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Maysarah Mahmoud Ali Al-Dhefeeri
Al-Anbar Health Directorate,
Al-Anbar, Iraq

Ban Abdul-Ridha Salman Al-Hashimi
Baghdad Rusafa Health
Directorate, Baghdad, Iraq

Knowledge of pregnant women about gestational diabetes and its effect on both mother and baby in a sample from primary health care centers in Al-Rissafa Health Director - Baghdad

Maysarah Mahmoud Ali Al-Dhefeeri and Ban Abdul-Ridha Salman Al-Hashimi

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Abstract

Background: Gestational diabetes is one type of diabetes with first onset or recognition during pregnancy. However, in most cases, gestational diabetes develops due to an inability to increase insulin secretion adequately to compensate for pregnancy-induced insulin resistance, and most women can return to normal glucose tolerance immediately after pregnancy, it can affect immediate and long term health of both mother and baby.

Objectives: To assess the knowledge of pregnant women about gestational diabetes including risk factors and complications, and to determine socio demographic factors that affect the knowledge of the pregnant women.

Patients and Methods: A descriptive cross-sectional study was conducted in 16 primary health care centers that belongs to 7 districts in Baghdad Al-Russafa health directorate from the 10th of January 2023 to the 10th of May 2023, data collected using applied 4 sections containing questionnaire by direct interview with 150 pregnant women those attend to the primary health care centers whom age between 18-45 years old.

Results: In this study the result was poor about knowledge of gestational diabetes among pregnant women, that include there knowledge about gestational diabetes and its risk factors (82.0%), complications on baby (56.7%), complications on mother (74.7%), diagnosis and management (30.7%). There was statistically significant association between participants who were illiteracy, student, parity ≥ 5 , and first trimester and poor knowledge about gestational diabetes mellitus.

Conclusions: More than half of participants had poor knowledge about gestational diabetes mellitus, poor score knowledge associated with illiteracy, student, parity ≥ 5 , and first trimester. Additional effort should be made to increase awareness of pregnant women about gestational diabetes mellitus and encourage the regular visits of pregnant women for antenatal care (ANC) during pregnancy to educate them and how they can prevent it and do screening test for gestational diabetes mellitus.

Keywords: Gestational diabetes mellitus, diabetes mellitus, pregnancy

Introduction

Gestational diabetes is defined as diabetes with first onset or recognition during pregnancy. This definition will include a few patients who develop type 1 diabetes during pregnancy, where prompt action and early insulin treatment will be required, and some patients who develop type 2 diabetes, or had unknown pre-existing type 2 diabetes, in whom the diabetes does not remit after pregnancy. However, in most cases, gestational diabetes develops due to an inability to increase insulin secretion adequately to compensate for pregnancy-induced insulin resistance, and most women can expect to return to normal glucose tolerance immediately after pregnancy ^[1]. Gestational diabetes mellitus complicates 10-15% of pregnancies depending on the diagnostic criteria used. Different diagnostic criteria are used in different hospitals. The world health organization guidelines (2013) recommend a diagnosis with a fasting glucose of 5.1 mmol/l and/or a 1 hour (post 75 g glucose load) of 10.0 mmol/l or 2 hour of 8.5 mmol/l ^[2]. Typically women with gestational diabetes exhibit no symptoms but some mothers may demonstrate increased thirst, increased urination, fatigue, nausea and vomiting, bladder infection, yeast infections and vision ^[3]. With appropriate knowledge and positive attitude including healthy eating habits, weight control and regular exercise, the complications of gestational diabetes mellitus can be prevented

Corresponding Author:
Maysarah Mahmoud Ali Al-Dhefeeri
Al-Anbar Health Directorate,
Al-Anbar, Iraq

which permits mothers to live a better life with their offspring [4]. According to the American Diabetes Association (ADA) guideline, the time for gestational diabetes mellitus screening depends on the presence of risk factors. If the pregnant women had any risk factors, then the screening should be done in the first prenatal visits while if the pregnant women have no risk factors, then the screening should be done between 24-28 weeks of gestations. Oral glucose tolerance test (OGTT) used for diagnosis of gestational diabetes mellitus. Most women with gestational diabetes mellitus will not need to continue on insulin after delivery, but it is very important to repeat the oral glucose tolerance test after delivery. Regular screening for diabetes after delivery is very important as these women at risk to have early gestational diabetes mellitus in next pregnancies and about 50% of them will develop type 2 diabetes in the next 5-10 years [5].

