

Effectiveness of intervention programme on glyceic control among mothers with gestational diabetes mellitus at Venkatachalam, Nellore, Andhra Pradesh

¹ C Hemalatha, ² P Latha

¹ M.Sc. Nursing, Dept of OBG, Narayana College of Nursing, Nellore, Andhra Pradesh, India

² Associate Professor, Dept of OBG, Narayana College of Nursing, Nellore, Andhra Pradesh, India

Abstract

Background: A woman with gestational diabetes needs to control her blood sugar in order to avoid problems such as high blood pressure, early delivery or the need for a caesarean delivery. The baby may be extra-large which will cause discomfort in the later stages of pregnancy and difficulties in delivering the baby.

Objectives 1: To assess the blood sugar levels among mothers with Gestational diabetes mellitus. 2. To evaluate the effectiveness of intervention programme on glyceic control among mothers with Gestational Diabetes Mellitus. 3. To associate the effectiveness of intervention programme on glyceic control among mothers with Gestational Diabetes Mellitus with their selected socio demographic variables.

Methods: An quantitative approach with quasi-experimental- design was adopted. 60 antenatal mothers from Venkatachalam Mandal, Nellore, A.P. by using non-probability convenience sample technique. Pretest and post test blood glucose score was assessed through glucometer followed by intervention programme.

Results: The study Showed that, in experimental group- pre-test 13(43.33%) had normal FBS and 17(56.66%) had hyperglycemia. Regarding PPBS, 6(20%) had normal PPBS and 24(80%) had hyperglycemia. Whereas in post test, 3(10%) had normal FBS. 27(90%) had hyperglycemia. Regarding PPBS 8(26.6%) had normal PPBS, 22(73%) had hyperglycemia. In control group in pre-test 15(50%) had normal FBS. 16(53.3%) had hyperglycemia? Regarding PPBS 7(23%) had normal PPBS, 23(76.66%) had hyperglycemia. Where as in post test 16(53.33%) had normal FBS. 14(46.66%) had hyperglycemia. Regarding PPBS 24(80%) had normal PPBS, 6(20%) had hyperglycemia. It is showing that Intervention programme on glyceic control among mothers with Gestational Diabetes Mellitus is more effective on glyceic control.

Conclusion: The present study concluded that there was a significant difference between the pre test and post test of blood glucose level. Hence, it is concluded that, the Intervention Programme on glyceic control was effective in controlling the blood sugar level in mothers with Gestational Diabetes Mellitus.

Keywords: intervention programme, glyceic control, gestational diabetes mellitus

Introduction

The risk for having a baby with birth defects is directly correlated with how poorly the blood sugar was controlled during the first few weeks of pregnancy

- Steve Holtby

The growing fetus depends entirely on its mother's healthy body for all needs. Pregnant women should take into account many health care and lifestyle considerations. During pregnancy, increased levels of certain hormones made in the placenta help to shift nutrients from the mother to the developing fetus [4]. Other hormones are produced by the placenta to prevent the mother from developing low blood sugar. They work by resisting the actions of insulin. In addition estrogen and progesterone also contribute to a disruption of the glucose insulin balance increased maternal adipose deposition, decreased exercise, and increased caloric intake also contribute to a disruption of the glucose insulin balance [1].

Need for the study

World health organization (WHO) estimates that gestational diabetes mellitus around 40.9 million in 2006 and is expected

to rise to 69.9 million by 2025. Gestational diabetes mellitus complicates 1-20% of all pregnancies worldwide [2]. In India a randomized study was conducted to know the incidence of Gestational Diabetes Mellitus. The sample size was 500 pregnant mothers, and the incidence was 6.6% women among 24-28 wks of gestation [6]. In Andhra Pradesh a prospective study was performed to assess the prevalence of Gestational Diabetes Mellitus. The sample size was 400 pregnant mothers, and the incidence was 5-7% women among 24-28 wks of gestation [3].

A randomized study was conducted to examine the effect of regular moderate-intensity exercise (three training sessions/week) on the incidence of gestational diabetes mellitus (GDM, primary outcome) sample size is randomly assigned. 510 healthy gravida to either an exercise intervention or a usual care (control) group (n=255 each). The exercise programme focused on moderate-intensity resistance and aerobic exercises (three times/week, 50-55 min/session). Result shown that the intervention reduced by 58% the GDM-related risk (WHO criteria) of having a newborn with macrosomia (OR 1.76, 95% CI 0.04 to 78.90 vs. 4.22, 95% CI 1.35 to 13.19) in exercise and control groups, respectively), and by 34% the GDM-related risk of having acute and

elective caesarean delivery (OR 1.30, 95% CI 0.44 to 3.84 vs. 1.99, 95% CI 0.98 to 4.06 in exercise and control groups, respectively). Regular moderate-intensity exercise performed over the second-third trimesters of pregnancy can be used to attenuate important GDM-related adverse outcomes [5].

A study is conducted to assess the random blood glucose level and to associate with socio demographic variables. Descriptive study was conducted in Narayana Medical College Hospital, Nellore. 100 people with age group of 32 to 50 years those who are attending OPD were selected by convenience sampling and random blood glucose level were screened by using glucometer. The result showed that, Out of 100 people 15% were above border line [>140], 15% are borderline [120-140] and remaining 70% had normal random blood sugar Level [3].

Statement of the problem

A study to evaluate the effectiveness of intervention programme on Glycemic control among mothers with gestational diabetes mellitus in selected villages, at Nellore.

