



## EFFECTIVENESS OF GINGER TEA IN THE TREATMENT OF NAUSEA AND VOMITING IN EARLY PREGNANCY AMONG PRIMI ANTENATAL MOTHERS, DEHRADUN

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### Abstract

**Background:** Morning sickness, also known as nausea and vomiting during pregnancy, is a common ailment. It affects roughly 70% of pregnancies and usually starts around 6 weeks of pregnancy and lasts for weeks or months. Symptoms usually improve during the second trimester (weeks 13 to 27; the middle 3 months of pregnancy). Morning sickness, on the other hand, affects a small number of women throughout their pregnancy. Morning sickness causes most women to feel nauseous for a short period of time each day and to vomit once or twice.

**Methods:** The study's design was quantitative research approach in nature. The study employed a nonequivalent control group research design. The target population was 40 primi antenatal mothers who are attending OPD. Participants were selected using purposive sampling technique to get a sample size of 40 primi antenatal mothers who are attending antenatal OPD. To gather primary data for this project, Modified Rhodes Index of Nausea, Vomiting and Retching by Rhodes VA were used.

**Results:** The findings shows that there is significant difference between pre-test and post-test scores on treatment of nausea and vomiting among primi antenatal mothers in experimental group at 0.05 level compared to the control group. The overall combined mean post test score of experimental and control group are 6.10% and 21.50% and t' value was 10.50 which was significant at 0.05 level, which indicates ginger tea is effective in reduction of nausea but less effective in reducing vomiting.

**Conclusion:** From the statistical analysis it was clear that there was significant reduction in the nausea level of primi antenatal mothers after administration of ginger tea. From this it can be concluded that ginger tea was effective in treating nausea and vomiting during pregnancy.

**Keywords:** Ginger tea, Nausea and vomiting, Early pregnancy, Primi antenatal mothers

## 1. Introduction

Pregnancy is a maturational milestone that can be both stressful and gratifying, preparing the mother for a new degree of caring and responsibility.[1] It's a lengthy path with traps around every corner. While most women successfully navigate the journey to motherhood, there is always the fear that something will go wrong if they are not careful.[2] The first trimester of pregnancy is marked with enthusiasm and celebration. However, it can also be a time of significant physical and emotional transitions. [4] Many women encounter modest complications during pregnancy as a result of hormonal and metabolic changes. These illnesses should be treated properly since they can worsen and become life-threatening. [5]

Morning sickness is nausea with or without vomiting. It often develops between 4 and 6 weeks of gestation and resolves by the end of the third month (first trimester). Severity ranges from moderate aversion for particular foods to severe vomiting. The disease might be caused by the sight or odor of certain meals. Morning sickness rarely causes harm to the fetus or the woman<sup>1</sup>. The illness is not limited to the early morning hours; it can strike at any time of day. Several hormones have been suggested as the cause of NVP. Among these include human chorionic gonadotropin (HCG) and increased estrogen levels. Progesterone-induced delayed stomach motility, as well as aberrant gastric electrical rhythm (gastric dysrhythmias), have been identified as probable causes. [3] HCG levels grow rapidly during the first six weeks, peak at about ten weeks, and begin to diminish around twelve weeks.[6]

Because antiemetics may induce teratogenic effects, many pregnant women and professionals seek effective treatment through complementary and alternative therapy. Some of the treatments include eating crackers, elastic sea bands, electronic wristbands, vitamin B6, red raspberry leaf, acupuncture, hypnosis, acupressure, and ginger. [7]

Ginger is one of the best natural remedies for minimizing morning sickness symptoms. [8] Ginger contains volatile oil, resin (gingerol and shogaol), gingerol, a yellow pungent body, an oleo resin-ginginigerine (the active ingredient), other resins and starch, K-oxalate, and sesquiterpenes, an essential oil. [9]

Ginger has a variety of medicinal effects, including relief from colds, flu, chills, fever, headaches, stomach disturbance, improved blood circulation, nausea reduction, pain relief, chest congestion, improved liver function and digestion, and reduced morning sickness during pregnancy. [10] Ginger is commonly used as an infusion (in the form of tea), can be eaten directly, or the juice can be extracted. The typical method for preparing an infusion is to cut the root into thin slices and soak in boiling water for at least five minutes before filtering. The infusion can be sweetened with honey if desired. [11] Many health care practitioners believe that herbal teas can provide an additional source of nutrients like calcium, magnesium, and iron. Made from the roots, berries, blossoms, seeds, and leaves of many plants, rather than actual tea plant leaves. True herbal teas are caffeine-free and can be used as "medicinal" cures. [12]

