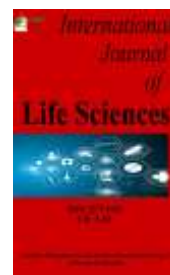


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Full Length Research Paper

Effectiveness of Vitamin B6 in the Treatment of Nausea and Vomiting in Early Pregnancy among Primi Antenatal Mothers

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ARTICLE DETAILS

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ABSTRACT

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. It could be caused by a drop in blood sugar or an increase in pregnancy hormones such as human chorionic gonadotropin (HCG) or oestrogen. The aim of this study is to evaluate the effectiveness of Vitamin B6 in the treatment of nausea and vomiting in early pregnancy among primi antenatal mothers. A study involving 40 participants (20 experimental and 20 controls) was conducted in Arihant Hospital Obstetrics OPD. Non-probability purposive sampling technique was used for selecting the sample for the study. Modified Rhodes Index of nausea and vomiting and retching was used to assess the level of nausea and vomiting. The primi antenatal mothers were given Vitamin B6 tablet of 25 mg twice daily morning and evening with water for five consecutive days and on 6th day post test was conducted only to the experimental group, the results were analyzed using descriptive and inferential statistic, on the basis of objectives and hypothesis of the study. Posttest mean nausea and vomiting scores among control and experimental groups 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 study concludes that administration of Vitamin B6 alone was beneficial effects for women suffering from nausea and vomiting during pregnancy.

1. Introduction

A first pregnancy is similar to any other first experience. When a woman becomes pregnant, she is acutely aware that a new life is developing inside her for the following nine months. She is curious and concerned about the upcoming changes. The first trimester of pregnancy is marked with enthusiasm and celebration. However, it can also be a time of significant physical and emotional transitions. 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.

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. Severity ranges from moderate aversion for particular foods to severe vomiting. The illness is not limited to the early morning hours; it can strike at any time of day. Several hormones were suggested to be the cause of NVP. Among these are human chorionic gonadotropin (HCG), and elevated estrogen. Pyridoxine, or vitamin B6, is a water-soluble vitamin that your body needs for many different processes.

It is necessary for the synthesis of red blood cells and neurotransmitters, as well as for the metabolism of protein, fat, and carbohydrates. Consuming vitamin B6 helps the body regulate its blood sugar levels and reduces nausea and vomiting. The

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entire amount of vitamin B6 required by pregnant women should come from their food and prenatal supplements. A normal dose of vitamin B6 for morning sickness is 10 mg to 25 mg three times a day.

1.1 Objectives

To assess the level of nausea and vomiting before and after intervention in early pregnancy among primi antenatal mothers in experimental group and control group. To assess the effectiveness of vitamin B6 on nausea and vomiting in early pregnancy among primi antenatal mothers in experimental group. To find out the association between level of nausea with selected demographic variables in early pregnancy among primi antenatal mothers

1.2 Research hypothesis

H₁-There will be significant difference between pre-test and post-test scores on level of nausea and vomiting among primi antenatal mothers in experimental group at 0.05 levels.

H₂-There will be significant difference between pre-test and post-test scores on level of nausea and vomiting among primi antenatal mothers in control group at 0.05 levels.

H₃-There will be significant difference between post test scores on level of nausea and vomiting among primi antenatal mothers in control and experimental group at 0.05 levels.

H₄-There will be significant association between levels of nausea and vomiting among primi antenatal mothers with selected demographic variables at 0.05 levels.

2. Materials and methods

2.1 Study area

A quasi-experimental study was carried out to assess the effectiveness of vitamin B6 in the treatment of nausea and vomiting in early pregnancy among primi antenatal mothers, in Arihant Hospital OPD.

2.2 Sampling Population and size

The participants were primi antenatal mothers who were attending antenatal OPD in Arihant Hospital, Dehradun. However, mothers who are taking other home remedy, antiemetic drugs and who are in risk were excluded from the study. Out of the eligible participants, 40 mothers were included in the study (20 experimental and 20 control).

