

## Original Research Article

# Effectiveness of ginger aromatherapy towards nausea and vomiting on first trimester pregnant women at BPM (private practice midwives) Ni Wayan Suri in Denpasar City

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## ABSTRACT

**Background:** Nausea and vomiting in pregnancy are called morning sickness, which is experienced by around 70-80% of pregnant women, is a phenomenon that often occurs at 5-12 weeks of gestation. Since long time ago, ginger has been known as a plant with a million of medicinal properties. Non-pharmacological intervention measures by giving ginger aromatherapy is part of the comfort intervention which aimed to provide physical comfort to pregnant women.

**Methods:** The design of this study was pre-experimental (Quasi experiment design) with one group pretest-posttest design on the group that was given ginger aromatherapy. The population in this study was pregnant women who made antenatal visits at Private Practice Midwives (hereafter BPM) Ni Wayan Suri in Denpasar City in 2018 with purposive sampling technique. The samples in this study were first trimester pregnant women who experienced nausea and vomiting in BPM Ni Wayan Suri in Denpasar City and met the inclusion criteria. The number of samples in this study was 30 people. Data were analyzed through t-test to compare the results of the pretest and posttest.

**Results:** The average nausea and vomiting of pregnant women in the first trimester before receiving ginger aroma therapy was 8.1. The average nausea and vomiting of pregnant women in the first trimester upon receiving the aroma of ginger therapy was 6 with a p value of 0.00 which means that there was an effect of ginger aromatherapy on nausea and vomiting of pregnant women in first trimester in Private Practice Midwives BPM Ni Wayan Suri in Denpasar City.

**Conclusions:** There is an effect of ginger aromatherapy on nausea and vomiting of pregnant women in first trimester in Private Practice Midwives BPM Ni Wayan Suri in Denpasar City.

**Keywords:** Effectiveness, First trimester pregnancy, Ginger aromatherapy, Nausea and vomiting

## INTRODUCTION

Mortality and morbidity in pregnant women and newborns have become a concern for a long time, especially in developing countries. About 25-50% mortality of women in childbearing age is caused by pregnancy-related problem.<sup>1</sup>

Pregnancy is a condition of woman who has an embryo or fetus in her uterus that continues to develop over time.

The normal pregnancy process occurs for 40 weeks between the last menstrual period and birth (38 weeks after conception). Pregnancy is a phase that has been eagerly awaited by many couples since through this phase they will have a baby to complete their domestic life. Pregnancy process causes changes in the mother's body. These changes occur to adjust the mother's body with the condition of her pregnancy.<sup>2</sup> These changes are mostly influenced by hormones, an increase in the hormone's estrogen and progesterone. Immediately after an increase

in the hormone's estrogen and progesterone in body, mother would experience various kinds of physiological discomfort such as nausea, vomiting, fatigue and enlargement of the breast.<sup>3</sup>

Nausea and vomiting are one of the earliest symptoms, the most common yet the most stressful for mother which are affiliated with pregnancy.<sup>4</sup> Nausea and vomiting in pregnancy are called morning sickness, which is experienced by about 70-80% of pregnant women is a phenomenon that often occurs at 5-12 weeks of gestation.<sup>5</sup> Pregnant women, especially in the first trimester, experience nausea and vomiting at different levels. By and large, it is mild and occurs especially in the morning. But, in some occasions, it is also quite severe and can last all day.

Nausea and vomiting occur 2 weeks after missed menstruation period and lasts for around 6-8 weeks. The cause is unknown but presumably instigated by an increase of sex hormones level (estrogen and progesterone) produced during pregnancy. After 12 weeks, these symptoms usually disappear as the body has adjusted.<sup>6</sup> Excessive nausea and vomiting during pregnancy or what is commonly known as hyperemesis gravidarum does not only threatens a woman's life but can also cause side effects on the fetus such as abortion, low birth weight, premature birth, and malformation in newborns. Intrauterine Growth Retardation (IUGR) increases in pregnant women with hyperemesis gravidarum.<sup>5</sup>

Efforts can be made to help adapt to nausea and vomiting through alternative non-pharmacological and pharmacological actions. Some non-pharmacological actions that are applied to clients are advocating for ginger consumption, relaxation techniques and aromatherapy.<sup>5</sup>

