

HOW MUCH DO ANTENATAL CARE ATTENDEES IN A TERTIARY HOSPITAL IN JOS, NORTH CENTRAL NIGERIA KNOW ABOUT GESTATIONAL DIABETES?

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ABSTRACT

Background- The increasing prevalence of GDM has attracted global concern. The associated hyperglycaemia is a source of perinatal morbidity and mortality. Knowledge of GDM is known to prevent complications to mother and baby through adoption of life style modification behaviour and good health seeking behaviour.

Methodology- It was a cross sectional study conducted over a 3 month period. Women were recruited into the study from the antenatal clinic. A structured questionnaire was used to extract information from the respondents. Data was analyzed with EPI INFO 3.5.4 CDC Atlanta, USA.

Results- The response rate was 96.2%. The mean age of the respondents was 29±6 years. Only 2% had no formal education while 46.6% had tertiary education. Most of the women (55.3%) were unemployed and 53.0% of the women were multiparous. The respondents generally have a good knowledge of GDM with an average score of 9±3. The awareness on GDM and its risk factors and awareness on screening and treatment were good. Only 41.5% of the women knew GDM resolves after pregnancy. Knowledge on the other consequences of GDM was good. Health professionals and friends and family served as source of information on GDM in 80.9 and 60.1% of the women respectively.

Conclusion- the knowledge of antenatal women in our centre is good. Continuous training of health workers and women empowerment are strategies that can maintain and improve this knowledge.

Key words: Gestational diabetes, Antenatal care attendees, Knowledge

INTRODUCTION

Diabetes Mellitus (DM) is an increasingly common medical condition in pregnancy^{1,2}. Gestational Diabetes Mellitus (GDM) is a global health concern because of its increasing prevalence and potential implications for the health of mothers and their offspring³. GDM is defined as any degree of glucose intolerance with first onset or recognition in pregnancy⁴.

Diabetes is now a global epidemic, affecting both industrialized and developing countries. The global prevalence of DM has been put at 2.8% and is projected to be about 4.4% by 2030⁵. The prevalence of DM in pregnancy is also increasing globally, and this has been attributed to advanced age at pregnancy, sedentary life style and obesity^{2,6}. A prevalence rate of DM in pregnancy of 0.74 and 8.4 per 1000 deliveries have been reported in

Nigeria, of these GDM was the commonest variant^{1,7}. Globally, about 1-14% of pregnancies are complicated by GDM⁷. In South East Nigeria the prevalence of GDM is 1.13%⁸. A study in North Central and South Western Nigeria reported a prevalence of 8.5% and 4.9%^{9, 10} respectively. In Iran, the incidence was 10.1% among a cohort of women in a tertiary hospital¹¹.

GDM was found to be common among women above 35 years in a study in Pakistan¹². It is also common among women from South East Asia, Middle-east and black Caribbean¹³. Other risk factors include previous history of GDM, fetal macrosomia, unexplained fetal death and polycystic ovarian syndrome, family history of DM. overweight and heavy glycosuria are also risk factors^{13,14,15}.

Hyperglycaemia poses a risk to the developing fetus and a potential source of poor perinatal and maternal outcome^{2,16}. Risk assessment for GDM is recommended at the first antenatal care visit and glucose tolerance test offered to women at risk². Universal screening with glucose tolerance test is currently advocated. This is because a significant number of women with GDM are missed as a significant number have no risk factors for GDM¹⁴. A good knowledge of GDM is associated with better glycaemic control and reduced fetal complication^{15,16,17}. This ensures adoption of healthy life style, better health care seeking pattern, and better self care^{16,18,19}. The literature is replete with information on knowledge/awareness of GDM in women diagnosed with GDM. There is however paucity of information on the knowledge of GDM in the general antenatal population particularly in our centre. This study was therefore structured to access the knowledge of GDM among a cross section of women attending the antenatal care clinic in the Jos University Teaching Hospital, Jos, Nigeria.

METHODOLOGY

The study was a cross sectional descriptive study and conducted from March to May, 2017 at the antenatal clinic of the Jos University Teaching Hospital, Jos. The hospital offers antenatal care services to several pregnant women and serves as a referral centre.

A cross section of women attending antenatal care was recruited into the study irrespective of the parity or gestational age. Women presenting to the

clinic for ultrasound and not booked in the hospital were excluded from the study.

