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To determine the knowledge of gestational diabetes mellitus and its risk factors among antenatal mothers

Shaini P C

Associate professor, College of Nursing, SVBP Hospital LLRM Medical College Meerut, U.P., India

Email: shainy.manisrg@rediffmail.com

Abstract--Aim: To determine the knowledge of gestational diabetes mellitus and its risk factors among antenatal mothers. Methods: The study comprised 100 pregnant women who were accessible throughout the data collecting period and agreed to participate. Pregnant women who were unable to respond, such as severely sick moms, those who were unable to hear or communicate, and those who had a mental health condition, were omitted from the research. Pregnant women were given a pre-tested proforma to fill out in order to collect data. The proforma was translated into the participants' native language and distributed to them. They were then invited to complete the proforma on their own. The proforma was divided into two sections. Part 1: Questions regarding participants' socio - demographic details like name, age, education, *occupation, income, etc., and details about like no. of pregnancies, no. of live children,,etc.* Part 2: Questions to assess participants level of knowledge about Gestational diabetes mellitus Results: The research included 100 pregnant women in total. Only 19% of the 100 respondents had appropriate understanding about GDM. 51 percent of those polled had somewhat adequate knowledge. and 30% have insufficient knowledge about GDM. Among the study participants, 21% had good knowledge, 50% had relatively adequate knowledge, and 29% had no understanding of GDM risk factors. Education was shown to be connected with participants' knowledge of GDM with a significant $p < 0.05$ among the participants' socio-demographic factors. Participants' knowledge of GDM rises as their level of education grows. Participants' domicile was shown to be strongly linked with their knowledge of GDM, with those from urban regions having considerably higher knowledge when compared to those from rural areas, with $p = 0.041$. Conclusion: Antenatal women had just average understanding of GDM. There is a need for GDM education for physicians, paramedics, and the general public. Health education

initiatives must be implemented to raise prenatal women's knowledge and encourage them to use health services more effectively. All health centres should promote routine GDM screening for all pregnant women.

Keywords--knowledge, gestational diabetes mellitus, risk factors, antenatal mothers.

Introduction

Pregnancy is one of nature's magnificent and noble offerings to which no woman may object. It is a time of joy, excitement, anticipation, worry, and terror. ¹ Anemia, UTI, Mental health condition, Hypertension, Gestational Diabetes mellitus, Obesity and weight gain, Infection, and Hyperemesis gravidarum are some of the most frequent maternal health conditions or difficulties a woman may suffer throughout pregnancy. ² Diabetes Mellitus is a metabolic condition that affects the metabolism of carbohydrates, fats, and proteins. ³ The majority of women nowadays suffer Type 2 diabetes or diabetes while pregnant. According to the International Diabetes Federation, the prevalence of high blood glucose in pregnancy rises significantly with age and is highest in women over 45 in 2017. ³ Age > 25 years, pre-gestational obesity or excessive weight gain during pregnancy, family history of diabetes, personal history of poor obstetric outcome such as polyhydramnios, macrosomia, pre-eclampsia, foetal malformation of an ethnic group with a high risk prevalence of diabetes, and history of Diabetes Mellitus in previous pregnancy are the main causes and risk factors for Gestational Diabetes Mellitus. ⁴

GDM is a serious public health concern because it not only causes immediate maternal (pre-eclampsia, caesarean delivery) and neonatal (macrosomia, shoulder dystocia, birth injuries, hypoglycemia, Respiratory distress syndrome) complications, but it also increases the risk of future type 2 diabetes in both the mother and the baby. ^{5,6} Globally, the prevalence of GDM is increasing. This global rise is mostly occurring in poor and medium income nations, such as India, where access to maternity care is frequently limited. ⁷

In a recent HAPO research, the prevalence of GDM was determined to be 18% (hyperglycemia and adverse pregnancy outcome). ⁸ According to the WHO, the incidence of GDM in India was projected to be at 40.9 million in 2009 and is expected to climb to 69.9 million by 2025. As a result, it is a significant public health issue in India. ⁴ Women who are aware of GDM will adopt a healthier lifestyle, seek better health care, and take better care of themselves, resulting in disease prevention and early detection. ⁹

Material and Methods

The study comprised 100 pregnant women who were accessible throughout the data collecting period and agreed to participate. Pregnant women who were unable to respond, such as severely sick moms, those who were unable to hear or

communicate, and those who had a mental health condition, were omitted from the research.