2.3 Sampling Methodology

Non-probability purposive sampling technique was used for selecting the sample for the study.

2.4 Data Analysis

The study was conducted using modified Rhodes Index of nausea and vomiting and retching. The scales were classified as symptoms experienced, symptoms occurrence and symptoms distress. Pretest was conducted for both the experimental and the control group, then vitamin B6 25mg was administered for seven consecutive days morning and evening on the same dates of pretest only to experimental group. Post-test was conducted on 8th day using the same scale to evaluate the effectiveness of Vitamin B6. The results were analysed using descriptive and inferential statistic, on the basis of objectives and hypothesis of the study. The results were presented in table form and also visually represented using bar diagrams.

3. Results

Table 1. Frequency and Percentage Distribution of Demographic Variables.

Characteristics	Category	N = 40					
		Control(n=20)		Respondents Experimental (n=20)		Combined(n=40)	
		N	%	N	%	N	%
Age group (years)	18-20	10	50.0	13	65.0	23	57.5
	21-23	7	35.0	4	20.0	11	27.5
	24-26	3	15.0	3	15.0	6	15.0
Educational status	Illiterate	4	20.0	6	30.0	10	25.0
	Primary	7	35.0	8	40.0	15	37.5
	Secondary	5	25.0	2	10.0	7	17.5
Occupational Status	PUC	4	20.0	4	20.0	8	20.0
	House wife	5	25.0	5	25.0	10	25.0
	Daily wages	7	35.0	7	35.0	14	35.0
	Self Employed	4	20.0	2	10.0	6	15.0

Duration of Married life	Private	4	20.0	6	30.0	10	25.0
	<1 year	4	20.0	8	40.0	12	30.0
	1-2 years	14	70.0	9	45.0	23	57.5
	3-4 years	2	10.0	3	15.0	5	12.5
Duration of pregnancy	4-6 weeks	7	35.0	6	30.0	13	32.5
	7-9 weeks	8	40.0	10	50.0	18	45.0
	10-12 weeks	5	25.0	4	20.0	9	22.5

Table: 2 Overall Pretest mean nausea and vomiting scores among control and experimental group

Religion	Hindu	16	80.0	14	70.0	30	75.0
	Muslim	4	20.0	6	30.0	10	25.0
Food habits	Vegetarian	9	45.0	8	40.0	17	42.5
	Non vegetarian	11	55.0	12	60.0	23	57.5
Type of family	Nuclear	5	25.0	6	30.0	11	27.5
	Joint	15	75.0	14	70.0	29	72.5
Family Income/month	Rs.2,000-4,000	9	45.0	8	40.0	17	42.5
	Rs.4,001-6,000	6	30.0	6	30.0	12	30.0
	Rs.6,001-9,000	5	25.0	6	30.0	11	27.5
Health service utilization	Government	18	90.0	18	90.0	36	90.0
	Private	2	10.0	2	10.0	4	10.0
Previous Information on Vitamin B6	No	20	100.0	20	100.0	40	100.0

Groups	Max Score	Sample (n)	Respondents Nausea and 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 2 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 was 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 was statistically non-significant at 0.05 level.