A self-administered close-ended questionnaire was used as a source of data collection. The questionnaire and scoring used by Sujindra et al with some additions was adopted for this study. It was pretested among pregnant women presenting for obstetric ultrasound in the ultrasound unit of the antenatal clinic. A trained assistant helped respondents who could not read nor write to fill the questionnaire. The demographic profile added was the modification made on the questionnaire. This consisted age, educational status, occupation, and parity. This was followed by 13 questions on knowledge about GDM and its risk factors, questions about GDM screening and treatment and questions about the consequences of GDM. The source of information on GDM was also assessed. The questions on risk factors assessed the awareness on pre-pregnancy obesity, family history of diabetes, and rapid weight gain during current pregnancy. The options provided were Yes, No or I Don't Know. When the mother answered 'yes' to the questions, it was considered as the right response. Their knowledge on screening test /diagnosis and treatment of GDM was assessed. Questions were asked on the awareness of OGTT, a question was asked if it is important to screen/test for GDM. If she answers yes to any of the above question, it was considered right. Questions were asked to assess the knowledge on treatment options such as diet and exercise, oral antidiabetic drugs, and insulin injection. If the woman responded as diet and exercises or insulin injections/antidiabetic drugs, it was considered as the correct answer. The knowledge of the women on course and consequences of GDM was assessed by questions on whether GDM usually resolves postpartum, posed a risk to the fetus if untreated, and whether women diagnosed to have GDM were at an increased risk for future Type 2 diabetes. A 'yes' for each of these was considered as a correct response. Each correct response was given a score of 1 and each woman was scored out of a total of 13. A score of 0-4 was considered as poor knowledge, 5-8 as fair, and 9-13 as good knowledge of GDM. Women who could not read were assisted in responding to the questions on the questionnaire.

Data was analyzed with EPI INFO 3.5.4 CDC Atlanta, USA. Association between knowledge and

age, educational status, and parity of the women was analyzed by test of proportions and the statistical significance was assessed using the Chi-square test. Statistical significance was set at < 0.05.

A formal introduction was made to the respondent. A concise explanation of the objectives of the study was given. An informed consent was obtained. The

respondent was assured of confidentiality as neither name nor personal identification number was reflected on the questionnaire.

SAMPLE SIZE DETERMINATION

The sample size was derived from the formular²⁰:

$$n = \frac{Z^2 pq}{d^2}$$

Z=1.96 (coefficient of Z statistics for normal distribution table),

p = proportion of antenatal women that had a good cumulative score on awareness (17.5% from study done by Shriraam et al)¹⁸

q=1-p

d = sampling error tolerated = 0.05.

$$n = \frac{0.175 \times (1 - 0.175) \times (1.96)^2}{(0.05)^2}$$

n =328

Another 20% of 328 were added because of those that will not fill the questionnaire properly

Therefore 20% of 328~ 65

Sample size is therefore = 328+65 = 393

This was approximated to 400.

QUESTIONNAIRE

Demographic profile

Age-

Educational status (tick as appropriate)

-primary

-secondary

-tertiary

-Non

Occupation

-House wife

-Employed

Parity (Number of pregnancies beyond 7 months) (tick as appropriate)

-Non

-1

-2 and above

Awareness of gestational diabetes and risk factors

- 1 Have you heard about diabetes mellitus? (Yes/No/I don't know)
- 2 Can diabetes occur for the first time in pregnancy? (Yes/No/ I don't know)
- 3 Is family history of diabetes a risk factor for diabetes in pregnancy? (Yes/No /I don't know)
- 4 Is pre-pregnancy obesity a risk factor for diabetes in pregnancy? (Yes/No/I don't know)
- 5 Is diabetes in previous pregnancy a risk factor for diabetes in pregnancy? (Yes/No/I don't know)
- 6 Is rapid weight gain in pregnancy a risk factor for diabetes in pregnancy? (Yes/No/I don't know)

Awareness about screening and treatment for GDM

- 7 Have you heard about blood test for diabetes after oral glucose load (Oral Glucose Tolerance Test)? (Yes/No/I don't know)
- 8 Is testing for diabetes in pregnancy is necessary? (Yes/No/I don't know)
- 9 Can diet and exercises treat GDM? (Yes/N/I don't know o)
- 10 Is insulin or oral drugs required to treat GDM? (Yes/No/I don't know)

Awareness about GDM consequences

- 11 Does GDM disappear after pregnancy? (Yes/No/I don't know)
- 12 Is baby at risk if GDM is not treated? (Yes/No/I don't know)
- 13 Mothers with GDM are at risk for overt diabetes (Yes/No/I don't know)

Source of information on GDM (you can tick more than one option)

- 14 Mass media
- Newspaper/ magazine
- Friends and family
- Doctors or health professionals

RESULTS

A total of 400 antenatal women were enrolled into the study. The modal age range was 25-33 years and the mean age was 29 ±6 standard deviation. Most of the respondents (46.6%) had tertiary level of education and 2.0% of the respondents had no formal education. Fifty-five point three percent of the respondents were unemployed. Majority of the respondents (53.0%) were multiparous and nulliparous women constituted 23.9% of the respondents. There is a significant relationship (P-value <0.05) between the score on knowledge of GDM with level of education and age. The sociodemographic profile of the respondents is shown in table 1 below.