Pregnant women were given a pre-tested proforma to fill out in order to collect data. The proforma was translated into the participants' native language and distributed to them. They were then invited to complete the proforma on their own. The proforma was divided into two sections.

Part 1: Questions regarding participants' socio - demographic details like name, age, education, *occupation, income, etc., and details about like no. of pregnancies, no. of live children,,etc.*

Part 2: Questions to assess participants level of knowledge about Gestational diabetes mellitus. In the II part of the proforma, there was a set of 15 questions. Each correct response was given 1 mark. According to the scores obtained, participants were considered to have,

- Inadequate knowledge: for those who scored 0-8,
- Moderately adequate: for those scored 8-12
- Adequate knowledge: for those who score more than 12

Part 1: Questions to assess participants level of knowledge about risk factors of GDM. In the III part of the proforma, there was a set of 10 questions. Each correct response was given 1 mark.

According to the scores obtained, participants were considered to have:

- Inadequate knowledge: for those who scored 0-5,
- Moderately adequate: for those scored 5-8,
- Adequate knowledge: for those who score more than 8.

For illiterate mothers, interview method was followed.

Data analysis

The data was input into Microsoft Excel and assembled and analysed using SPSS version 25.0. Frequencies and percentages are effective tools for describing data. The Kruskal Wallis test was used to assess the relationship between the means of each independent variable and knowledge of GDM and associated risk factors. A P value of 0.05 was deemed statistically significant.

Results

Demographic and socioeconomic characteristics

The research included 100 pregnant women in total. The socio-demographic characteristics of the study participants are shown in Table 1. 49(49) of the respondents were between the ages of 20 and 25. Concerning schooling status, 94 (94 percent) of the total respondents were house wiring. Sixty-six percent of pregnant women had completed secondary school, whereas eight percent were

illiterate. The majority of the prenatal women were homemakers (94 percent), and their monthly household income ranged between Rs. 10,001 to 30,000. The majority of them were from rural areas, and 82% of the research participants had a family history of diabetes.

Only 19% of the 100 respondents had appropriate understanding about GDM. 51 percent of those polled had somewhat adequate knowledge, and 30% have insufficient knowledge about GDM. Among the study participants, 21% had good knowledge, 50% had relatively adequate knowledge, and 29% had no understanding of GDM risk factors. Education was shown to be connected with participants' knowledge of GDM with a significant $p < 0.05$ among the participants' socio-demographic factors. Participants' knowledge of GDM rises as their level of education grows. Participants' domicile was shown to be strongly linked with their knowledge of GDM, with those from urban regions having considerably higher knowledge when compared to those from rural areas, with $p = 0.041$. In this study, other socio-demographic variables of participants such as age, employment, family history of DM, and income had no significant connection with awareness of GDM and associated risk factors.