The 2021 Population Data Sheet highlights declining fertility rates. The global total fertility rate (the number of births per woman throughout her lifetime) is 2.3, which is greater than the replacement level (2.1 births per woman) but lower than it was in 1990. (3.2). The Total Fertility Rate (TFR), or the average number of children a woman will have during her lifetime, has decreased from 2.2 in 2015-16 to 2.0 in 2019-21. It was revealed during the fifth phase of the National Family Health Survey (NFHS-5), which began in 2019. [13]

Serena Tinti et al 2023 conducted a survey to determine the prevalence and impact of nausea and vomiting during pregnancy. The survey was conducted in three Italian public university hospitals over two time periods: a first interview between the 18th and 22nd week of pregnancy, using the Questionnaire for Pregnancy Period, and a follow-up interview, by telephone, immediately after giving birth, using the Questionnaire for Post-Pregnancy. The data were gathered from 232 women. The recruited patients had an average age of  $32.6 \pm 4.6$  years and were mostly primiparous (approx. 60%). The total prevalence of nausea and vomiting during pregnancy in the sample was 65.5% (152 of 232 participants). Of the 152 women, 63 (41.4%) reported only nausea, 6 (3.9%) only vomiting,

and 83 (54.6%) both. Symptoms started at  $7.2 \pm 2.7$  weeks, lasted  $10.2 \pm 5.6$  weeks, and were still present in 32.2% of individuals during the interview. The study concluded that this interim analysis revealed a high frequency of nausea and vomiting in pregnancy (65.5% total). [14]

**Objective:**

1. To assess the level of nausea and vomiting among first trimester primi antenatal mothers in experimental and control group.
2. To assess the effectiveness of ginger tea on treatment of nausea and vomiting among primi antenatal mothers of experimental group.
3. To determine association between level of nausea and vomiting and selected demographic variables among primi antenatal mothers.

**Inclusion Criteria:**

1. Primi antenatal mothers who are in first trimester.
2. Primi antenatal mothers who have mild and moderate nausea and vomiting.
3. Primi antenatal mothers who are willing to participate in the study.

**Exclusion Criteria:**

1. Primi antenatal mothers who are not available during data collection.
2. Primi antenatal mothers who are taking other home remedy for nausea and vomiting.
3. Primi antenatal mothers who are taking antiemetic drugs
4. Primi antenatal mothers who are in high risk.

**Data collection:**

The researcher obtained prior permission from the hospital authority and informed consent was obtained from the participants. Confidentiality was assured. The researcher introduced herself to each client and provides adequate information regarding the intervention and the expected benefits of it. All primi antenatal mothers in early pregnancy who were having nausea and vomiting were assessed by using modified Rhodes Index of nausea, vomiting and retching. 40 subjects with mild to moderate nausea and vomiting were selected as the study subject. Experimental group of 20 samples selected according to the sampling criteria. And control group of 20 samples selected according to the sampling criteria. The pre-test was conducted on 40 primi antenatal mothers using Modified Rhodes Index of Nausea Vomiting and Retching. Then ginger tea was given for four days morning and evening starting on the same dates of pre- test respectively only to experimental group. Post-test was conducted for primi antenatal women using the same Modified Rhodes Index of Nausea Vomiting and Retching to evaluate the effectiveness of the ginger tea on 5 days. The data collection was terminated by thanking each primi antenatal mother for her participation and cooperation.

**Results:**

**TABLE -1 Over all Pretest mean nausea and vomiting scores among control and experimental group**  
N=40

Groups	Max Score	Sample (n)	Respondents Nausea & vomiting Scores			Paired 't' Test
			Mean	Mean (%)	SD (%)	
Control	32	20	21.95	68.6	14.6	1.39 NS
Experimental	32	20	19.55	61.1	19.3	

NS : Non-Significant,

t (0.05, 38 df) = 1.96

Table 1-reveals overall pretest mean nausea and vomiting scores of experimental group and control group. The overall combined mean pretest score of experimental and control group are 61.1% and 68.6% and ‘t’ value is 1.39 which is non-significant.

