Original Article

Frequency of Depression in Patients with Gestational Diabetes

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Abstract

Objective: To determine the frequency of depression among pregnant women presenting with gestational diabetes at a tertiary care Hospital.
Methodology: This cross-sectional study was done at the department of obstetrics and gynecology of the Military Hospital Rawalpindi, during a period of six months, from July 2017 to December 2017. All of the women with singleton pregnancy, gestational age from 24 to 28 weeks, parity 0–4, and gestational diabetes were included, while hypertension and diabetes were excluded. Basic demographics (age, parity, gestational age, weight, and height) were recorded. For HDRS scores, all women were interviewed. Depression was recorded (Hamilton Depression Rating Scale (HDRS) score >10 on two occasions) by the researcher. Data was noted on an especially designed proforma.
Results: A total of 181 women were enrolled, their mean age was 29.143±3.37 years, the average gestational age was 26.016±1.24 weeks; the mean parity was 1.331±1.35, mean weight was 70.149±12.92 Kg, mean height was 1.544±.09 meters; and the mean BMI was 29.471±5.04 Kg/m2. Most of the cases were in 26-35 years age group (84.5%). The family history of diabetes was 48.6%. Depression was seen in 17.7% of patients. The occurrence of depression was statistically insignificant according to age, gestational age, family history of diabetes, educational level, occupation, residential area, and BMI (p=>0.05), while statistically significant according to parity (p=<0.05)
Conclusion: In conclusion, it is revealed that the depression observed to be high. Women having gestational diabetes must undergo depression screenings, be directed to the proper social services and psychological support, and the mental health professionals, involvement as per requirement.

Keywords: Gestational diabetes, Depression, Frequency

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Introduction

Gestational diabetes is a prevalent complication that occurred during pregnancy. A recent estimate in 2021 suggests that around 16.7% (21.1 million) of live births worldwide were affected by hyperglycemia during pregnancy, and due to GD accounting for (80.3% or 16.9 million) of these.[1,2] If left untreated, gestational diabetes can lead to complications for both the mother and the fetus. These complications include pre-eclampsia, macrosomia, birth injuries, and stillbirth. Gestational diabetes mellitus (GDM) is a common occurrence in low- and middle-income countries and has been suggested to raise the likelihood of depression.[3] Depression is an atypical mental condition marked by prolonged or excessive low mood, disinterest in pleasurable activities, and diminished quality of life, which can result in a wide range of adverse consequences for both the mother and child.[3] There is no consensus on the link between anxiety and depression and gestational diabetes mellitus (GDM). Some studies suggest that anxiety and depression may cause long-term hypothalamic-pituitary-adrenal (HPA) over activity, which can lead to higher levels of cortisol and insulin resistance.[4,5] This, in turn, can increase the likelihood of developing gestational diabetes mellitus (GDM) during pregnancy.[4,5]

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Conversely, a reverse mechanism may occur where the diagnosis of gestational diabetes mellitus (GDM) increases the probability of experiencing antenatal or postnatal depression.[4,6] According to a study it is observed that the women who are diagnosed with both gestational diabetes and depression are at greater risk of experiencing negative perinatal outcomes compared to those who have gestational diabetes alone.[7] Proper identification and treatment of depression in women with gestational diabetes have the potential to enhance the care and overall health outcomes of this vulnerable population.[7] There is evidence that there is a relationship between diabetes and depressive disorders, according to several studies,[8,9] and that this connection is reciprocal. Contrarily, studies reported that the diabetes mellitus was not linked to a raised risk of having new-onset psychiatric disorder either during gestation or after delivery.[10,11] However the current study has been conducted to evaluate the frequency of depression among pregnant presented with gestational diabetes at a tertiary care Hospital.

