



## Effect of Lemon Aromatherapy in Reducing Degree of Emesis Gravidarum

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### ABSTRACT

Emesis gravidarum or nausea and vomiting during pregnancy, is a condition often experienced by 70-80% of pregnant women and a phenomenon that often occurs at 5-12 weeks of gestation. In Indonesia, it is known that almost 50-90% of pregnant women experience nausea for the first trimester or the 3 months of pregnancy. In general, the purpose of this study was to analyze the effectiveness of lemon aromatherapy in reducing degree of Emesis Gravidarum. This study uses experimental research methods. The research design used is a Pre-Experimental (Pre-Experimental) type of research with One Group Pre Test and Post Test designs. The analysis used was univariate and bivariate with the Wilcoxon Signed Rank Test statistical test. The results of the study found an average change in nausea from the moderate category and decreased to mild nausea after receiving lemon aromatherapy. It can also be seen from the p value  $0.000 < 0.05$  so that there is a difference in degree of emesis gravidarum before and after being given aromatherapy. Pregnant women are expected want to use lemon aromatherapy as a natural way to help overcome nausea and vomiting during pregnancy in the condition that there are no contraindications to use lemon aromatherapy.

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### 1. Introduction

Emesis gravidarum is vomiting in pregnant women, this condition is usually preceded to wamble (nausea). These two things are normal and often found in most pregnant women. Emesis gravidarum is a normal symptom or often found for the first trimester of pregnancy. Nausea usually occurs in the morning, but some occur at any time of the night. These symptoms usually occur 6 weeks after the first day of the last menstruation and last approximately 10 weeks [1]. Nausea and vomiting in pregnancy is a condition often experienced by about 70-80% of pregnant women and is a phenomenon that often occurs at 5-12 weeks of gestation [2]. In Indonesia, it is known that almost 50-90% of pregnant women experience nausea in the first trimester (the first 3 months of pregnancy) [2].

Nausea and vomiting are not a big risk for maternal death, but nausea and vomiting in pregnancy cause a decrease in quality of life, and has an adverse effect on the functioning of social life, work and household life [3]. The state of excessive emesis gravidarum and inadequate nutritional intake can affect the nutritional status of pregnant women so that pregnant women look weak, pale, decreases body fluids until hemoconcentration occurs in blood circulation which interferes with oxygen supply to tissues. The

nutritional status of pregnant women greatly affects the growth of the fetus in the womb. If the nutritional status of the mother is poor during pregnancy, it will cause low birth weight (LBW) [4]. Nausea and vomiting can be prevented by pharmacological and non-pharmacological methods. Pharmacological methods can be given by giving vitamin B6 and anti-emetics to relieve nausea and mild vomiting or nausea and severe vomiting. However, the use of pharmacological drugs can cause side effects to the mother, pregnancy, and the baby. For this reason, non-pharmacologic treatment is one of the alternative treatments to reduce nausea and vomiting. In addition to its effects that can reduce nausea and vomiting [5]. One of the non-pharmacological methods to treat cases of emesis gravidarum is Lemon.

Aromatherapy using lemon essential oil is one of the most widely used herbal oils in pregnancy and is considered a safe drug in pregnancy. Lemon itself contains 66-80% limonene, geranylacetate, nerol, linalylacetate,  $\alpha$ -pinene 1-4%, terpinene 6-14% and myrcen. Limonene is the main component in citrus chemical compounds that can inhibit the work of prostaglandins so that they can reduce pain [6]. In addition, limonene controls cyclooxygenase I and II, prevents prostaglandin activity and reduces pain including nausea and vomiting. Linalyl acetate contained in lemon aromatherapy is an ester compound formed by combining organic acids and alcohols. Esters are very useful for normalizing emotional states and unbalanced body conditions, and also have properties as a sedative and tonic, especially in the nervous system [7]. Previous research conducted by Smith, et al [8], that by smelling the freshness of lemon helps reduce nausea and vomiting in pregnancy. In line with previous research conducted by Kia, et al [5], that Lemon Aromatherapy has been shown to reduce nausea and vomiting during pregnancy. This study is also supported by research by Ayu Wandira Saragih [2] on the effectiveness of lemon aromatherapy in reducing nausea and vomiting in first trimester pregnant women stating that lemon aromatherapy is effective in reducing nausea and vomiting in first trimester pregnant women.

Lemon aromatherapy is aromatherapy extracted from the lemon fruit. Lemon is a fruit that has a distinctive smell, hard, and clean. Lemon can calm the atmosphere, its aroma can create a sense of confidence, feel more relaxed, calm the nerves without losing consciousness [9]. The main chemical component it contains is limonene. The main producing countries are Argentina, Brazil, Israel, and North America. Lemon oil can improve feelings for the better. The aroma is efficacious for health, treatment, increasing physical energy [10]. To treat nausea and vomiting, lemon aromatherapy is given by inhalation or inhaled through the nose.

