidarum in the intervention group after receiving Lemon Aromatherapy Inhalation using Lemon Essential Oil. The obtained significance value (sig/p) is 0.000 with $p < 0.05$, leading to the rejection of the null hypothesis (H_0). This result demonstrates a significant impact of Lemon Aromatherapy Inhalation on the reduction of emesis gravidarum degree in 17 respondents in the intervention group before and after the administration of lemon aromatherapy inhalation. Therefore, it can be concluded that Lemon Aromatherapy Inhalation has a significant effect on reducing the degree of emesis gravidarum in first-trimester pregnant women at TPMB Puji Astuti in the Kenjeran District of Surabaya.

Based on the research findings at TPMB Puji Astuti, as shown in Table 6, the degree of emesis gravidarum in first-trimester pregnant women in the intervention group after Lemon Aromatherapy Inhalation (Post Test) resulted in a mean value of 1.94 with a standard deviation of 0.659. The Wilcoxon Signed Rank Test yielded a significance value (p) of 0.005 with $p < 0.05$, indicating a significant influence of Lemon Aromatherapy Inhalation on reducing the degree of emesis gravidarum in first-trimester pregnant women at TPMB Puji Astuti in the Kenjeran District of Surabaya.

There is a difference in the level of nausea and vomiting in first-trimester pregnant women in the control group. The respondents' nausea and vomiting after the Post Test resulted in a mean value of 2.76 with a standard deviation of 0.664. Using the Wilcoxon test, the p-value obtained is 0.317, which is greater than the significance value of $p > 0.05$. This means that there is no influence in the control group at TPMB Puji Astuti in the Kenjeran District of Surabaya.

Tables 5 and 6 clearly indicate a significant difference between the intervention and control groups. The nausea and vomiting levels in the intervention group before and after Lemon Aromatherapy Inhalation obtained a p-value of 0.005, which is smaller than $p < 0.05$. Meanwhile, for the control group, a p-value of 0.317 was obtained, which is greater than $p < 0.05$.

Based on these results, the degree of emesis gravidarum decreased in the intervention group before and after aromatherapy. In contrast, in the control group that did not receive treatment, there was no significant decrease in the degree of emesis gravidarum.

Therefore, since the administration of lemon aromatherapy in the intervention group, respondents felt better after inhaling lemon aromatherapy, and the previously experienced nausea and vomiting decreased. Thus, lemon aromatherapy reduces the sensation of nausea and vomiting.

This research aligns with a previous study conducted by Maesaroh in 2019, which suggests that inhaling lemon aroma therapy is one of the complementary therapies for nausea and vomiting. The research results show the average frequency of nausea and vomiting in pregnant women before and after inhaling lemon aroma therapy, which is 17.12 times ($SD \pm 1.764$) and 12.16 times ($SD \pm 1.908$), respectively. Inhalation of lemon aroma therapy significantly reduces the average frequency of nausea and vomiting in pregnant women by 4.86 times.

Another study by Isnaini et al. in 2022 also obtained results consistent with this research. The study revealed that the average frequency of nausea and vomiting in first-trimester pregnant women decreased after the intervention of Acupressure combined with Lemon Aromatherapy Inhalation was 4.5, categorized as mild nausea and vomiting, with a p -value < 0.05 compared to the average before the intervention, which was 8.8, categorized as moderate nausea and vomiting. Therefore, it can be concluded that the intervention of acupressure points SP3, P6 combined with Lemon Aromatherapy Inhalation has an effective impact on reducing nausea and vomiting in pregnancy [9].

Another study conducted by Nurulicha in 2019 stated that after inhaling lemon aromatherapy, the average reduction in nausea and vomiting was 6.18. This result indicates that the average score of nausea and vomiting frequency in 22 respondents before and after lemon inhalation has a significant effect, concluding that the regular administration of lemon inhalation has a significant impact on reducing nausea and vomiting in first-trimester pregnant women [10].

According to Wardani in 2019, the decrease in the average frequency of nausea and vomiting is attributed to the ability of aromatherapy to reduce the score of nausea and vomiting frequency during pregnancy due to its refreshing scent [11]. Aromatherapy aids in maintaining health, uplifting spirits, refreshing and calming the soul, and stimulating the healing process. When essential oil is inhaled, molecules enter the nasal cavity and stimulate the limbic system in the brain, affecting emotions, memory, and directly related to the adrenal glands, pituitary gland, hypothalamus, and parts of the body that regulate heart rate, blood pressure, stress, memory, hormonal balance, and respiration. Thus, lemon aromatherapy is effective in reducing nausea and vomiting.

In the control group of this study, the degree of emesis gravidarum in respondents did not change because pregnant women experience nausea and vomiting during the first trimester of pregnancy, usually occurring between the 4th and 6th weeks of pregnancy, peaking between the 8th and 12th weeks. A more severe form of nausea and vomiting is known as hyperemesis gravidarum. Based on these research findings, it can be concluded that this effect is

5. Conclusion

Based on the Research Results on the Effect of Aromatherapy Inhalation on the Reduction of Emesis Gravidarum Degree in First Trimester Pregnant Women at TPMB Puji Astuti Surabaya, it is observed that:

The majority of first-trimester pregnant women experiencing emesis gravidarum are under the age of 30. In the intervention group, most pregnant women experiencing emesis gravidarum have a gestational age of 5–8 weeks, while in the control group, most pregnant women experiencing emesis gravidarum have a gestational age of 9–13 weeks.

The distribution of emesis gravidarum degrees in the intervention group before the administration of lemon aromatherapy inhalation shows that most pregnant women experienced severe and moderate nausea and vomiting. Similarly, in the control group, most pregnant women experienced severe and moderate nausea and vomiting before the administration of lemon aromatherapy inhalation.

The distribution of emesis gravidarum degrees in the intervention group after the administration of lemon aromatherapy inhalation shows that most pregnant women experienced moderate and mild nausea and vomiting. Similarly, in the control group, most pregnant women experienced severe and moderate nausea and vomiting before the administration of lemon aromatherapy inhalation.

Analysis of the reduction in emesis gravidarum degree in the intervention group receiving lemon aromatherapy inhalation indicates a significant impact on the reduction of emesis gravidarum degree. This can be seen from the results of the pretest, posttest, and SPSS tests conducted. There is a decrease in emesis gravidarum degree in first-trimester pregnant women after inhalation in the control group. Meanwhile, in the control group not receiving lemon aromatherapy inhalation, there is no significant change in the emesis gravidarum degree. This can be observed from the results of the pretest, posttest, and SPSS tests conducted. There is no significant decrease in emesis gravidarum degree.

Based on the results and discussion of the research, the administration of lemon aromatherapy inhalation can reduce the degree of emesis gravidarum in first-trimester pregnant women at TPMB Puji Astuti Surabaya.

Compliance with ethical standards

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Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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