Since long time ago, everyone in this earth knows that ginger is a plant with a million of medicinal properties. Ginger is an important herb. Its rhizomes are very widely used, among others as cooking spices, drinks and sweets while are also used in traditional medicinal ingredients.<sup>7</sup>

Aromatherapy is a therapy that uses essential oils or pure oil extracts to help improving or maintaining health, arousing enthusiasm, refreshing and reviving the body. Non-pharmacological intervention measures by giving ginger aromatherapy is part of the comfort intervention which aims to provide physical comfort for pregnant women. These technical actions are designed to help maintaining or restoring physical function and comfort, while preventing complications. Study conducted by Ardani A, entitled "comparison of the effectiveness of ginger drink therapy with cardamom drinks on morning sickness in pregnant women in the first trimester" proves that giving ginger drink therapy decreases the average vomiting in pregnant women from 11.19 to 7.50.<sup>8</sup>

## METHODS

The design of this research was pre-experiment (Quasi experiment design) with the design of one group pretest - posttest design. Measurements were made in the group given ginger aromatherapy before and after being given ginger aromatherapy. This study was conducted at Private Practice Midwives (BPM) Ni Wayan Suri. The study was conducted for 3 months from May to August 2018. The study population was all pregnant women who made antenatal visits at Private Practice Midwives (BPM) Ni Wayan Suri in 2018. The sample of this study was Trimester I pregnant women who experienced nausea and vomiting in Private Practice Midwives (BPM) Ni Wayan Suri that met the research inclusion criteria.

The inclusion criteria for the sample in this study were, first trimester pregnant women who experienced nausea and vomiting, pregnant women who were willing to become respondents, pregnant women who did not experience complications in pregnancy.

Exclusion criteria were pregnant women in the first trimester who had complications in pregnancy and were not willing to become respondents. The sample size in this study was 30 people. The sampling technique in this study was using a purposive sampling technique. The instruments used to collect data in this study were questionnaires and observation sheets.

Data was collected by structured interview method and observation sheet on each research subject. The types of data collected are primary data in the form of data on the characteristics of respondents consisting of age, gravida, education and employment and data on the frequency of nausea and vomiting every 24 hours. Ginger aromatherapy was given for 4 days and then evaluated the frequency of nausea and vomiting for 24 hours. Data analysis techniques are used analysis with t-test.

## RESULTS

Based on Table 1, author found that small amount of respondents who are 2 people (6,7%) experienced nausea and vomiting in first trimester in severe category, the majority of the result which was 17 people (56,6%) experienced nausea and vomiting in the first trimester of pregnancy in the moderate category and almost half of respondents that are 11 people (36,7%) experiences nausea and vomiting in first trimester in mild category. The average nausea and vomiting of pregnant women in the first trimester before receiving ginger aroma therapy was 8.1. Based on Table 2, the result shows that almost all of the respondents that are 11 people (67,6%) were in moderate category, the majority of the result which was 19 people (63,3%) experienced nausea and vomiting on the first trimester of pregnancy in the mild category, and there were no respondent that have had nausea and vomiting in severe category.

The average nausea and vomiting of pregnant women in the first trimester upon receiving ginger aroma therapy was 6. Based on Table 3, it is shown that ginger

aromatherapy was effective to decrease nausea and vomiting on the first trimester pregnant women with p value of 0.00 (95% CI: 1.72-2.55).

**Table 1: Frequency distribution of nausea and vomiting before giving ginger aromatherapy.**

No.	Frequency of nausea and vomiting	Frequency (f)	%	Frequency of nausea and vomiting (average)
1	Severe	2	6.7	8.1
2	Moderate	17	56.6	
3	Mild	11	36.7	
Total	30	100		

Source: Primary Data, 2018

**Table 2: Frequency distribution of nausea and vomiting upon receiving ginger aromatherapy.**

No.	Nausea and vomiting frequency	Frequency (f)	%	Frequency of nausea and vomiting (average)
1	Severe	0	0	6
2	Moderate	11	36.7	
3	Mild	19	63.3	
Total		30	100	

