

Knowledge About Gestational Diabetes Mellitus among Pregnant Women at Sa'ad Abu Alela Teaching Hospital Khartoum, Sudan 2018

Ala'a Mirghani Babiker Al-lahawi*

6thYear Medical Student, University of Khartoum, Faculty of Medicine, Sudan

*Corresponding Author: Ala'a Mirghani Babiker Al-lahawi, 6thYear Medical Student, University of Khartoum, Faculty of Medicine, Sudan, E-Mail: nusibaabaalwahed@gmail.com

Abstract

Gestational Diabetes Mellitus (GDM) was defined as glucose intolerance that was not present before pregnancy. There are several risk factors that may play a role in development of GDM. The screening time for GDM depends on the presence or absence of risk factors in the pregnant women. Knowledge can change the attitude of an individual towards disease prevention, namely the first step in disease prevention and reduce its complications is good knowledge. Methodology: Data had been collected using coded self administered questionnaires to obtain basic information about general knowledge of GDM, after the verbal consent had been taken from pregnant women who attended antenatal care at Sa'ad Abu Alela teaching hospital in September and October 2018, using cross sectional descriptive hospital based study design. Results: The overall mean age was (30.43 ± 6.026) years. 41.8% of the study participants had good knowledge about GDM, 37.8% had moderate knowledge and no one had poor knowledge. A mean overall score of knowledge was (25.72 ± 5.285) with most of them in the good GDM knowledge category. 14.8% of the study participants had GDM previously. A Chi Square test indicated significant association between age and knowledge score, p=0.011. The age and the knowledge score was positively correlated with correlation coefficient of 0.304 and this correlation was found to be significant with p value of 0.000. A Chi Square test indicated no significant association between educational level or mother's job or previous GDM diagnosis and knowledge score with p=0.376, p=0.585, p=0.107 respectively. Conclusion: Some of the study participants had GDM previously. Most of the study participants had good knowledge about GDM, some had moderate knowledge and no one had poor knowledge.

Keywords: Gestational Diabetes Mellitus GDM.

1. INTRODUCTION

Gestational Diabetes Mellitus (GDM) was defined as hyperglycemia that recognized for first time during pregnancy (1). During pregnancy, the placenta secretes some diabetogenic hormones, causing insulin resistance and hence hyperglycemia, they include placental lactogen and progesterone (2). The most common risk factors include previous history of GDM, family history of type 2 Diabetes Mellitus (T2DM), history of a large baby and history of stillbirths or malformations which are not explained. Advanced maternal age (35 years or older) and cigarette smoking are also risk factors. Maternal obesity and overweight is one of the most common modifiable risk factors for GDM (2) and can be considered potentially preventable or reversible (4). Regarding the screening time for GDM, if the pregnant woman had any risk factors, her screening should be done in the first prenatal visit but if the pregnant woman did not have any risk factors, her screening should be done between 24-28 weeks of gestation and that is according to the American Diabetes Association (ADA) guideline (2). GDM is associated with severe birth complications. The affected pregnant women have a seven times risk of developing type 2 diabetes later in life so it's a disorder of both immediate and long term complications (3,4). The outcomes of uncontrolled GDM are both maternal and neonatal. The maternal outcomes are miscarriages, cesarean sections,

increase in weight and type 2 diabetes as mentioned above. Neonatal outcomes are macrosomia, hypoglycemia, respiratory disorders, stillbirth and even neonatal death. In addition, the offspring have greater risk of childhood obesity, glucose intolerance and diabetes in early adult hood (4). The estimated prevalence as high as 15% according to the latest figures (3), or 1% to 14% of total pregnancies may be affected by it (4).

