

Original Research Article

“Knowledge Of Antenatal Mothers Regarding Effect Of Exercise On Gestational Diabetes Mellitus At Selected Antenatal Services Vadodara,Gujarat”

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ABSTRACT:

Background: One of the most typical pregnancy issues is gestational diabetes mellitus, which has detrimental short- and long-term implications on the health of both the mother and the foetus. Women who are expecting should be aware of the advantages of prenatal exercise. They ought to be excited about the prenatal exercises.

Objectives:

1. To assess the knowledge of antenatal mothers regarding effect of exercise on gestational diabetes mellitus.
2. To determine the association between knowledge of antenatal mothers with selected demographic variables.

Methods:

The sample for the investigation was chosen using the practical sampling technique. A structured knowledge questionnaire with three sections was used to collect the data. The respondent's socio-demographic information is in the first part. The second portion covers mothers' knowledge about exercise. Using descriptive and inferential statistics, the data was examined.

Results:

More than half (44%) of the respondents fell between the age range of 24-28 years, and 34% had completed primary school. 50 percent of mothers had a status as a housewife as their occupation. Nuclear families made up 50% of all families, while joint families made up 24%. Mothers made more than \$10,000 per month (48%) and between \$5,000 and \$7,000 (22%) for their families. reveals that 34% of mothers had inadequate understanding of exercise whereas 66% of mothers had strong knowledge. Pregnant women practicing prenatal exercise received the highest area-wise mean and SD scores for relaxation (64 25.4) and breathing exercises (52.7 12.6). Mother's

educational status in multivariable logistic regression analysis, Place of residence and family monthly income were the factors that significantly associated with the exercise so $p < 0.005$.

Conclusion:

The majority of pregnant women with gestational diabetes had exercise knowledge considerably below the bare minimum anticipated. Gestational mother required proper knowledge regarding exercise.

Keywords: Antenatal Mothers, Exercise, Gestational diabetes mellitus, Antenatal services

INTRODUCTION:

No woman may oppose to pregnancy because it is one of nature's magnificent and noble functions. This is a happy, exciting, anxious, and fearful moment. Some of the most frequent maternal health disorders or difficulties a woman may suffer during pregnancy include anaemia, UTI, mental health condition, hypertension, gestational diabetes mellitus, obesity and weight gain, infection, and hyperemesis gravidarum. A metabolic condition called diabetes mellitus interferes with the metabolism of proteins, lipids, and carbs. Today, Type 2 diabetes or pregnancy-related diabetes affects the majority of women. The International Diabetes Federation reports an increase in the prevalence of high blood sugar during pregnancy. Increases quickly with ageing, peaking in 2019 among women 45 and older.³ The main causes and risk factors for gestational diabetes mellitus are age > 25 years, pre-gestational obesity or excessive weight gain during pregnancy, family history of diabetes, personal history of poor obstetric outcomes like polyhydramnios, macrosomia, and pre-eclampsia, foetal malformation of an ethnic group with a high risk prevalence of diabetes, and history of diabetes mellitus in previous pregnancy. Macrosomia risk, caesarean section rates, and other neonatal morbidities such major birth trauma, hypoglycemia, hypocalcaemia, polycythemia, and hyperbilirubinemia have all been associated to diabetes during pregnancy. The goal of management is to reduce perinatal mortality and morbidity as a result.

Insulin resistance, inadequate insulin production, or both are features of the metabolic disease diabetes. The most prevalent metabolic condition, diabetes mellitus, affects 3-5 percent of all pregnancies and is associated with severe maternal and neonatal morbidity and mortality.⁵

The prevalence of hyperglycemia during pregnancy increases along with the prevalence of obesity and Diabetes Mellitus among women of childbearing age. One in every 25 pregnancies around the world is impacted by gestational diabetes mellitus. According to the American Diabetes Association, 7% of all pregnancies are affected with gestational diabetes mellitus.⁶ The prevalence ranges from 1 to 14 percent based on the demographic sample and diagnostic criteria.⁷ It is the most common metabolic disorder in pregnant women, with serious maternal and neonatal consequences. This condition is first identified in late pregnancy. The number of diabetic patients is expected to double by 2030, which will have an impact on pregnant women.⁸

A prospective study of the prevalence of carbohydrate intolerance in pregnant women in western India (Maharashtra). In 2018-2019, the sample size was 1225 women ranging in age from 25 to 40 years. The results show that the prevalence of Gestational Diabetes Mellitus is 21.6 percent, implying that Gestational Diabetes Mellitus affects one-fifth of pregnant women in Western India.⁹

METHODOLOGY:**Study Area And Period:**

Study was conducted in selected ANC hospitals at Vadodara. Study from November 15- December 10, 2022.

RESEARCH DESIGN: Descriptive cross sectional Research design

Population

➤ **Source population:**

The source population was all Antenatal mothers who have attending ANC services at Vadodara

➤ **Study population:**

All sampled Antenatal mothers who have attending ANC services at Vadodara during study period.