Table 1: Demographic and socioeconomic characteristics

Variables		Frequency	Percentage (%)
	Below 20	13	13
	20-25	49	49
Age (in years)	25-30	35	35
	30-35	3	3
	Above 35	1	1
	Housewife	94	94
Occupation	Employed	6	6
	Illiterate	8	8
Education	Primary	8	8
	Higher secondary	6	6
	Graduate	78	78
	Less than 10,000	42	42
	10,001 – 30,000	49	49
Income	30,001-50,000	8	8
	More than 50,000	1	1
	Urban	27	27
Residence	Rural	73	73
	Yes	18	18
Family history of DM	No	82	82

Table 2. GDM knowledge

GDM KNOWLADGE	Number	%
Adequate knowledge	19	19
Moderately adequate knowledge	51	51

Inadequate knowledge	30	30
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Table 3: Association between knowledge of gestational diabetes and its risk factors with socio-demographic characteristics of participants

Variables		Frequency	Knowledge		Knowledge about risk factors	
			Mean	P value	Mean	P value
Occupation	Housewife	94	7.14±3.22	0.52	8.80±3.22	0.43
	Employed	6	7.58±2.85		8.33±3.57	
	Illiterate	8	6.60±3.25		7.53±3.69	
Education	Primary	8	6.26±2.58	0.00	8.46±2.58	0.32
	Higher Secondary	6	6.83±3.69		8.70±1.69	
	Graduate	78	8.25±2.58		9.35±2.74	
Income	Less than 10,000	42	7.09±2.89		8.75±3.58	
	10,001-30,000	49	7.32±3.63	0.58	8.81±3.57	0.84
	30,001-50,000	8	6.68±2.69		8.62±2.57	
Residence	Urban	27	7.67±2.69		9.13±3.78	
	Rural	73	6.98±2.74	0.039	8.64	0.42
Family	Yes	18	7.32±2.47		8.94±2.7	
History of DM	No	82	7.14±2.78	0.44	8.73±3.02	0.58

Discussion

GDM, like type 2 diabetes mellitus, is becoming more common across the world. If 10 GDM is not treated, it can cause major maternal and newborn problems.¹¹ Knowledge about GDM, as well as correct diagnosis and treatment of GDM, will aid in the prevention of the disease and its complications.¹⁰ In the sample of 100 pregnant women, 30% had acceptable awareness of GDM and 19% had adequate understanding of GDM risk factors. Shreeram et al. discovered in their study in south India that only 17.5 percent of women had adequate awareness on GDM, which was somewhat lower than our study.⁹ Similarly, 26.3 percent of study pathways in a Bangladesh research showed strong understanding about GDM.¹⁰ The educational level of a mother was shown to have a statistically significant relationship with their understanding of GDM in the current study, with $p < 0.05$.

Similarly, Bhowmik et al observed that participants with a better educational status had a significantly higher mean knowledge Score than their counterparts.¹⁰ The explanation for this correlation might be that educated women have better access to health-related publications or literature.¹⁰

They can also better absorb the health information provided by health professionals during pregnancy appointments. Information of GDM and its risk factors was shown to be substantially linked with participant AN mother's domicile, with those dwelling in urban regions having enough knowledge as compared to those staying in rural locations. Bhowmik et al. found that people from urban regions had much more knowledge of GDM than those from rural areas.¹⁰ Despite the lack of statistical significance, Balaji et al observed that rural women's awareness of GDM and associated risk factors was lower than that of urban women.¹² This might be because women in metropolitan regions, as opposed to rural areas, have greater access to mass media such as TV, radio, and the Internet, via which they can obtain health information and expertise.

Piere et al., Bhowmik et al. observed that younger age groups (30 years) had higher awareness/knowledge of GDM than those over 30 years old, with a statistically significant p value of 0.05.^{5,10} In our study, however, no such relationship between age and knowledge score was seen. It was stated in several research that employed antenatal mothers exhibited. When compared to housewives or jobless women, she has a significantly higher knowledge score. This might be due to the fact that employed women learn information via interaction with others at work as well as their personal experience.¹⁰⁻¹³ In this study, however, no such substantial correlation was discovered between occupation and understanding of GDM.

Conclusion

Antenatal women had just average understanding of GDM. There is a need for GDM education for physicians, paramedics, and the general public. Health education initiatives must be implemented to raise prenatal women's knowledge and encourage them to use health services more effectively. All health centres should promote routine GDM screening for all pregnant women.

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