

Knowledge on Gestational Diabetes among Antenatal Mothers Attending Antenatal OPD

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Abstract: *Background:* Pregnancy is a period in which lot of metabolic and hormonal changes takes place. Gestational diabetes mellitus is a condition of abnormal carbohydrate metabolism with onset or first detected during pregnancy. About 1-14% of all pregnancies are complicated by Diabetes mellitus and 90% of which are gestational diabetes. GDM is a treatable condition and women who have adequate control on glucose level can effectively decrease the associated risks. Awareness of the condition among antenatal women will help in prevention and early diagnosis of the disease thereby prevent fetal complications and increase maternal quality of life. The present study aims to assess the level of knowledge of antenatal mothers regarding gestational diabetes mellitus and to find out the association between the knowledge level of antenatal mothers with their selected demographic variables. *Methods:* A descriptive design was used with a self administered structured questionnaire. Samples were selected from antenatal OPD of a tertiary care hospital using simple random sampling with a sample size of 100. Informed consent was taken. Data collected was analyzed and interpreted and inference of knowledge regarding GDM among antenatal mothers with the socio demographic variables were determined. *Results:* Majority (73%) of subjects were having average knowledge regarding gestational diabetes whereas 15% had good knowledge and 12% had poor knowledge. Among the subjects with average knowledge score, 53% were from the age group 25-35 yrs. 45% were graduates and above, 66% were above 28 weeks of gestation. The ANOVA comparison of difference in means shows that there is no significant difference in knowledge according to the demographic variables in study group. *Conclusion:* The findings of present study indicate the need to enhance education to antenatal mothers attending antenatal OPDs. Knowledge about GDM among antenatal women will translate into adoption of a healthy lifestyle, better self-care, and thus prevention and early diagnosis of the disease.

Keywords: GDM, Antenatal Women, Knowledge

1. Introduction

Pregnancy and child birth are special events in women's lives and indeed in the lives of their families. This can be a time of great hope and joyful anticipation. It can also be time of agony and suffering if its complicated any high risk conditions. Pregnancy is not a disease, but a normal physiological process. Many a times it is associated with certain risks to health and survival both for the women and for the foetus. These risks represent in every society and in every setting. In developed countries they have been largely overcome because every pregnant woman has access to special care during pregnancy and child birth. Scenario is very different in developing countries. Lack of awareness, inadequate access to care and financial issues are some barriers to utilization of healthcare¹⁵ in developing countries,

Pregnancy is a state of natural insulin resistance, which is due to placental production of human placental lactogen, an insulin antagonizing hormone, leading to a remarkable increase of insulin requirement in pregnant diabetics in the second and third trimester.¹ According to WHO, the gestational diabetes is defined as carbohydrate intolerance resulting in hyperglycemia of variable severity with its onset of first recognition during pregnancy.² The complications arising due to GDM affect both the mother and the baby¹³.

With an estimated 50.8 million people living with diabetes, India has the largest diabetes population in the world and has the dubious distinction of being the diabetes capital of the world³. Gestational diabetes mellitus (GDM) is one of

the subtypes of diabetes, the prevalence of which is constantly increasing.

Diabetes complicates between 1 and 20% of all pregnancies worldwide, which includes pregestational diabetes mellitus (PGDM) and GDM⁷. There are ethnic differences in the prevalence of PGDM and GDM⁸. The South Asian race is at a higher predisposition for both Type 2 DM and GDM. In a recent community-based study conducted by Seshiah, *et al.* in South India, GDM was detected among 17.8% of the women in urban, 13.8% in semiurban, and 9.9% women in rural areas based on the two-hour 75 g postglucose value ≥ 140 mg/dL⁹. In the past decade, the prevalence of gestational diabetes mellitus (GDM) has been increasing worldwide.

Unfortunately, due to insufficient focus on prevention and lack of preconception planning, several challenges pertaining to maternal healthcare still remain¹⁴. In addition, health literacy is also becoming a growing and relevant factor that has been shown to decrease the risk of adverse outcomes in non-pregnant diabetic patients¹⁶.