Methodology

This cross-sectional study was carried out in the Department of Obstetrics and Gynecology of Military Hospital Rawalpindi, from July, 2017 to December to 2017. All the women age 18–35 years, singleton pregnancy on ultrasound, gestational age from 24 to 28 weeks on LMP, and gestational diabetes as per the operational definition (75-g oral glucose tolerance test after an overnight fast result in 180 mg/dl after one hour) were included. Women with a history of diabetes mellitus, history if hypertension or who refused to provide informed consent were excluded. Permission from the ethical committee and research department was obtained. Informed consent was taken from all patients after explaining the risks and benefits of the study. Basic demographics (age, parity, gestational age, weight, and height) were recorded. For HDRS scores, all women were interviewed. Depression was recorded (Hamilton Depression Rating Scale (HDRS) score $\geq$10 on two occasions) by the researcher. Data was noted on an especially designed proforma. Data was analyzed using the statistical program IBM-SPSS V. 22.

Results

Age range in this study was from 18 to 35 years with mean age of 29.143±3.37 years, mean gestational age was 26.016±1.24 weeks, mean parity was 1.331±1.35 and mean BMI was 29.471±5.04 Kg/m^2. Education level and residential status shown in Table I.

Table I: Descriptive statistics of demographic characteristics (n=181)

Demographics		Mean ± SD
Age (years)		29.143±3.37
Gestational age (weeks)		26.016±1.24
Parity		1.331±1.35
BMI (kg/m^2)		29.471±5.04
Family History of Diabetes	Yes	88(48.6%)
	No	93(51.4%)
Education Level	Educated	127(70.2%)
	Un-educated	54(29.8%)
Residence	Rural	152(84.0%)
	Urban	29(16.0%)

Depression was seen in 17.7% patients as shown in Figure 1.

Stratification of depression with regard to age, gestational age, parity, family history of diabetes and BMI are shown in Table III.

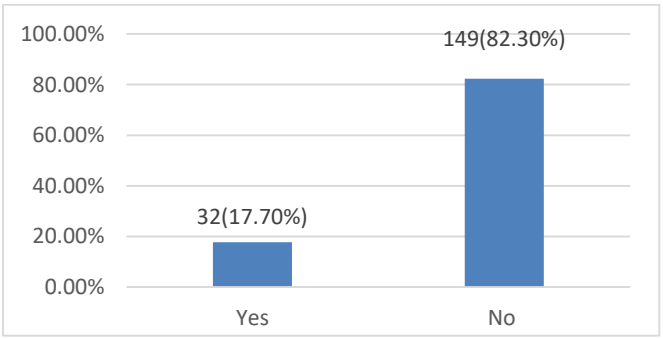

Figure 1. Frequency of depression in women with GD (n=181)

Table II: Stratification of depression with respect to age, gestational age, parity, family history (n=181)

Age Groups(years)		Depression		p-value
		Yes	No	
Age groups (years)	18-25	7(25%)	21(75%)	0.269
	26-35	25(16.3%)	128(83.7%)	
Gestation-al age (years)	24-26	22(20.2%)	87(79.8%)	0.277
	27-28	10(13.9%)	62(86.1%)	
Parity	0-2	19(14.3%)	114(85.7%)	0.046
	3-4	13(27.1%)	35(72.9%)	
Family history of diabetes	Yes	12(13.6%)	76(86.4%)	0.165
	No	20(21.5%)	73(78.5%)	
BMI (Kg/m^2)	≤25	8(16.3%)	41(83.7%)	0.771
	>25	24(18.2%)	108(81.8%)	

Discussion

Gestational diabetes is a condition that occurs during pregnancy, in which a woman develops high blood sugar levels. The depression is a common mental health

condition that affects many women during and after pregnancy. The relationship between depression and gestational diabetes is complex and multifaceted. This study has been conducted to evaluate the depression among pregnant presented with gestational diabetes. In this study age range in this study was from 18 to 35 years with mean age of 29.143±3.37 years, mean gestational age was 26.016±1.24 weeks, mean parity was 1.331±1.35 and mean BMI was 29.471±5.04 Kg/m^2.