Aromatherapy provides many benefits for health and the body including helping to relieve physical fatigue, mental tension due to stress, stimulating passion for life, providing a sense of comfort and freshness, reducing anxiety and restlessness, and overcoming insomnia (insomnia). The biggest benefit of using aromatherapy its ability to reduce excessive mental tension. Therefore, the authors are interested in conducting secondary data research with the title "The Effectiveness of Lemon Aromatherapy in Reducing Degree of Emesis Gravidarum in the Independent Midwife Practice R Manurung Pematangsiantar City Year 2021".

The purpose of this study was to analyze the effectiveness of lemon aromatherapy in reducing degree of Emesis Gravidarum.

## 2. Method

This study used experimental research methods. The research design used was a Pre-Experimental (Pre-Experimental) research with One Group Pre Test and Post Test Design. The population in this study was all pregnant women in the first trimester who visited the Independent Midwife Practice R Manurung Pematangsiantar City in February 2022 as many as 34 people. Sampling in this study was carried out by purposive sampling technique, this study used the Sloven formula in sampling, the sample obtained from as many as 31 people. The respondents criteria for the study was: pregnant women in the first trimester, pregnant women who experienced nausea and vomiting, pregnant women who were not allergic to lemon aromatherapy, pregnant women who did not have a history of gastrointestinal disease and did not experience respiratory problems, pregnant women were in the research area at the time of the study. The research was conducted, mothers who were willing to become respondents, pregnant women who successfully participated in the experiment until the specified time for 4 days. The exclusion criteria in this

study were pregnant women in the first trimester who experienced as decreased consciousness. Data collection begins with the researcher and enumerator asking a questionnaire to measure degree of nausea and vomiting before being given treatment and filling in the respondent's answers on the NRS questionnaire sheet then explaining how to intervene in giving lemon aromatherapy inhalation by dripping onto a tissue with 1% concentrate without alcohol as much as 3 drops, then swept and inhaled by pregnant women  $\pm$  2-3 cm from the nose for 1 minute carried out 2 times or as long as pregnant women experience nausea and vomiting. The measuring instrument in this study was the NRS based on the scores obtained on the respondents' answers about the incidence of nausea and vomiting experienced. The bivariate analysis of this study used the Wilcoxon Signed Rank Test statistical test.

### 3. Analysis And Results

Based on the results of research that has been carried out, it can be arranged as follows:

Table 1.

Data on the characteristics respondents of first trimester pregnant women in the independent midwife practice R Manurung Pematangsiantar City

No	Characteristics	Frequency (f)	Percentage (%)
1.	Age :		
	20 Years	16	51.62
	21-35 Years	15	48.38
	Total	31	100
2.	Occupation :		
	Working	10	32.26
	Not Working	21	67.74
	Total	31	100
3.	Parity :		
	Primigravida	21	67.74
	Multigravida	10	32.26
	Total	31	100
4.	Gestational Age :		
	5-8 Weeks	8	25.81
	9-12 Weeks	23	74.19
	Total	31	100
5.	Education :		
	Senior High School	26	83.87
	Diploma / S1	5	16.13
	Total	31	100

Degrees of Emesis Gravidarum before being given lemon aromatherapy. The results of observations on pregnant women before being given lemon aromatherapy are depicted in table 2:

Table 2.

Degrees of emesis gravidarum before being given lemon aromatherapy			
No	Emesis Gravidarum Intensity	Frequency (f)	Percentage (%)
1.	Moderate	28	90.33
2.	Severe	3	9.67
	Total	31	100

Degrees of emesis gravidarum after lemon aromatherapy. Observations on pregnant women after being given lemon aromatherapy are depicted in table 3:

Table 3.

Degrees of emesis gravidarum after being given lemon aromatherapy			
No.	Intensity of Emesis Gravidarum	Frequency (f)	Percentage (%)
1.	Mild	28	90.32
2.	Moderate	3	9.68
	Total	31	100

Analysis of the results showed that there was a change in the average degree of nausea and vomiting in pregnant women before and after being given lemon aromatherapy as listed in table 4:

Table 4.