Abnormal levels of blood glucose in pregnant women can affect immediate and long term health of both mother and baby. Gestational diabetes mellitus affects two generations both the present and the next generation. Gestational diabetes mellitus is associated with increased risk of maternal and neonatal complications like preeclampsia, macrosomia, shoulder dystocia, birth injuries, and increased risk of caesarean delivery, hypoglycemia, neonatal jaundice respiratory distress syndrome, polycythemia and hypocalcaemia in newborn. Both gestational diabetes mellitus mother and her offspring are at risk of type 2 diabetes and obesity in future [6,7]. Thus, gestational diabetes mellitus screening will provide a perfect window of opportunity for the prevention of diabetes mellitus in two generations. Knowledge about gestational diabetes mellitus among antenatal women will facilitate implementation of healthy lifestyle, better healthcare seeking behavior and thus prevention and early diagnosis of disease [8].

Subjects and Methods

A descriptive cross-sectional study was conducted in a convenient sample of 150 pregnant women those attended to primary health care centers (PHCCs) that belong to 7 districts in Baghdad Al-Russafa health directorate, two to three centers from each health district with total number of 16 PHCC, include all pregnant women age (18-45) and exclude Pregnant women with acute illness, mental retardation or deaf women, Unwilling to participate , and Pregnant women with diagnosed GDM and type 2 DM. Data was collected during four months period extended from the 10th of January 2023 to the 10th of May 2023.

Data collection method

Data collected by direct interview with pregnant women using applied questionnaire. The questionnaire had been designed by collection from similar researches and textbook references by the researcher with supervisor opinion and recommendations and reviewed by community medicine specialist and family medicine specialist, Administered approvals were granted from scientific council of Arabic board for health specializations and Al-Russafa health directorate.

Statistical analysis

Microsoft Excel 2016 and IBM SPSS v. 26 were used for

data entry and analysis. Descriptive statistic was used in form of frequencies and percentage for categorical data, represented by figures and tables. For qualitative variables, chi-square test was used. P value <0.05 was determined as statistical significance. 3 score given for correct answer, 2 score for (I don't know) and 1 for incorrect answer.

Results

A total of 150 participants were included in the study. Out of the total; all participants have negative history of both DM type 2 and gestational DM and Eleven (7.3%) participants have previous birth complications.

Knowledge about gestational DM, DM, and its risk factors was poor among 123 (82.0%) participants, diagnosis and management of gestational diabetes also poor among 46 (30.7%) participants, knowledge about effect, consequences and complications of gestational diabetes mellitus (on baby) was poor among 85 (56.7%) participants, and knowledge about effect, consequences and complications of gestational diabetes mellitus (on mother) was poor among 112(74.7%)

According to the source of information about gestational diabetes mellitus, doctor was the most common source 92 (61.3%), then the internet 33 (22.0%) and family 26 (17.3%).

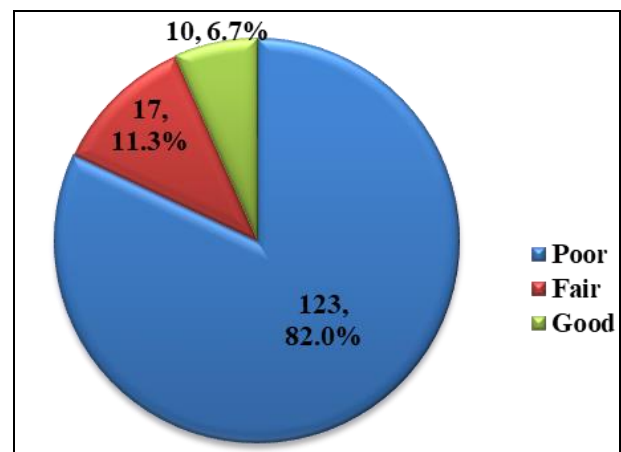


Fig 1: Knowledge about gestational diabetes mellitus and diabetes mellitus and its risk factors