Objectives

1. To assess the blood sugar levels among mothers with Gestational diabetes mellitus.
2. To evaluate the effectiveness of intervention programme on glycemic control among mothers with Gestational Diabetes Mellitus.
3. To associate the effectiveness of intervention programme on glycemic control among mothers with Gestational Diabetes Mellitus with their selected socio demographic variables.

Research Hypotheses

H₁: There is a statistically significant difference on glycemic control after the intervention program among mothers with Gestational Diabetes Mellitus.

H₂: There is a statistically significant association between the effectiveness of intervention program on Glycemic

control among mothers with Gestational Diabetes Mellitus with their selected socio demographic variables.

Materials and Methods

- **Research Approach:** Quantitative Approach.
- **Design:** Quasi-Experimental design.
- **Setting:** Vekatachalam Mandal, Nellore, Adhra pradesh.
- **Population: Target Population:** All antenatal mothers with gestational diabetes mellitus.
- **Accessible Population:** Mothers with Gestational diabetes mellitus in a selected village at Nellore.
- **Sample size:** 60 antenatal mothers
- **Sampling Technique:** Non-probability convenience sample technique

Sampling Criteria

Inclusion Criteria

- Mothers with gestational diabetes mellitus, living in a selected village at Nellore.
- Who are willing to participate in the study.
- Who can speak and understand Telugu or English.

Exclusion Criteria

- Mothers with complications like pregnancy induced Hypertension,
- Placental abnormalities like placenta previa, Polyhydramnios & Malpresentations

Description of the Tool

It consists of two sections.

- **Section-I:** Demographic variables.
- **Section-II:** Blood Glucose Levels Monitoring (FBS & PPBS)
- **Section-III:** Intervention Protocol (1.Physical Activities-Aerobic Exercises, 2. Diet- Diabetic diet, 3.Rest, 4.Spiritual Activities, 5.Medical Treatment)

Results and Discussion

Table 1: Frequency & percentage distribution of pre test and post test scores among mothers in experimental group and control group. (N=60)

S. No	Criteria	Pre-test FBS				Post-test FBS				Pre-test PPBS				Post-test PPBS			
		Normal		Hyper-glycemia		Normal		Hyper-glycemia		Normal		Hyper-Glycemia		Normal		Hyper- Glycemia	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
1.	Exp group (n)=30	13	43.3	17	56.6	3	10	27	90	6	20	24	80	8	26.6	22	73.3
2.	Control group (n)=30	15	50	15	50	16	53.3	14	46.6	7	23.3	23	76.6	24	80	6	20

Table-1 showed that, in experimental group- pre-test 13(43.33%) had normal FBS and 17(56.66%) had hyperglycemia. Regarding PPBS, 6(20%) had normal PPBS and 24(80%) had hyperglycemia. Whereas in post test, 3(10%) had normal FBS. 27(90%) had hyperglycemia. Regarding PPBS 8(26.6%) had normal PPBS, 22(73%) had hyperglycemia. In control group in pre-test 15(50%) had normal FBS. 16(53.3%) had hyperglycemia. Regarding PPBS

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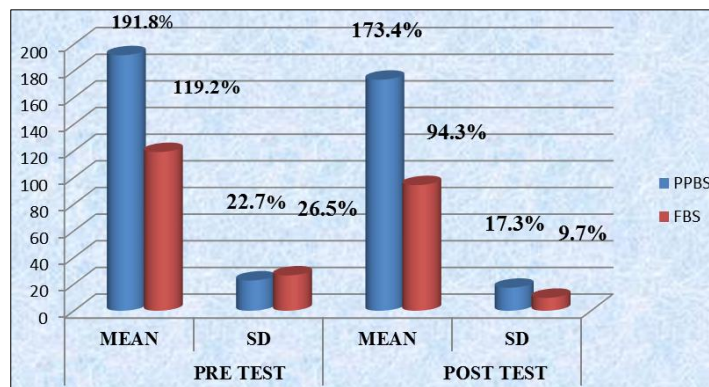


Fig 1: Comparison of Mean, Standard deviation (paired ‘t’ test) between pre-test and post test of blood glucose levels in experimental group.

Table 2: Comparison of mean and standard deviation of post test scores of blood glucose levels in experimental group and control group (N=60)

Criteria	Experimental group (n=30)		Control group (n=30)		Independent ‘t’ test
	Mean	S.D	Mean	S.D	
FBS	94.3	9.68	107.53	14.13	C=5.7, T=3.66, S***, P< 0.001
PPBS	173.4	17.25	204.66	28.35	C= 4.6, T=3.66, S***, P< 0.001

S***= Very highly significant at P< 0.001 df_(n-1) =29

Association between post test FBS levels in experimental group with socio demographic variables.

There was a significant association found between post test FBS levels with age, parity, treatment taken for GDM and family history of GDM at P<0.05 level. Also there was a significant association found between post test PPBS level with age, parity, family history of GDM at P<0.05 level.

Conclusion

The present study concluded that there was a significant difference between the pre test and post test blood glucose levels. Hence, it can be concluded that, the Intervention Programme on glyceimic control was effective in controlling the blood sugar level in mothers with Gestational Diabetes Mellitus.

Recommendations

- A similar study can be conducted with larger sample size.
- A similar study can be done by comparing the effectiveness of intervention programme among primi & multi mothers.
- A similar study can be done by comparing the effectiveness of intervention programme in clinical settings.

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