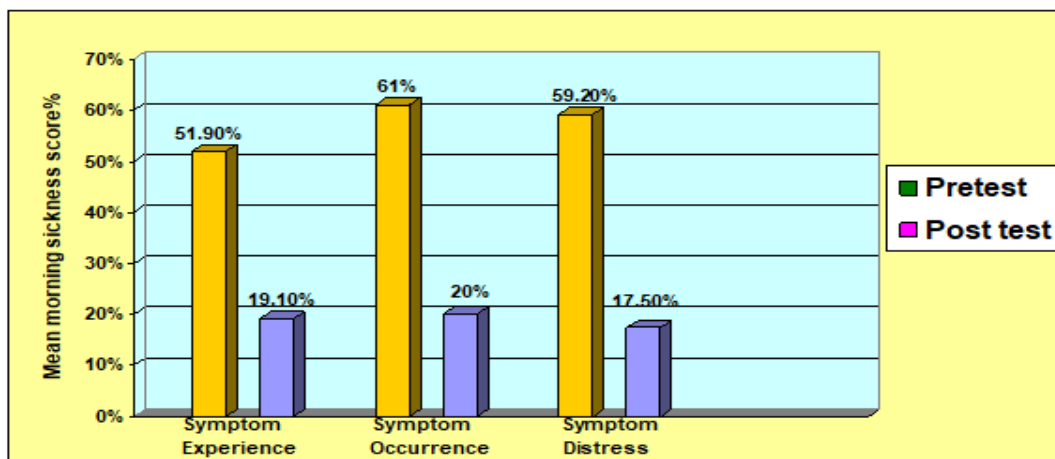


Fig 1: Aspect wise posttest mean nausea and vomiting scores among control and experimental group.

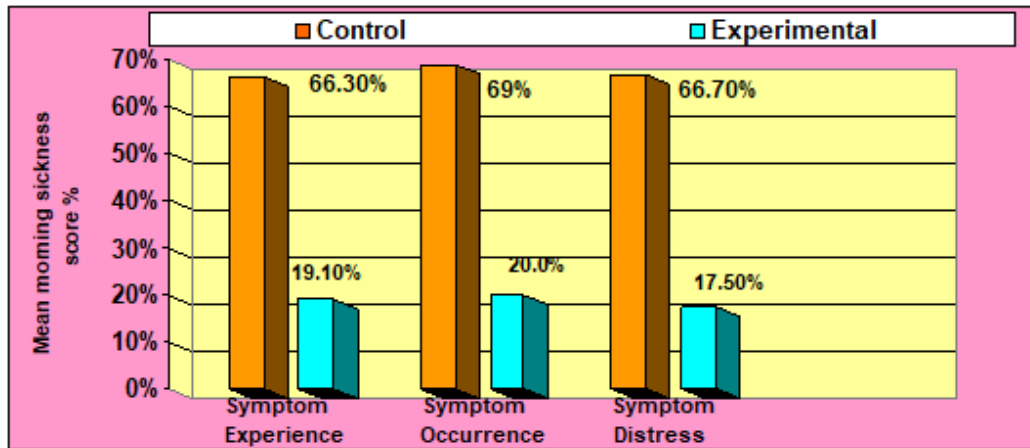


Fig 2: Aspect wise pretest and post-test nausea and vomiting scores of experimental groups

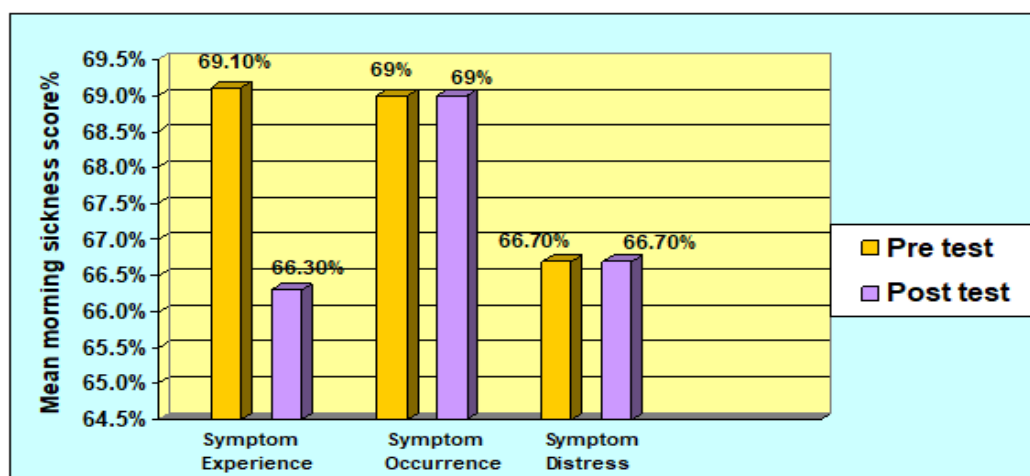


Fig 3: Aspect wise pretest and posttest nausea and vomiting scores of control group