However, the statistical paired t test implies that there is no significant difference in the pretest nausea and vomiting scores of experimental and control groups which is statistically non-significant at 0.05 level

**TABLE – 2 Pretest nausea and vomiting level among control and experimental group**  
N=40

Aspects	Nausea & vomiting Level	Classification of Respondents			
		Control		Experimental	
		N	%	N	%
Experience	None	0	0.0	0	0.0
	Mild	4	20.0	7	35.0
	Moderate	16	80.0	13	65.0
Occurrence	None	0	0.0	0	0.0
	Mild	5	25.0	8	40.0
	Moderate	15	75.0	12	60.0
Distress	None	0	0.0	0	0.0
	Mild	6	30.0	8	40.0
	Moderate	14	70.0	12	60.0
Total		20	100.0	20	100.0

Table 2- reveals that out of 20 respondents of control group, regarding symptom experience 16 respondents were in moderate and 4 were in mild level, regarding symptom occurrence 15 respondents were in moderate and 5 were in mild finally regarding symptom distress 14 were in moderate and 6 were in mild level. Out of 20 respondents of experimental group, regarding symptom experience 13 respondents were in moderate level and 7 were in mild level, regarding symptom occurrence 12 respondents were in moderate and 8 were in mild level finally regarding symptom distress 12 were in moderate and 8 were in mild level.

**TABLE – 3 Aspect wise Post test nausea and vomiting Scores among Control and Experimental group**  
N=40

Aspects	Groups	Sample (n)	Nausea & vomiting Scores			Paired ‘t’ Test
			Mean	Mean (%)	SD (%)	
Experience	Control	20	10.60	66.3	16.6	9.87*
	Experimental	20	3.05	19.1	13.5	
Occurrence	Control	20	6.90	69.0	17.1	9.89*
	Experimental	20	2.00	20.0	14.1	
Distress	Control	20	4.00	66.7	14.3	11.50*
	Experimental	20	1.05	17.5	12.7	
Combined	Control	20	21.50	67.2	15.4	10.50*
	Experimental	20	6.10	19.1	13.5	

\* Significant at 5% level,

t (0.05, 38 df) = 1.96

Table 3 -reveals aspect wise posttest mean nausea and vomiting scores among control and experimental group in the aspect of symptom experience 66.3% and 19.1%, in the aspect of symptom occurrence 69% and 20% and in symptom distress 66.7% and 17.5%. The paired ‘t’ test value for symptom experience was 9.87, symptom occurrence 9.89 and symptom distress 11.50 which is statistically significant at 0.05 level. The combined posttest mean nausea and vomiting score of control and experimental group were 21.50 % and 19.1% and the calculated ‘t’ value was 10.50 which is significant.

**TABLE -4 Aspect wise pretest posttest nausea and vomiting scores among experimental group**  
N=20

No.	Aspects	Respondents' nausea & vomiting score (%)						Paired 't' Test
		Pre test		Post test		Enhancement		
		Mean	SD	Mean	SD	Mean	SD	
I	Experience	51.9	19.4	19.1	13.5	42.8	8.9	21.51*
II	Occurrence	61.0	20.2	20.0	14.1	41.0	11.7	15.67*
III	Distress	59.2	20.6	17.5	12.7	41.7	11.5	16.22*
	Combined	61.1	19.3	19.1	13.5	42.0	9.3	20.20*

\* Significant at 5% Level  $t(0.05, 19\text{ df}) = 2.093$

Table 4 -reveals aspect wise pretest post test scores of experimental groups in the aspect of symptom experience Pretest and Post test mean nausea and vomiting score was 51.9% and 19.1%. In the aspect of symptom occurrence nausea and vomiting score was 61% and 20% and in symptom distress 59.2% and 17.5%. The posttest mean symptom experience enhancements was 42.8 with paired 't' value of 21.51, in the aspect of symptom occurrence 41 with 't' value 15.67 and in the aspect of symptom distress 41.7 with 't' value of 16.22.