SAMPLE:

Sample includes 100 antenatal mothers with gestational diabetes mellitus in selected Antenatal Care Services at Vadodara.

SAMPLING TECHNIQUE:

Non probability convenience sampling technique.

INCLUSION CRITERIA AND EXCLUSION CRITERIA:

➤ **Inclusion criteria**

All sampled mothers those who had gestational diabetes mellitus and attending at ANC services, in the study period.

➤ **Exclusion criteria**

Antenatal Mothers those who are severely ill during data collection period and unable to communicate was excluded from our study.

VARIABLES

➤ **Dependent Variable:** Effect of exercise on gestational diabetes mellitus

➤ **Independent Variables:** Age, educational status, Occupation, Religion, Family monthly income, previous history of gestational diabetes mellitus.

OPERATIONAL DEFINITIONS

1. **Knowledge:** In the present study knowledge refers to information, and skills acquired through experience or education the exercise on gestational diabetes mellitus

2. **Effect:** In this study, effect refers to the exercise a change that results when something is done or happens

3. **Gestational diabetes mellitus:** In this study, Gestational diabetes mellitus refers to the glucose intolerance of variable degree with onset or first recognition during pregnancy.

4. **Antenatal mother:** In this study, antenatal mother refers to the medical care of the mother during pregnancy.

5. **Antenatal services:** In this study, antenatal services refers to the percentage of women aged 15 to 49 with a live birth in a given time period that received antenatal care.

DATA COLLECTION INSTRUMENT AND PROCEDURE

Structured and semi-structured English version questionnaire was prepared from the literature review by principal -investigators. Translation to Gujarati version and again translated to English

version were used by the principal investigators before starting the data collection time, it's correctness was checked before starting data collection time. It includes about mothers' socio-demographic factors, effect of exercise on antenatal mothers.

DATA COLLECTION INSTRUMENT AND METHODS:-The data collector was the group members. Face to face interview held privately after verbal consent is obtained from each participant. The data was collected until the required sample size achieved.

DATA PROCESSING AND ANALYSIS

The coded data were entered to computer by using Statistical Package for Social Science (SPSS) version 23 statistical software for analysis. Cleaning were performed by using frequency distribution .Any error were corrected after revision of the original data using the code numbers of the questionnaires. Frequencies were computed for description of the study population in relation to socio-demographic and other relevant variables. The association between independent and dependent variable determined by odd ratio with 95% CI and P- value less than considered as statistically significance. All variables with $P < 0.2$ in the bi variate analysis were included in the final model of multivariate analysis in order to control all possible confounders. The direction and strength of statistical association was measured by odds ratio with 95% CI. Adjusted odds ratio along with 95% CI was estimated to identify association factors for knowledge about effect of exercise on gestational diabetes mellitus by using multivariate analysis in the binary logistic regression. In this study P-value < 0.05 was considered to declare a result as statistically significant association. The result presented by charts, figures, and tables.

ETHICAL CONSIDERATION

The ethical clearance was obtained from college and antenatal care service hospital. The purpose of the study was briefly explained for the respondents and verbal consent was obtained.

RESULTS:

Table:1 Socio-Demographic Characteristics of the respondents

Variables	Category	Number	Percent (%)
Age of the mothers	18-23	33	33
	24-28	44	44
	29-33	23	23
Educational level	Primary	34	34
	Secondary	23	23
	High school	21	21
	PUC	12	12
	Graduate and above	10	10
Occupational status	Private	20	20
	House wife	50	50
	Agriculture	15	15
	government	15	15
Religion	Hindu	50	50
	Christan	22	22
	Muslim	28	28
Place of residence	Rural	20	20
	Urban	80	80
Type of family	Nuclear	50	50
	Joint	24	24
	Extended	26	26
Family monthly income	Rs.5000-7000	22	22
	Rs.7000-8000	30	30
	Rs.>10000	48	48
Total		100	100

In this study, a total of 100 gestational diabetes mellitus antenatal mothers were interviewed making the response rate to be 100%. The socio-demographic characteristic of the respondents is described in **Table 1**. More than half (44%) the respondents were in the age group 24-28 years and (33%) were 18-23 years. Concerning the educational status of mothers, (34%) had attended primary school and (10%) had attend graduation and above. The majority of mothers (50%) occupation statuses were house wife, (15%) were agriculture and government employee. religion (50%) of the mothers were Hindu and (22%) were Christian .place of residence (80%) of thee mothers were urban and (20%) of the mothers were rural. Type of family (50%) were nuclear family and (24%) were joint family. Family monthly income (48%) mothers were income more than 10,000 and (22%) were 5000-7000.