Source: Primary Data, 2018

**Table 3: T-test analysis results on ginger aromatherapy.**

No.	Variable	95% CI	P value
1	Pre and Post	1.72-2.55	0.000

Source: Primary Data, 2018

## DISCUSSION

The results of this study indicate that ginger aromatherapy is effective in reducing nausea and vomiting in pregnant women during the first trimester with a p value of 0.00 (95% CI:1.72-2.55). Ginger stimulates the motility of the gastrointestinal tract which was previously lowered by the hormone progesterone and stimulates the secretion of saliva, bile and other gastric secretion products.<sup>9</sup>

Ginger can inhibit 5-HT<sub>3</sub> activation and has an effect similar to 5-HT<sub>3</sub> antagonists and ondansetron which cause contraction in stomach, thus consequently nausea and vomiting. Ginger relaxes and weakens the muscles of the digestive tract so that nausea and vomiting can be reduced. Ginger inhibits carminative effect, thus preventing gastric gas release. Ginger has an effect similar to dimenhydrinate.

Dimenhydrinate is a histamine antagonist (H<sub>1</sub>) and can also inhibit vestibular stimulation that works in the autolytic system and at large doses on the semicircular canal. Ginger can reduce the effect of cisplatin through central or peripheral nerve barriers by increasing 5-hydroxytryptamine, dopamine and substance P. Cisplatin

is a drug which induces nausea and vomiting in chemotherapy. Aside from being anti-nausea and vomiting, ginger also has efficacy as an antioxidant, anti-inflammatory, anti-tumor and anti-microbial. The common average dosage used ranges from 0.5-2grams in powder form which is put into capsules or in the form of aromatherapy with essential ginger oil. It can also be used in the form of fresh or dried ginger extract.

From several studies, it was found that doses that have an effect to reduce nausea and vomiting in the first trimester of pregnancy are as much as 250mg of ginger taken 4 times a day, which can be taken in the form of syrup, capsules or other preparations as well as aromatherapy.<sup>10</sup> Many studies prove that ginger powder as much as 1gram per day can eliminate nausea caused by various factors but should not exceed 4grams per day.<sup>11</sup>

The results of this study are in line with the research conducted by Ardani A entitled "comparison of the effectiveness of ginger drink therapy with cardamom drinks on morning sickness in pregnant women during the first trimester" proves that giving ginger drink therapy lowers the average vomiting in pregnant women from 11.19 to 7.50.<sup>8</sup>

## CONCLUSION

Ginger aromatherapy has proven effective in reducing nausea and vomiting of pregnant women in the first trimester.

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## REFERENCES

1. Notoatmodjo S. Health promotion and behavioral sciences. Jakarta: Rineka Cipta. 2007;296:297.
2. Ratna, Dwi. Pregnant Women Treatment. In: Yogyakarta: Panji Pustaka; 2010:35-68
3. Hani UD. Midwifery Care on Physiological Pregnancy. In: Jakarta: Salemba Medika; 2011:58-79
4. Tiran, Denise. Nauseous Vomiting of Pregnancy. In: Jakarta: Buku Kedokteran ECG; 2009:68-85.
5. Nengah R. Nursing Care on Client with Hyperemesis gravidarum. In: Jakarta: Salemba Medika; 2010:125-146.
6. John L. Nausea and vomiting. Medical Source, 2012. Available at: <http://www.gastro/pregnant.org/index>. Accessed on 6 January 2017.
7. Rukmana R. Ginger Farming. In: Yogyakarta: Kanisius; 2006:34-48.
8. Ardani A. Comparison of the Effectiveness of Giving Therapeutic Ginger Drinks with Cardamom Drinks on Morning Sickness in Trimester I Pregnant Women in Ngempon Sub-District Bergas District, Semarang Regency. Journal. Semarang: Program in Midwifery Diploma IV Study at the Ngudi Waluyo Ungaran School of Health Sciences; 2013.
9. Lee NM, Saha S. Nausea and vomiting of pregnancy. Gastroenterology Clinics. 2011 Jun 1;40(2):309-34.
10. Der Marderosian A, Beutler JA. The review of natural products. St. Louis, Mo.: Wolters Kluwer. J Consumer Health Internet. 2014;18(3):291-2.
11. Drugs.com. Ginger, 2008. Available at: <http://www.drugs.com/MTM/ginger.html>. Accessed on 8 February 2017.

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