2. PROBLEM STATEMENT

The prevalence of Gestational Diabetes Mellitus (GDM) has been increasing worldwide (1). In 2015, it was estimated that 20.9 million pregnant women had hyperglycemia in pregnancy, 85.1% of which were due to GDM (2,5). The adverse disease outcomes affect both the mother and her fetus because these women and their children are at risk of developing Diabetes Mellitus in the future (4). The problem that the complications arising due to GDM affect both the mother and the baby (5). Studies to evaluate the knowledge among pregnant women about GDM is limited (5). In Sudan, the total number of outpatient cases of Gestational Diabetes was 25873, most of them (about 8288 case) between the age of 25-44 years and most of them in Khartoum state (21290 case) followed by White Nile state (954 case) (annual health statistical report 2016) (6). The total number of discharged patients was 836 patients at 2016, most of them between age of 25-44 years and most of them at Khartoum state (437) followed by Aljazeera state (268), while the number of deaths was 6, three cases in Kassala, one case in Khartoum, North Darfour and Aljazeera (annual health statistical report 2016) (6).

3. JUSTIFICATION

Knowledge and health literacy is becoming a great factor to decrease the risk of adverse outcomes of the disease by helping the individual to adopt a healthy lifestyle that may help in reducing the occurrence of the disease or its complications. Knowledge of antenatal women about the condition will finally translate into prevention and early diagnosis and then early treatment (2,4,5). Some studies done worldwide showed that the general knowledge of GDM is limited and that lead to poor pregnancy outcome to both mother and child(5). In addition, there is sparse literature on knowledge about GDM among pregnant women, so more studies needed to be done. The finding of this study can help in future formulation of programmes and activities to improve general knowledge in order to prevent the condition.

Study Design

Cross sectional descriptive hospital based study. I could not do a study pilot since I were a student with limited time and resources.

Study Area

Sa'ad Abu Alela hospital, is a university of Khartoum teaching hospital, located in Mohammad Najeeb Street, Khartoum, Sudan. It was founded in 1997 and it was a general hospital until 2013 it became specialized in obstetric and child birth and was qualified to be a full hospital for gynecology and obstetrics emergencies.

Study Population

The study participants were any pregnant women who came to antenatal care at Sa'ad Abu Alela teaching hospital in September and October 2018.

#Sampling Method and Sample Size: A convenience sample of 196 pregnant women attending Sa'ad Abu Alela hospital were invited to participate. The sample size was calculated according to the equation of unknown population: $n = Z^2 P (1 - P) / d^2$ where n= sample size, Z= 1.96 (standard error), P= prevalence (used the prevalence in Morocco which was 15%)(3), d= 0.05 (confidence level). $n = (1.96)^2 \times 0.15 (1 - 0.15) / (0.05)^2 = \sim 196$. The sample method was non probability sampling (convenience sampling).

#Inclusion Criteria: Pregnant women who came for antenatal care at Sa'ad Abu Alela teaching hospital during the study period and accepted to participate in the study.

6. RESULTS

#Socio-Demographic Characteristic

Age	Percent
15-20	4.6%
21-25	18.9%
26-30	29.1%
31-35	28.1%
36-40	17.3%
More than 40	2%
Educational level :	
Illiterate	2.6%
Khalwa	0.5%
Primary school	19.4%
Secondary school	28.6%
University	41.8%

#Exclusion Criteria: non pregnant women who came for any gynecological evaluation.

4. DATA COLLECTION

***Tool:** Detailed coded self administered questionnaire reviewed by department of Community Medicine, faculty of medicine, university of Khartoum and it was in Arabic language because it was the local language of the study population. Pre testing questionnaires were carried out to test the validity to yield out the expected results. The questionnaire was divided into two parts: 1- Sociodemographic data. 2-GDM knowledge questions.

***Scoring:** The responses were scored. The score was designed by giving each correct response a score of 1 and negative response given a score of 0 (zero). The maximum attainable score was calculated and each woman was scored out of a total score of 37. A score of 0 – 12 was considered poor knowledge, 13 – 25 was moderate and 26 – 37 was good GDM knowledge.