Table:2 Classification of the antenatal mothers by obstetrical score, children and source of knowledge

Characteristics	Category	Respondent	
		Number	Percent
Obstetrical score	First	32	32.0
	Second	48	48.0
	Third	20	20.0
No. of children	One	30	30.0
	Two	50	50.0
	Three	20	20.0
Source of information	Television	20	20.0
	Radio	5	5.0
	Books	15	15.0
	Magazines	15	15.0
	Hospitals	27	27.0
	Friends/relatives	18	18.0
Total		100	100

Table 2: Shows that antenatal mothers obstetrical score, children and source of knowledge, obstetrical score of mothers were (48%) second and (20%) were three.(50%) mothers two children and (30%) of the mothers were one children.27%) of the mothers got information about exercise hospitals and (5%) of the mothers got from radio.

Knowledge of gestational diabetes mellitus mothers

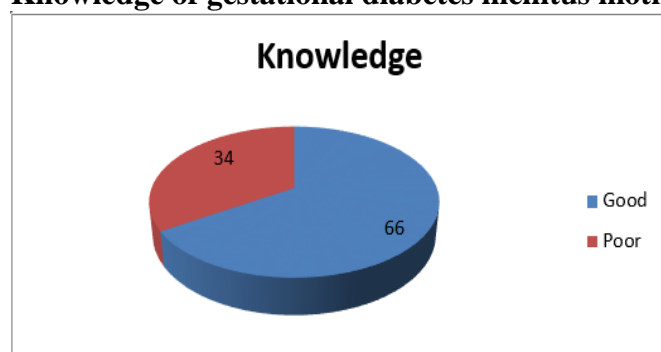


Figure.1. Reveals that 66%) of the mothers were having good knowledge about exercise and (34%) of the mothers were poor knowledge about exercise.

Table:3 Area wise mean practice score on antenatal exercise among pregnant women

S.No	Exercise	Mean	SD
1	Mobilization exercise	37.3	18.6
2	Aerobic exercise	39.0	10.8
3	Circulatory exercise	17.4	13.4
4	Abdominal exercise	17.4	13.4
5	Pelvic exercise	32.0	23.0
6	Breathing exercise	52.7	12.6
7	Relaxation	64	25.4

Table 3: Shows that Area wise mean and SD practice score on antenatal exercise among pregnant women relaxation mean and SD (64 ± 25.4) followed by breathing exercise (52.7 ± 12.6), aerobic exercise mean and SD (39 ± 10.8), mobilization exercise mean and SD (37.3 ± 18.6), followed by pelvic exercise mean and SD (32 ± 23.0), however least exercise skill abdominal exercise and circulatory exercise mean and SD (17.4 ± 13.4).

Table 4:- Bivariate and multivariate logistic regression analysis of knowledge on gestational diabetes antenatal mothers regarding exercise

Variable	Overall knowledge	
	Crude OR (95% CI)	Adjusted OR (95% CI)
Educational level		
primary	0.13(0.59,0.289)*	0.356(0.145,0.878)*
Secondary	0.216(0.125,0.373)*	0.489(0.253,0.946)*
High school	0.312(0.154,0.235) *	0.12(0.216,0.321) *
PUC	0.212(0.114,0.215) *	0.212(0.104,0.225) *
Graduation and above	1	1
Place of residence		
Urban	0.358(0.170,0.751)*	2.665(1.469,4.834)*
Rural	1	1
Age of mother		
18-23	3.33(0.335,33.205)	2.774(0.136,56.757)
24-28	7.4(0.755,72.562)	7.658(0.382,153.402)
29-33	1	1
Family monthly income		
5000-7000	0.13(0.59,0.289)*	0.356(0.145,0.878)*
7000-8000	0.216(0.125,0.373)*	0.489(0.253,0.946)*
>10000	1	1

Note: * statistically significant at 95% CI, $P < 0.05$; 1 = reference, OR-Odd ratio

In multivariable logistic regression analysis mother educational status, Place of residence and family monthly income were the factors that significantly associated with the exercise so $p < 0.005$

DISCUSSION:

The purpose of this study was to assess knowledge of gestational diabetes mellitus mothers regarding antenatal exercise. In this study Reveals that (66%) of the mothers were having good knowledge about exercise and (34%) of the mothers were poor knowledge about exercise. Antenatal exercise is an important aspect, which, in most of the cases, is neglected by the expectant mothers. The investigation about knowledge regarding antenatal exercise among pregnant women will enable to design appropriate educational intervention. The studies on antenatal exercise serve to enrich the population under study by raising level of understanding and increasing curiosity in them. The focus of this study was to assess knowledge of pregnant women regarding selected antenatal exercises.

CONCLUSION:

Generally, the findings of this study indicated that Area wise mean and SD practice score on antenatal exercise among pregnant women relaxation mean and SD (64 ± 25.4) followed by breathing exercise (52.7 ± 12.6). The other factors is motivating or supporting factors like educating gestational diabetes mothers regarding exercise and maintain good health during pregnancy.

COMPETING INTEREST:

The authors report no conflicts of interest for this work.

AUTHORS' CONTRIBUTIONS

All authors conceived and designed the study drafted the report and advised the whole research paper and were involved in the interpretation of the data and contributed to manuscript preparation. All authors have read and approved the final version of the manuscript.

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