Table 1 - Sociodemographic profile

Variable	Frequency (N=400)	Percentage	P-Value
Age(Mean-29±6)			0.01
15-24	82	20.5	
25-33	225	56.3	
34-42	80	20.0	
43-48	13	3.2	
Level of education			
None	8	2.0	
Primary	32	8.0	
Secondary	175	43.7	
Tertiary	185	46.3	0.025
Occupation			
Unemployed	179	44.7	
Employed	221	55.3	
Parity			
None	94	23.1	
1	95	23.9	
>2	211	53.0	

The percentage of positive responses for the knowledge of antenatal mothers on GDM and its risk factors, screening and treatment and consequences of GDM are depicted in Tables 2,3 and 4.

Table 2- Awareness on GDM and risk factors

<u>Respondents who answered yes</u>		
Question	Frequency	Percentage
Have you heard about diabetes mellitus?	351	87.8
Can diabetes occur for the first time in pregnancy?	273	68.6
Is family history of diabetes a risk factor for diabetes in pregnancy?	286	71.5
Is prepregnancy obesity a risk factor for diabetes in pregnancy?	269	67.3
Is diabetes in previous pregnancy a risk factor for diabetes in current pregnancy?	292	73.0
Is rapid weight gain a risk factor for diabetes in pregnancy?	254	63.5

Table 3- Awareness on Screening and Treatment

<u>Respondents that answered yes</u>		
Questions	Frequency	Percentage
Have you heard of blood test for Diabetes after glucose load?	212	53.0
Is testing for diabetes in pregnancy necessary?	354	88.5
Can diet and exercise treat GDM?	319	79.8
Insulin or drugs are required to treat GDM?	346	86.5

Table 4- Awareness on consequences of GDM

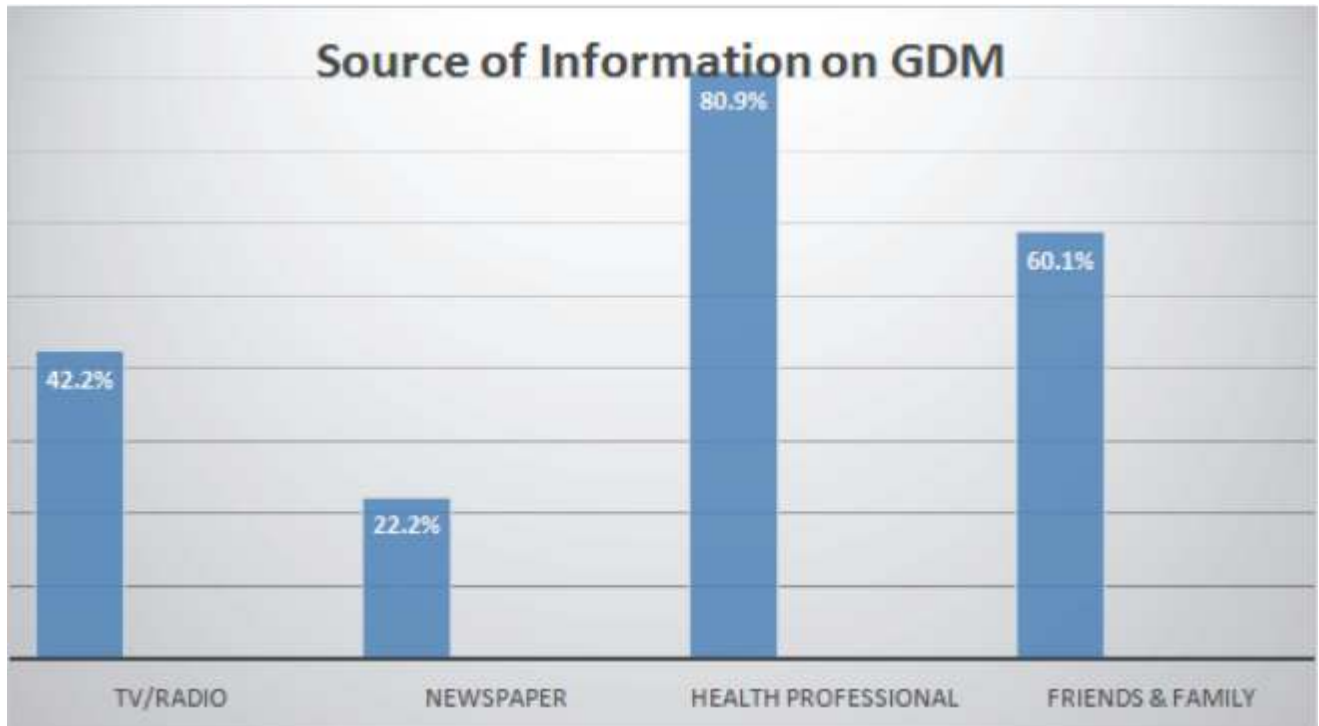
<u>Respondents that answered yes</u>		
Questions	Yes(Freq)	Percentage
Does GDM disappear after pregnancy?	234	41.5
Is baby at risk if GDM is not treated?	298	74.5
Mothers with GDM are at risk of overt diabetes?	319	79.8