Improving health literacy helps the individual to comprehend and adopt a healthy lifestyle. The challenge, however, is that managing GDM requires women to come to terms with their diagnosis in a short period of time. Therefore, building health literacy skills and knowledge that is required to understand the importance of screening and managing the condition, within this short window period, is sometimes challenging. Knowledge is an important component of health literacy¹⁷.

A recent meta-analysis shows that women with GDM have an increased risk of developing T2DM²⁷. Within 5 years of an index pregnancy complicated by GDM, women had a relative risk of 4.69, which more than doubled to 9.34 in those examined more than 5 years postpartum²⁸.

A study from India found that women with GDM had a 3-fold increased lifetime risk of developing T2DM compared to pregnant women without GDM 16 years after index pregnancy²⁹. In an Indian population it has been shown that by 17 years of age, one-third of children born to GDM mothers have evidence of impaired glucose tolerance (IGT) or T2DM³⁰.

In addition, children exposed to maternal diabetes *in-utero*, are known to have higher risk of obesity and diabetes³². This strong evidence emphasise the immediate focus towards primary prevention.

Thus identifying women with GDM, and implementing interventional strategies aimed at controlling glycemic status has implications for maternal and neonatal morbidity and mortality through reductions in abortions, stillbirths, obstructed labour, macrosomia, shoulder dystocia and pregnancy-induced hypertensive disorders, pre-eclampsia, postpartum haemorrhage, neonatal hypoglycaemia, jaundice, infant respiratory distress syndrome etc.

Studies show that inadequate knowledge about the disease leads to poor understanding of medical information. This leads to limited adherence to management strategies and ultimately unfavourable pregnancy outcome¹⁸. In the Indian context, several cultural factors also play a very important role in health-seeking behaviour, especially amongst pregnant woman. Hence, this study was done to determine the awareness of GDM among all the antenatal women who attend ANC OPD of tertiary care hospital for antenatal care.

2. Materials and Methods

As this study aims to determine the awareness regarding GDM a quantitative approach was adopted. Non experimental cross sectional design was used to accomplish the objectives of the research. The sample used in the study are antenatal women who are attending civil antenatal OPD. In this study sample selection was done by simple random sampling technique. A computer generated random table was used from 345 clients attended antenatal OPD on data collection days. Sample size was calculated based on goal standard study. Sample size calculated is worked out to be 100.

Mothers who are known case of GDM and mothers who are health care professionals were excluded from study.

For this study, the tool was prepared by going through the Review of Literature on GDM and consulting with experts. The tool after development was given to 7 experts from expert validation; the tool was modified after the expert opinion of the experts so as to collect the relevant data. Structured questionnaire contains 2 sections (a) Demographic data (b) Structured knowledge questionnaire on GDM

Pilot study was conducted among antenatal women in a civil antenatal OPD purpose of study, Afterpilot study and analysis of tool, modification was done to make it more relevant an understandable to the participants.

Self-administered structured questionnaire administered to the samples under supervision and data collected through Section A and Section B of questionnaire. After obtaining consent, data collection done by distributing questionnaire.

Data collection was done in the month of February for a period of 02 weeks. Permission was taken from the Head of the Institution where the study was conducted. Samples were selected by simple random sampling using the computer generated random tables. The subjects who met the inclusion criteria were determined and the topic of the study, purpose of the study were explained to them. Their consent was acquired and the method of answering the questionnaire, was explained to the subjects. They were also given assurance regarding confidentiality of their scores. The researcher supervised the answering of the questionnaire, cleared any doubts if present and collected the completed questionnaire.

3. Results

Data analysis was done keeping in mind the objectives and hypothesis of the study. The socio-demographic data was described in terms of frequencies and percentages were represented by different kinds of graphs.

Mean of the data was taken and compared with the key. Average score of antenatal women regarding knowledge of Gestational Diabetes Mellitus was found out. Analyzed data will be presented in the form of tables, graphs and figures. The data collected is organized, tabulated, analyzed, and presented under the following heading

Section 1: Description of socio demographic variables.