***Study Variables:** 1- age, educational level, mother's job, husband's job, marital status and residency (live in urban or rural area). 2- Questions about knowledge of GDM : definition, risk factors, screening, complications for both mother and baby, postpartum follow up, possibility of treatment and importance of future prevention.

5. DATA MANAGEMENT AND STATISTICAL ANALYSIS

By using SPSS software (Statistical Package for Social Science)(version 23) and Microsoft excel 2007. All information gathered via questionnaires coded into variables. A Chi Square test and Correlation Coefficient were used to study the relationship between different variables. A p-value of less than 0.05 was considered statistically significant. Data was displayed and presented in the form of tables and figures.'

Ethical Consideration

Ethical approval was obtained from department of Community Medicine, faculty of medicine, university of Khartoum. Ethical clearance was obtained from Khartoum state federal ministry of health, research department. Permission had been taken from the medical director at Sa'ad Abu Alela teaching hospital. Verbal consent had been taken from each participant before filling the questionnaire. No information that can lead to identification of a specific doctor or patient.

Higher studies	7.1%
Mother's job :	
Worker	4.1%
Employer	10.7%
House wife	84.7%
Others	0.5%
Husband's job :	
Worker	37.2%
Employer	43.9%
Seller	13.3%
Without work	2%
Others	3.6%
Marital status :	
married	100%
Widow	0%
Divorced	0%
Living :	
City	99.5%
Village	0.5%

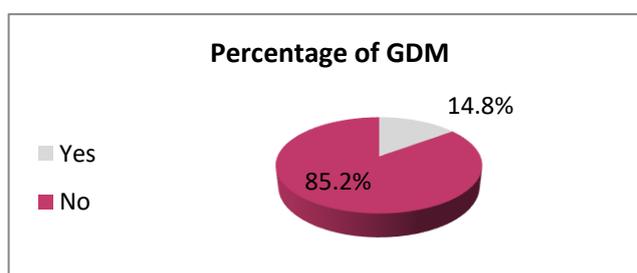


Figure 1 : Percentage of women whom had GDM among the study participants, study about knowledge about GDM among pregnant women at Sa'ad Abu Alela teaching hospital, Khartoum 2018, (N=196).

Most of the study participants, 167(85.2%) did not have GDM and 29 participants (14.8%) had GDM and this percent was similar to comparable studies (7).

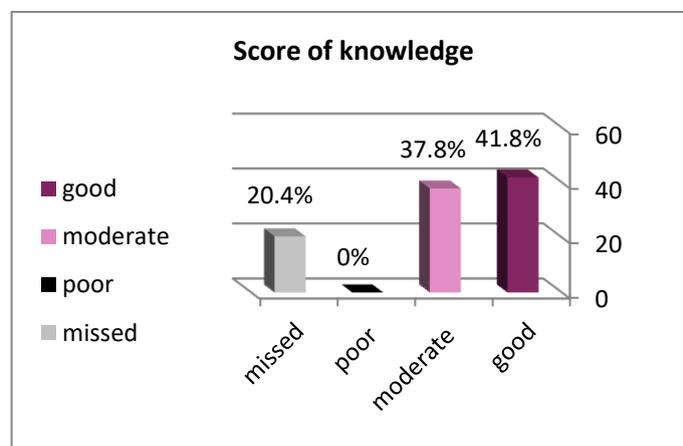


Figure 2: Score of knowledge of pregnant women about GDM, study about knowledge about GDM among pregnant women at Sa'ad Abu Alela teaching hospital, Khartoum 2018, (N=196).

A mean overall score of knowledge was (25.72 ± 5.285) with most of them in the good GDM knowledge category. Regarding missed data, those are participants were not answered a question because it is not applicable to them, then the total percent was not equal to 100%.

Table 1: Pearson Chi square values for association between knowledge score and some socio-demographic characteristics, study about knowledge about GDM among pregnant women at Sa'ad Abu Alela teaching hospital, Khartoum 2018, (N=196).