Table 5 below shows the score on knowledge on GDM. A significant number of respondents (50.2%) had a good knowledge on GDM. Ten point six percent of the respondents had a poor knowledge of GDM

Table 5- Score on knowledge of GDM

Score(Mean-9±3)	Frequency	Percentage
Poor(0-4)	19	4.8
Average (5-8)	102	25.5
Good (9-13)	279	69.8

Health professionals and friends and family were the sources of knowledge on GDM in 80.9% and 60.1% respectively of the women who responded to the questionnaire. Electronic media was the source of information in 42.2% of respondents. These and others are shown in the chart below.



DISCUSSION

One cardinal finding of this study was that most of the respondents had a good knowledge (average score $9 \pm 3SD$) of GDM. A good knowledge of GDM may likely result in modification of risk factors and better health seeking behavior. This may also help to reduce the rising incidence of GDM and its complications. However a study in southwest Nigeria revealed that only 38% of antenatal women had good knowledge of GDM²¹. A study in Cameroon revealed a poor level of GDM awareness²¹. Also studies in India revealed a poor awareness score on GDM^{18,23}. The finding in this study may be attributable to the sociodemographic profile of the respondents. Most of them had formal education. Also, this study found a statistically significant relationship (p -value < 0.005) between awareness on GDM with level of education and age. Women that had formal education and within the reproductive age have more interaction with their work place and also gained awareness because of their experience²⁴.

A significant proportion of women were aware of GDM and its risk factors. A study among antenatal women in a tertiary hospital in India revealed a similar finding²⁴. However Balaji et al. in their study among rural women in India found a poor knowledge on risk factors for GDM²³. This study further buttresses the influence of exposure and

experience on awareness of GDM earlier mentioned.

A good proportion of the respondents are aware of the need to test for GDM and the modalities of treatment. The awareness of Oral Glucose Tolerance Test was average 53.0%. Only 41.5% of the women were aware that GDM disappears after pregnancy. Most of the respondents were aware GDM poses a risk to the baby and that the mother is at risk of overt DM in the future. A good knowledge of risk factors and consequence of GDM is necessary for a woman to take proper precautions and for self-care. It has also been stated that knowledge of GDM ensures proper utilization of antenatal care services and adopting life style modifications in a high risk population¹⁸. This is particularly important as the rate of progression from GDM to DM is increasing²³.

In a study by Sujindra et al. the main source of information on GDM for women attending antenatal care was from Doctors and other paramedical staff¹⁸. This is similar to the finding in this study where health professionals accounted for a cumulative 80.9% of source of information. Friends and family was a source of information on GDM in 60.1% of the respondents. This is particularly impressive. A greater role of health care workers in creating awareness on GDM has

been reemphasized¹⁸. The above finding further buttresses the need to include awareness of GDM and other medical conditions in pregnancy in health education programs. This will promote adoption of healthy lifestyle, better healthcare-seeking pattern, better self-care, and thus prevention and early diagnosis of the disease, thereby reducing the prevalence of GDM, improving pregnancy and neonatal outcomes and also the economy of the country¹⁸.

In conclusion, the antenatal women had a generally good knowledge of GDM. There is a significant relationship between the knowledge of GDM with the age and educational status of the respondents. Health workers constituted the major source of information for the respondents on GDM.

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