In the comparison of this study, Schmidt CB et al[12] reported that the patient's average age was 32.5±4.1 years, average gestation age was 27.8 weeks and average BMI was 26.7 ±4.8 kg/m^2. In the support of this study, Larrabure-Torrealva GT et al[13] also reported that the mean age of their study subjects was 28.9 years. Although the Natasha K et al[14] conducted a case control study and in their study mean age of the of GDM women was 28.34 years. In this study, the average BMI was higher among GDM women compared to other studies. Age is a significant factor as the risk of developing gestational diabetes increases with maternal age.

Women who are 25 years or older have a higher likelihood of developing gestational diabetes compared to younger women. This may be because as women age, their bodies become less efficient at producing and using insulin, which can lead to insulin resistance and elevated blood sugar levels. BMI is another significant risk factor for gestational diabetes. Women who have a body weight that exceeds the healthy range or who are obese are more prone to developing gestational diabetes compared to those who have a healthy body weight. The reason for this is that having excessive body fat can cause insulin resistance, which can make it more challenging for the body to control blood sugar levels. age and BMI can also interact with each other to increase the risk of gestational diabetes. Women who are both older and overweight or obese are at a higher risk of developing the condition than those who are younger and have a healthy weight.

In this study depression was seen in 17.7% patients and as per stratification of depression it was statistically insignificant according to age, gestational age and BMI (p= >0.05). In the comparison of this study, Shuffrey LC et al[15] reported that a larger percentage of pregnant women having GDM were diagnosed with depression disorder 21% compared to women without gestational diabetes 13%. On the other hand, Tasnim SD et al[3] also reported 36.2% of the participants with mild to severe symptoms of prenatal depression. Sandhya M et al[16] reported 32% of the pregnant women who had gestational diabetes, found with depression. Minschart C et al[17] found 21.3% depression with gestational diabetes**.**

In the comparison of this series, Gilbert L et al[18] reported that there was a significant correlation between increased depression scores during the initial GDM visit and future weight gain in gestational diabetes mellitus pregnancy. Although the Versteegen M et al[19] reported that there was a statistically significant link between depressive symptoms and GDM. On the other hand, Miller NE et al[20] also reported that in the population of individuals with GDM, 15.2% had a depressive disorder diagnosis, whereas just it was observed just in 6.2% of those in the control group. There are several reasons why depression may be more common in women with gestational diabetes. Firstly, the diagnosis of gestational diabetes can be a source of stress and anxiety for many women. This can be due to concerns about the health of the baby, the need to make lifestyle changes such as changes in diet and exercise, and the possibility of complications during childbirth. Secondly, the hormonal changes that occur during pregnancy can also contribute to depression. Lastly, gestational diabetes can lead to increased fatigue, which can exacerbate feelings of depression.

Furthermore, depression in gestational diabetes may go undetected and untreated, as many healthcare providers focus primarily on managing blood glucose levels and may not prioritize mental health screening. This underscores the importance of ensuring that healthcare providers screen women with gestational diabetes for depression and provide appropriate mental health support. The impact of depression on women with gestational diabetes can be significant. Depression can make it more difficult to manage blood sugar levels, which can increase the risk of complications for both the mother and the baby. It can also lead to poor maternal mental health outcomes and impact the emotional bonding between the mother and child. It is important for healthcare professionals to screen women with gestational diabetes for depression and provide appropriate support and treatment. This can include counseling, support groups, and medication if necessary. Engaging in a healthy lifestyle through regular exercise and a nutritious diet may also decrease the likelihood of depression in women who have gestational diabetes.

Conclusion

As per the study conclusion the occurrence of depression in women with gestational diabetes observed to be the 17.7%. It is important to screen patients who have gestational diabetes for depression and provide them with relevant social services and psychosocial support. In cases where necessary, mental health professionals should also be involved. It is important to prioritize the mental health of women with gestational diabetes, as it can have a significant impact on their overall well-being during and after pregnancy

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