**TABLE 5 Aspect wise pretest posttest nausea and vomiting scores among control group**  
N=20

No.	Aspects	Respondents' nausea & vomiting score (%)						Paired 't' Test
		Pre test		Post test		Enhancement		
		Mean	SD	Mean	SD	Mean	SD	
I	Experience	69.1	14.3	66.3	16.6	2.8	6.9	1.81 NS
II	Occurrence	69.0	17.1	69.0	17.1	0.0	0.0	0.00 NS
III	Distress	66.7	14.3	66.7	14.3	0.0	0.0	0.00 NS
	Combined	68.6	14.6	67.2	15.4	1.4	3.4	1.84 NS

\* Significant at 5% Level,  $t(0.05, 19\text{ df}) = 2.093$

Table 5 - reveals aspect wise pretest post test scores of control group. In the aspect of symptom experience Mean Pretest and Post test nausea and vomiting Score was 69.1% and 66.3% in the aspect of symptom occurrence nausea vomiting as 69% and 69% and in symptom distress 66.7% and 66.7%. Further the statistical paired 't' value for symptom experience, symptom occurrence and symptom distress were 1.81, 0.00 and 0.00 which is not significant.

**Table- 6 Over all Pretest and Post test mean nausea and vomiting scores among experimental group**  
N=20

Test	Sample no.	Nausea & vomiting Score			Paired 't' Test
		Mean	Mean (%)	SD (%)	
Pre test	20	19.55	61.1	19.3	20.20*
Post test	20	6.10	19.1	13.5	
Enhancement		13.45	42.0	9.3	

Significant at 5% level  $t(0.05, 19\text{ df}) = 2.093$

Table: 6 reveals that the posttest mean score was 19.1% which was significantly lower than the pretest score of 61.1%, the difference in the mean enhancement score was observed as 42%.and the calculated 't' value was 20.20 which is significant at 0.05 level. However, the statistical paired 't' test implies that there is difference in the pretest and posttest nausea and vomiting scores which is statistically significant at 0.05% level. Hence the research hypothesis H<sub>1</sub>-There will be significant difference between pre-test and post-test scores of nausea and vomiting among primi antenatal

mothers in experimental group at 0.05 level is accepted which indicates that ginger tea is effective on treating nausea and vomiting among primi antenatal mothers.

**Table-7 Over all Pretest and Post test mean nausea and vomiting scores of control group**

N=20

Test	Sample no.	Nausea & vomiting Score			Paired 't' Test
		Mean	Mean (%)	SD (%)	
Pre test	20	21.95	68.6	14.6	1.84NS
Post test	20	21.50	67.2	15.4	
Enhancement		0.45	1.4	3.4	

\* Significant at 5% level

t (0.05, 19 df) = 2.093

Table 7 reveals that the overall posttest mean score was 67.2% which was slightly lower than the pretest score of 68.6%, the difference in the mean enhancement score was observed as 1.4%.and the calculated 't' value was 1.84 which is not-significant at 0.05 level.

However, the statistical paired 't' test implies that there is no difference in the pretest and posttest nausea and vomiting scores in various aspects which is statistically not significant at .05% level. Hence the research hypothesis H<sub>2</sub>.There will be significant difference between pre-test and post-test scores of nausea and vomiting among primi antenatal mothers in control group at 0.05 level is rejected.

**TABLE- 8 Over all Post test Mean nausea and vomiting Scores among Control and Experimental group**

N=40

Groups	Sample (n)	Respondents' nausea & vomiting Scores			Paired 't' Test
		Mean	Mean (%)	SD (%)	
Control	20	21.50	67.2	15.4	10.50*
Experimental	20	6.10	19.1	13.5	

NS : Non-Significant,

t (0.05, 38 df) = 1.9

Table 8 reveals overall posttest mean nausea and vomiting scores of experimental group and control group. The overall combined mean post test score of experimental and control group are 6.10% and 21.50% and t' value is 10.50 which is significant at 0.05 level. Therefore, research hypothesis H<sub>3</sub>: There will be a significant difference between experimental and control group of nausea and vomiting among primi antenatal mothers at 0.05 level is accepted which indicates ginger tea is effective in treating nausea and vomiting.

### Discussion:

Comparison of Overall pretest mean nausea and vomiting scores among Experimental and Control Group. The overall pretest mean nausea and vomiting scores of control group was 68.6% and whereas in experimental group it is 61.1%. The pretest standard deviation of control group was 14.6 whereas in experimental group it is 19.3. The paired 't' test value is 1.39 which is non-significant.