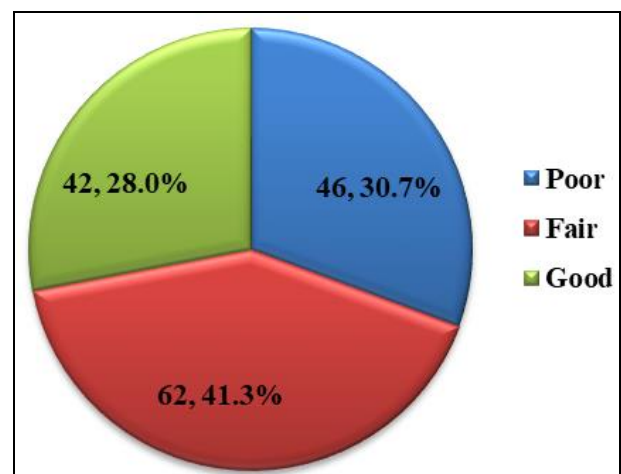


Fig 2: Knowledge about diagnosis and management of gestational diabetes

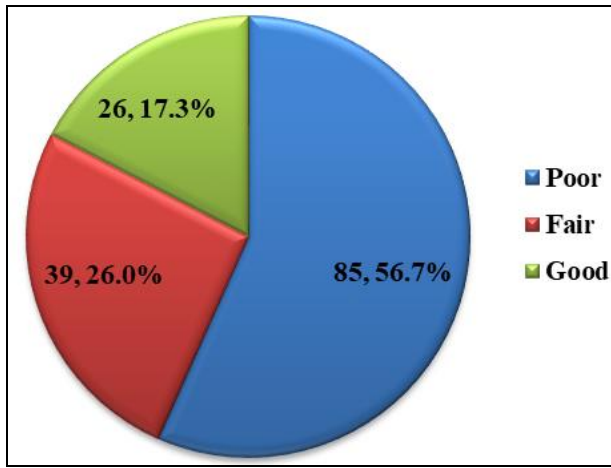


Fig 3: Knowledge about effect, consequences and complications of gestational diabetes mellitus (on baby)

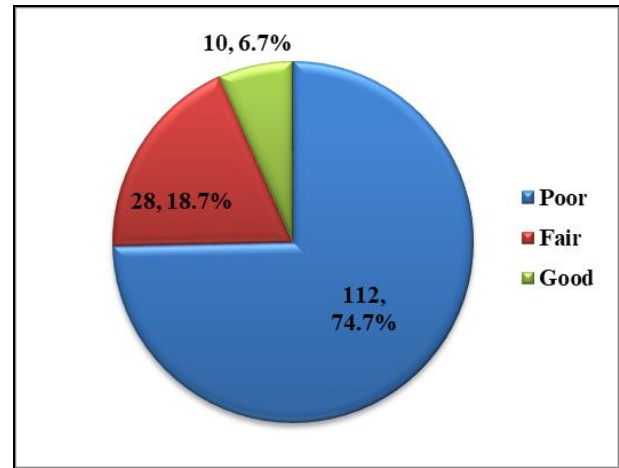


Fig 4: Knowledge about effect, consequences and complications of gestational diabetes mellitus (on mother).