Variables	Pearson Chi Square value	
	knowledge score	
Age	0.011	(<0.05 significant)
Educational level	0.376	(>0.05 not significant)
Mother job	0.585	(>0.05 not significant)
Previous diagnosis with GDM	0.107	(>0.05 not significant)

Table 2 : Correlation Coefficient value for correlation between age and knowledge score, study about knowledge about GDM among pregnant women at Sa'ad Abu Alela teaching hospital, Khartoum 2018, (N=196).

Variables	Correlation Coefficient value	P value
knowledge score		
Age	0.304	0.000

A Chi Square test indicated significant association between age and knowledge score, $p=0.011$. The age and the knowledge score was positively correlated with correlation coefficient of 0.304 and this positive weak correlation meaning that increasing age is correlate with increase in knowledge score. This correlation was found to be significant with p value = 0.000.

7. DISCUSSION

One of the major findings of the study is good knowledge about GDM among participating women when compared with such study in Saudi Arabia and Bangladesh, where the GDM related knowledge was poor and that is due to lack of GDM related programmes and campaigns for antenatal women (2,4), compared to this study that showed that 41.8% of the study participants had good knowledge about GDM. Nearly all of them live in urban Khartoum state where education and health facilities are easy to access, since another study done in south India illustrated that knowledge about GDM is poor amongst pregnant women especially in rural areas(5). The mean overall score for GDM knowledge in this study was 25.72 ± 5.285 with most of them in the good GDM knowledge category compared with 5.5 ± 2.5 in Saudi Arabia with most of them in the fair GDM knowledge category(2). The higher knowledge score in this study may be attributed to factor that antenatal women had good access to their health related information since women in urban areas have better exposure to mass media like internet, radio and TV from which they can gain health information. Even more due to higher level of education among the study participants were more aware of the risk factors associated with GDM and possibly its management and outcomes so had higher level of knowledge.

In Saudi study, partial correlation were made adjusted between GDM knowledge score and previous personal history of GDM ($r = -0.139$, $P < 0.001$) (2), similar to study done in India, mothers with history of GDM either in previous or current pregnancy were significantly more knowledgeable. That is due to more gaining of knowledge by these women because of their own experience(7). In contrast, this study showed no significant association between previous GDM and knowledge classification ($p=0.107$) in table 1, probably those affected by GDM not necessitate that they go and know about their condition.

In an Indian study, education was not show any significant influence on knowledge score(7), similar to this study, there is no significant association between educational level and knowledge score, $p=(0.376)$.

This study was incongruent with study done in India where the age had no significant association with knowledge about GDM and its risk factors(8). This study indicated significant association between age and knowledge score, $p=0.011$.

That is due to more chance of getting knowledge about GDM with increasing age.

In India, mothers who were employed show significantly high knowledge score(7). In contrast, there is no significant association between mothers job and knowledge score in this study. This study was congruent with another study in India

where the occupation had no significant association with knowledge about GDM and its risk factors(8). This revealed that employed women not necessitate that they have information about GDM.

8. CONCLUSION

*Some of the study participants had GDM previously. *Most of the study participants had good knowledge about GDM, some had moderate knowledge and no one had poor knowledge.

9. RECOMMENDATIONS

As a result of this study, I recommended that counseling and maternal teaching programmes should be an integral part of the routine clinical facilities caring for pregnant women antenatally so that acquisition of knowledge that hopefully lead to compliance to advise. Also, counseling for pregnant women whom at higher risk for more complications in future should be more. Community outreach activities to estimate and improve the knowledge of GDM in rural and far areas as they considered to have poor knowledge. More studies about GDM knowledge are needed to further explore the level of knowledge in other Khartoum hospitals. I recommended a national plan for educational programmes and health campaigns to promote and improve knowledge among women.

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AUTHOR'S BIOGRAPHY



Ala'a Mirghani Babiker Al-lahawi, 6thYear Medical Student, University of Khartoum, Faculty of Medicine, Sudan.

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