Table 3: Over all Post test Mean Nausea and Vomiting Scores among Control and Experimental group

Groups	Sample (n)	Respondents Nausea and 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 3: 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 was 10.50 which was significant at 0.05 level. Therefore, research hypothesis H₃ was accepted which indicates that Vitamin B₆ was effective in treating of nausea and vomiting during pregnancy.

Table 4: Association between pretest nausea and vomiting experience level with selected demographic variables

Demographic variables	Symptom Experience		Symptom Occurrence		Symptom Distress	
	X ²	P value	X ²	P value	X ²	P value
Age	36.8*	<0.05	2.29 NS	>0.05	23.3*	<0.05
Duration of pregnancy	3.57 NS	>0.05	6.00*	<0.05	3.32 NS	>0.05
Religion	1.25 NS	>0.05	1.67 NS	>0.05	0.06 NS	>0.05
Educational status	1.70 NS	>0.05	3.05 NS	>0.05	0.88 NS	>0.05
Occupational status	1.38 NS	>0.05	2.59 NS	>0.05	1.05 NS	>0.05
Food habits	0.05 NS	>0.05	0.61 NS	>0.05	0.09 NS	>0.05
Duration of married life	2.14 NS	>0.05	0.76 NS	>0.05	3.67 NS	>0.05

Type of family	6.67*	<0.05	4.36*	<0.05	7.94*	<0.05
Family income / month	0.07 NS	>0.05	0.62 NS	>0.05	1.64 NS	>0.05

* Significant at 5% Level, NS: Non-significant

Table 4 indicates exist of significant association among the control group in some of the demographic variables with the pretest scores and non-significant association with some variables

Table 5: Association between Demographic variables and Pretest Nausea and Vomiting level among Experimental group
N = 40

Demographic variables	Symptom Experience		Symptom Occurrence		Symptom Distress	
	X ²	P value	X ²	P value	X ²	P value
Age	21.6*	<0.05	21.6*	<0.05	11.8*	<0.05
Duration of pregnancy	10.77*	<0.05	7.78*	<0.05	7.78*	<0.05
Religion	3.78 NS	>0.05	6.71*	<0.05	2.54 NS	>0.05
Educational status	5.90 NS	>0.05	8.72*	<0.05	3.51 NS	>0.05
Occupational status	3.53 NS	>0.05	5.58 NS	>0.05	2.30 NS	>0.05
Food habits	7.18*	<0.05	4.20*	<0.05	1.25 NS	>0.05
Duration of married life	9.50*	<0.05	7.27*	<0.05	2.93 NS	>0.05
Type of family	0.01 NS	>0.05	1.94 NS	>0.05	0.16 NS	>0.05
Family income / month	0.95 NS	>0.05	1.25NS	>0.05	2.64 NS	>0.05

* Significant at 5% Level, NS: Non-significant

Table 5 indicates exist of significant association among the experimental group in some of the demographic variables with the pretest scores and non-significant association with some demographic variables.

4. Discussion

Objective - I: To assess the level of nausea and vomiting in early pregnancy among primi antenatal mothers in 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 was 1.39 which was non-significant.