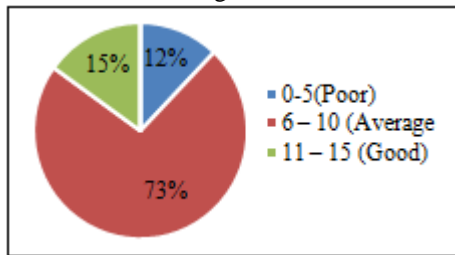
Table 1: Socio-demographic data

Parameters		No of cases	Percentage (n=100)
Age (Yrs)	<25	40	40
	25 – 35	53	53
	>35	7	7
Educational qualification	Illiterate	10	10
	Primary	14	14
	Secondary	31	31
	Graduate & above	45	45
Obstetric score	Primi	48	48
	Multi	41	41
	Grand multi	11	11
Period of preg (Wks)	<12	9	9
	12 – 28	25	25
	>28	66	66
Source of info regarding GDM	Family members & friend	44	44
	Media	31	31
	Hospital	25	25
Family h/o DM	Yes	20	20
	No	71	71
	Don't know	9	9

Section 2

Table 2: Assess the knowledge score of antenatal mothers regarding GDM

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Among the subjects with average knowledge score, 53% were from the age group 25-35 yrs. 45% were graduates and above, 66% were above 28 weeks of gestation.

Section 3: Association of knowledge with socio demographic variables. The ANOVA comparison of difference in means shows that there is no statistically significant difference in knowledge according to the

4. Discussion

One of the major findings of the study is that there is lack of in depth knowledge about GDM amongst pregnant women. With prevalence of diabetes and pre diabetes increasing in India, GDM is also increasing. Thus the results from this study post a major concern.

Although majority of women believe that they should undergo screening for GDM but many were not aware of the timings.

Most participants were also unaware of the possible effects of GDM on mother and the baby. These findings are in congruent with the study conducted by Balaji Bhavadharini et al. at

Department of diabetology, Prashant hospital, Chennai in 2017. Although the sample size of the present study is limited these findings nevertheless suggest the need for intensive education for GDM ,training not only the physician and paramedical personnel but also the public at large.

Balaji Bhavadharini, et.al; conducted a descriptive study on Knowledge regarding gestational diabetes mellitus amongst pregnant women in SouthTamil Nadu in 2017. This study evaluates the knowledge of gestational diabetes mellitus (GDM), including risk factors, importance of screening and post-partum follow-up, amongst pregnant women attending antenatal care in maternity clinics in South India. The major findings of this study is that there is a lack of awareness about GDM amongst pregnant women, especially in rural area. With the prevalence of diabetes and pre-diabetes increasing in India,³⁴ GDM is also increasing. In fact, even in the rural areas, there is a rising prevalence of GDM.³⁵ Thus, the results from this study pose a major concern. GDM has been understated as a benign condition for many decades. However, due to younger age

of onset of T2DM amongst Asian Indians and transgenerational effects of GDM, detecting and treating GDM is of paramount importance.³⁶This highlights the need for training physicians, paramedical people and the public regarding GDM. Bhavadharini B, Uma R, Saravanan P, Mohan V. Screening and diagnosis of gestational diabetes mellitus – Relevance to low and middle incomecountries. Clin Diabetes Endocrinol 2016; 2:13.

Vanishree Shriram,et.al; conducted a descriptive study on Awareness of gestational diabetes mellitus among antenatal women in a primary health centre in South India in 2013. Study was done to determine the awareness of GDM among all the antenatal women who attend a Primary health Centre (PHC) for antenatal care. Their knowledge on diagnosis ofGDM was assessed by questions on time for testing and the test employed to detect it. The options provided for time for testing were 12-16 weeks, 18-22 weeks, 24-28 weeks, and during delivery. Ifthe response was 12-16 weeks or 24-28 weeks, it was considered as the correct answer as during the conduct ofthe study, the debate regarding the appropriate time oftesting was still on.³⁷This study shows that only a small proportion of rural antenatal women (17.5%) had good knowledge about GDM. A greater proportion of the women were aware of the conditions of DM and GDM.Our findings indicate the need to enhance education to antenatal mothers attending antenatal OPD at tertiary care centre. Overall, respondents have average knowledge about gestational diabetes mellitus.

5. Conclusion

Higher educational qualification and multiparity have influence in providing knowledge to antenatal mothers regarding gestational diabetes mellitus. But do not know about the potential risks associated with gestational diabetes. Hence providing adequate guidance with a structured teaching programme to the patients will be highly effective.

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