Degrees of emesis gravidarum before and after giving lemon aromatherapy						
Variables	Treatment	Mean	Min	Max	Standard Deviation	Wilcoxon $p$ -value
Emesis Gravidarum	Before	5.29	4.00	8.00	1.160	
	After	2.23	1.00	4.00	0.884	0.000

#### Identification of Degree Emesis Gravidarum Before Inhalation of Lemon Aromatherapy

Observation The intensity emesis gravidarum of 31 pregnant women respondents before being given lemon aromatherapy averaged 5.29, which means that the emesis gravidarum was in the moderate category. Emesis gravidarum is usually influenced by several factors, including hormonal, parity, occupation or activity and maternal age. The age of pregnant women who are at high risk are the age of less than 20 years and more than 35 years. Emesis gravidarum occurs at the age of under 20 years due to insufficient physical maturity, mental and social functions of the prospective mother so that it can cause physical doubts, love and care and care for the child to be born. Whereas at the age of more than 35 years it is caused by psychological factors, where the mother is not ready to get pregnant again or even does not want to get pregnant again so that she will feel depressed and cause stress to the mother [11]. A person's age is the amount of age that is broadly an indicator of maturity in every decision making that refers to each of his experiences. The more old enough, the level of maturity and strength of a person will be more mature in thinking and logically this is in accordance with the opinion of Arsenault [12]. In this study, the age range of mothers between 17-20 years was 16 people and 21-35 years as many as 15 people.

#### Identification of Degrees Gravidarum Aromatherapy Inhalation

Based on this study, 31 pregnant women who were given lemon aromatherapy, most of them had moderate emesis gravidarum intensity values. Most pregnant women have an intensity with a light category after being given lemon aromatherapy treatment. Referring to these results, it can be stated that there was a decrease in the intensity of emesis gravidarum after being given lemon aromatherapy treatment. Lemon aromatherapy is a type of aromatherapy that can be used to treat nausea and vomiting. Limone 70%, beta-pinene 11%, gamma terpinene 8%, citral 2%, trana-alpha-bergamo shine 0.4% is the content of lemon essential oil which has benefits as mental, stimulating, antirheumatic, antispasmodic, hypotensive, antistress and sedatives [13]. According to [14], that aromatherapy is a therapy using essential oils or essential oils that are used to treat health problems, one of which is nausea and vomiting. When lemon aromatherapy is inhaled, the volatile molecules of the oil are carried by air currents to the "roof" of the nose where soft cilia emerge from the receptor cells. When the molecules attach to the hairs, an electrochemical message will be transmitted through the mucous membrane, then circulated to the gastric organs. In the stomach, the aroma molecules contained in lemon reduce levels of the HCG hormone, then the molecules leading to the intestines affect the effect of the hormone progesterone, a steroid which causes a slowdown in gastric emptying and normalizes intestinal motility, so that nausea and vomiting are reduced [9, 5]. Limonene is the content of citrus limon which is highly bioavailable by the human lung at 70% and 60% is metabolized or rapidly redistributed. Lemon essential oil is extracted from the lemon peel, namely the outer lemon peel which contains 90% limonene, 5% citral and a small amount of citronella, alpha-terpineol and geranyl acetate. get lemon essential oil produced by essential

oil manufacturers. However, nowadays there are many essential products on the market that can be obtained at varying prices. In this study, researchers used essentials 100% that were ready to use, already BPOM, and were free of parabens and fragrances and were safe to use with the aim of making research more effective and efficient. In this study, the nausea and vomiting experienced by respondents at PMB R Manurung decreased after giving lemon aromatherapy, because lemon aromatherapy can cause psychological and physiological changes in humans so that respondents feel relaxed and comfortable.

#### **Analyzing the Degree of Emesis Gravidarum Before Inhaling Lemon Aromatherapy and After Inhaling Lemon Aromatherapy**

Based on table 4, it can be seen that the average of aromatherapy was 5.29 and the average after being given lemon aromatherapy was 2.23. Based on these results there is a decrease in the intensity of emesis gravidarum pregnant women. The results of statistical tests obtained value = 0.000, this means that 5% alpha can be stated that there is a significant difference in the average emesis gravidarum before and after being given lemon aromatherapy.

The chemical properties and pharmacological effects of citrus lemons are acidic, cool, aromatic, efficacious in relieving thirst, overcoming scurvy or scurvy or canker sores (antiscorbutic), restoring digestive function, lowering blood pressure, antioxidant, antibacterial, antiseptic, reducing heat (antipyretic), increasing immunity to infection. Parasan oil of the citrus family has a refreshing aroma and is efficacious as an antiseptic, as well as a tonic with a significant effect on the entire digestive tract [15, 13]. In this study, lemon aromatherapy has an effect in reducing complaints of emesis gravidarum pregnant women at PMB R Manurung. From the data above, it can be seen that there is a match between the theories, namely lemon aromatherapy can reduce degree of emesis gravidarum from the average intensity of the moderate category as much as 5.29% to the mild category as much as 2.23%.

#### **4. Conclusion**

The conclusion of this study is that there is a reduction in the administration of lemon aromatherapy to decrease the degree of emesis gravidarum in the first trimester at the Independent Midwife Practice R Manurung in 2021. It is recommended that pregnant women in the first trimester usually use lemon aromatherapy to treat nausea and vomiting, for the Independent Midwife Practice R Manurung as input for midwife is also to add insight to midwife Table 1 shows in providing treatment for emesis gravidarum in first trimester pregnant women by using non-pharmacological methods in the form of lemon aromatherapy.

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