The above finding was supported by a study conducted by Masami Hirose et al. 2019 a prospective cohort study from August 2018 to February 2019 on the impact of nausea, vomiting, and social support on health-related quality of life during early pregnancy among early pregnant women treated as perinatal outpatients in a general hospital. At their initial prenatal appointment, 153 pregnant women aged 20 and above were less than 20 weeks pregnant. Participants completed the Index of Nausea, Vomiting, and Retching (INVR), the 12-item Short Form Health Survey (SF-12), and the Multidimensional Scale of Perceived Social Support (MSPSS) in addition to reporting their sociodemographic data. They also re-completed the INVR and SF-12 at follow-up checkups up to three times. After correcting for internal correlations and confounding factors, INVR was found to be significantly adversely linked with the physical component summary scale score of the SF-12, whereas MSPSS had no association with the physical component summary scale. In contrast, both INVR and MSPSS scores were substantially linked with the SF-12 mental component summary scale score, negatively and favourably, respectively. The degree of nausea and vomiting has a substantial impact on physical quality of life in early pregnancy. Both nausea and vomiting, as well as social support, have a major and independent effect on mental quality of life. Health workers should be aware of these effects and how social support can help improve mental health.

Objective -II: To assess the effectiveness of vitamin B6 on nausea and vomiting in early pregnancy among primi antenatal mothers of experimental group.

The posttest mean nausea and vomiting scores and paired 't' value in regard to symptom experience was 42.8 and 21.51, in the aspect of symptom occurrence 41.0 and 15.67 and in the aspect of symptom distress the values are 41.7 and 16.2. However, the statistical paired 't' test implies that there is difference in the pretest and posttest nausea and vomiting scores of experimental group in various aspects which was found statistically significant at .05% level. Hence the first research hypothesis H₁ is accepted at 0.05 levels which indicates vitamin B6 is effective on reducing of nausea and vomiting in early pregnancy among first primi antenatal mothers.

The current study findings reveal that, in the aspect of symptom experience mean posttest nausea and vomiting score of Experimental Group and Control Group was 19.01% and 66.3%, in the aspect of symptom occurrence score was 20% and 69% and in symptom distress score was 17.5% and 66.7%. The obtained 't' value in the aspect of symptom experience were 9.87, in the aspect of symptom occurrence 9.89 and in the aspect of symptom distress 11.50. Hence, there is

significant difference in the post test nausea and vomiting scores of primi antenatal mothers among Experimental and Control Group. Therefore, research hypothesis H₃ is accepted.

The above findings were supported by a study conducted by Jayawardena R. et al. 2023 studied the effects of pyridoxine (vitamin B6) supplementation on nausea and vomiting during pregnancy. The current study seeks to carefully examine the available evidence supporting pyridoxine's efficacy in the treatment of NVP. Data were gathered through a step-by-step search of the online medical databases listed below using keywords. Studies that reported interventions using pyridoxine supplementation alone or in combination with other active agents were included. A meta-analysis was conducted using the PUQE score and Rhode's score for nausea and vomiting. Initial database searches yielded 548 potentially eligible publications, from which 18 studies meeting the inclusion criteria were selected. Eight research revealed that supplementing with pyridoxine alone had a positive effect, while six others found that supplementing with pyridoxine in combination with another active substance was beneficial. Supplementing pyridoxine alone or with an active ingredient significantly improved nausea symptoms, as measured by Rhode's score [0.78 [95% CI: 0.26, 1.31; p = 0.003; I₂ = 57%, p = 0.10]] and PUQE score [0.75 [95% CI: 0.28, 1.22; p = 0.002; I₂ = 0%, p = 0.51], respectively]. Pyridoxine supplementation, both alone and in combination with an active substance, has been shown to benefit women suffering with NVP.

5. Conclusion

Nausea and vomiting during early gestation continue to be an important public health concern, affecting women, their families, and society on physiological, emotional, social, and economic levels. The usage of ginger and vitamin B6 in early gestation can help women who are experiencing nausea and vomiting by reducing the severity of their symptoms and giving them an alternate therapy option for managing such symptoms. This meta-analysis suggested that supplementing with vitamin B6 considerably reduces nausea and vomiting in early pregnancy. Additionally, vitamin B6 has a low risk of side effects, and is available without a prescription. Vitamin B6 is required for the body's overall health and fitness and also for the proper functioning of the brain and nerve system, and so plays an important part in the development of the developing fetus. To validate the efficacy of Vitamin B6 supplements in the management of NVP, larger sample size would be required.

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