Table 1: Distribution of sociodemographic data among participants according to their knowledge about gestational diabetes mellitus, diabetes mellitus, and its risk factors

Variables		Knowledge about gestational diabetes mellitus and diabetes mellitus and its risk factors						Total	P* value
		Poor N=123		Fair N=17		Good N=10			
		No.	%	No.	%	No.	%		
Age/years	18-25	69	82.1	10	11.9	5	6.0	84	0.23
	26-35	43	87.8	4	8.2	2	4.1	49	
	36-45	11	64.7	3	17.6	3	17.6	17	
Education	Illiterate	2	100.0	0	0.0	0	0.0	2	0.017
	Primary education	45	95.7	0	0.0	2	4.3	47	
	Secondary education	39	79.6	5	10.2	5	10.2	49	
	Higher education	37	71.2	12	23.1	3	5.8	52	
Occupation	Housewife	94	85.5	9	8.2	7	6.4	110	0.118
	Government employee	16	64.0	6	24.0	3	12.0	25	
	Non-government employee	7	100.0	0	0.0	0	0.0	7	
	Student	6	75.0	2	25.0	0	0.0	8	
Parity	Primigravida	53	84.1	6	9.5	4	6.3	63	0.031
	1-2	38	84.4	7	15.6	0	0.0	45	
	3-4	22	68.8	4	12.5	6	18.8	32	
	≥ 5	10	100.0	0	0.0	0	0.0	10	
Stage of pregnancy	First trimester (1-12 week)	10	100.0	0	0.0	0	0.0	10	0.013
	Second trimester (13-28 week)	39	79.6	10	20.4	0	0.0	49	
	Third trimester (29-40 week)	74	81.3	7	7.7	10	11.0	91	
Residency	Rural	0	0.0	0	0.0	0	0.0	0	-
	Urban	123	82.0	17	11.3	10	6.7	150	

Discussion

Gestational diabetes mellitus has a global public health concern and it has been associated with adverse health outcomes for both mothers and their newborn [9].

The prevention of GDM can be maintained by educating women of childbearing age about GDM, its predisposing factors and future risks [10].

In the recent study most participants have poor knowledge score about GDM and it is risk factors among (82%), this result incorcordance with Elamurugan S and Arounassalame B [11] (2016) which the level of participants knowledge was good, while in Shrestha S, et al. [12] 2013 study found that (20%) of participants had knowledge about GDM risk factors, this differences may be due to sample size, time of pregnancy and educational status.

Regarding knowledge score about complications of GDM on baby in the recent study it was poor among (56.7%) of participants while in Prabhu J et al. [8] study only (30-50%) of participants knew about complication.

The overall knowledge of the recent study was poor, which was similar to studies done by Zuhir A et al. [13] 2022, and Shrestha S et al. [12] 2013, while fair in Sisodiya K and Prakash B [14] 2021, Shriram V et al. [15] 2013 and George M and George N [16] 2016, and good in Prabhu J et al. [8].

In the recent study poor overall knowledge associate with education, parity, stage of pregnancy and occupation, the same result in Hussain Z et al. [17] (2015) there is direct relation between knowledge of GDM and educational level, while in Zuhir A et al. [13] 2022 shows that there are a statistically significant between overall knowledge and socio-demographic at p-value <0.05, while not significantly with stage of pregnancy, while in Alnaim A [18] 2020 and Prabhu J et al. [8] show that level of knowledge increase with age and educational status.

In the other hand Shriram V et al. [15] 2013 and Elamurugan S and Arounassalame B [11] (2016) show that education and parity not significantly associated with the level of knowledge about GDM while in Shrestha S et al. [12]

2013 occupation did not play any significant role on the level of knowledge, and George M and George N^[16] study reported that there was no significant association between knowledge about GDM and parity.

Regarding the Source of information about GDM in the recent study doctors were the most common source (61.3%) which was higher than studies done by Sisodiya K and Prakash B^[14] 2021, Shrestha S *et al.*^[12] 2013, Ayper A and Aluř T^[19] 2021, Price L *et al.*^[20] 2017 and Alnaeem L^[21] 2019.

Conclusions

Knowledge about GDM, DM, its risk factors, diagnosis, management, consequences and complication (on baby) and (on mother) was poor among pregnant women.

Poor knowledge about gestational diabetes mellitus, diabetes mellitus, and its risk factors was significantly associated with illiteracy, parity ≥ 5 , and first trimester (1-12 week) respectively.

Conflict of Interest

Not available

Financial Support

Not available

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