The above finding was supported by research done to studied the impact of nausea and vomiting during pregnancy (NVP) on overall quality of life, daily life functioning, and willingness to conceive again based on the severity of NVP symptoms. This is a cross-sectional population-based study done in Norway. Eligible participants included pregnant women and moms with children under one year old with current or past NVP. Data were gathered via an anonymous online questionnaire. The severity of NVP was assessed using the 24-hour Pregnancy Unique Quantification of Emesis Scale (PUQE). Chi-square tests were used to investigate associations between NVP severity, daily life functioning, and readiness to become pregnant again. The study comprised 712 women with NVP. NVP was substantially related with a variety of factors, including

daily living functioning, quality of life, and willingness to conceive again. The unfavourable impact increased with the severity of the symptoms, but women with mild to moderate NVP symptoms also experienced significant negative impacts. More than one-fourth of women with severe NVP contemplated terminating the pregnancy due to NVP, and three-fourths considered not becoming pregnant again. After controlling for maternal characteristics and diseases, severe versus moderate NVP remained substantially linked with lower global quality of life ( $\beta$  (95% CI) = -10.9 (-16.9, -4.9). NVP as measured by PUQE had a significant impact on many elements of women's lives, including their overall quality of life and readiness to conceive again. [15]

Comparison of overall mean posttest nausea and vomiting scores among Experimental Group and Control Group. The overall posttest mean nausea and vomiting scores of control group was 67.2% and whereas in experimental group it is 19.1%. The pretest standard deviation of control group was 15.4% whereas in experimental group it is 13.5%. The paired 't' test value was 10.50 which is significant.

The above findings were supported by a single blind clinical trial investigation of 67 pregnant women who complained of nausea and vomiting was conducted to investigate the effects of ginger. The experimental group received ginger 250 mg capsules for four days, whereas the control group received a placebo in the same prescription form. Ginger users showed a greater rate of improvement compared to placebo users (85% vs 56%,  $p < 0.01$ ). Ginger users saw a significant decrease in vomiting times compared to placebo recipients (50% vs. 9%;  $p < 0.05$ ). Care providers may recommend a daily dose of 1000 mg of ginger in the form of a capsule to reduce pregnant nausea and vomiting in women who prefer herbal remedies. Researchers concluded that ginger is a useful natural therapy for reducing nausea and vomiting during pregnancy. [16]

Association between demographic variable and pretest nausea and vomiting level among control group. And there exists a significant association between age and type of family with the pretest nausea and vomiting experience scores and distress scores of control group at ( $P < 0.05$ ). And there exists a significant association between duration of pregnancy and type of family with the pretest nausea and vomiting occurrence scores of control group at ( $P < 0.05$ ). Hence  $H_4$ - There will be significant association between levels of nausea and vomiting scores among primi antenatal mothers with selected demographic variables at 0.05 levels is accepted. And there exists a non-significant association between pretest nausea and vomiting experience scores and distress scores of primi antenatal mothers among control group with other selected demographic variables such as religion, educational status, occupational status, food habits, duration of married life, duration of pregnancy and family income. There exists a non-significant association between posttest nausea and vomiting occurrence scores with other selected demographic variables such as age, religion, educational status, occupational status, food habits, duration of married life and family income. Hence  $H_{04}$  is accepted.

A research of 281 pregnant women was conducted to determine the occurrence, severity, and duration of morning sickness, as well as demographic characteristics associated with it. The findings were as follows: A total of 72.3% of pregnant women had morning sickness. Of the women who experienced morning sickness, 27.9% had it in the morning and 19.7% in the afternoon, while 45.3% had it for one hour and 19.2% for the entire day. Of the pregnant women, 51.2% experienced moderate pain, while 33.5% experienced severe nausea and vomiting. The level of relief from morning sickness by diet was 'mild' for 55.7%, 'no change' for 21.7%, and 'moderate' for 17.7% of pregnant women. There was a significant relationship between morning sickness and age, but not between nausea and vomiting and parity, educational level, career, type of marriage, or type of family. [17]

### **Conclusion:**

From the statistical analysis it was clear that there was significant reduction in the nausea and vomiting level of primi antenatal mothers after administration of ginger tea. From this it can be

concluded that ginger tea was effective in treating nausea and vomiting during early pregnancy. Ginger is regarded to be a safe herb for both mother and baby during pregnancy.

### **Ethical Considerations:**

Informed consent was obtained from all the subjects involved in the study and approved by the Research Ethics Committee of SGRRU School of Nursing.

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