Antenatal Depression Among Pregnant Women with Gestational Diabetes Mellitus: A Comparative Study in Tertiary Care Hospitals of Thiruvananthapuram District

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Published on 31st March 2022

ABSTRACT

The study investigates the prevalence and risk factors of antenatal depression among pregnant women with gestational diabetes mellitus (GDM) in a tertiary care hospital in Thiruvananthapuram district. Using a cross-sectional study design, the research compared 250 GDM patients with 250 non-GDM pregnant women. The Edinburgh Postnatal Depression Scale (EPDS) was used for assessment of depression. Results indicated a significantly higher prevalence of depression in GDM patients (36.2%) compared to non-GDM patients (15.2%). The study underscores the importance of regular screening and targeted interventions to manage antenatal depression in GDM patients.

Keywords: Antenatal Depression, Gestational Diabetes Mellitus, Thiruvananthapuram

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INTRODUCTION

Pregnancy is a critical period characterized by profound physiological and emotional changes. It represents a vulnerable time when women are at increased risk of developing mental health disorders, including antenatal depression. Antenatal depression, defined as the onset of depressive symptoms during pregnancy. It can significantly affect a woman's ability to function and care for herself, thereby impacting both her physical and mental health.

Globally, the prevalence of antenatal depression is approximately 16%, with higher rates observed in low- and middle-income countries.[1] This disparity underscores the need for targeted mental health interventions in these regions.[2] In India, the prevalence rates are even more concerning, given the added burden of socio-economic factors, limited access to healthcare, and cultural stigmas associated with mental health.[3]

Gestational diabetes mellitus (GDM) is a common condition affecting around 10% of pregnancies worldwide.[4] GDM is associated with numerous complications, including pre-eclampsia, cesarean delivery, and an increased risk of developing type 2 diabetes postpartum.[5] Additionally, there is growing evidence suggesting a significant correlation between GDM and antenatal depression. This relationship highlights the compounded risk these women face, necessitating comprehensive care strategies that address both physical and mental health needs.

RATIONALE

Understanding the correlation between GDM and antenatal depression is critical for exploring their combined impact on health and wellbeing of the mother . This study aims to provide insights into the prevalence and risk factors of antenatal depression in pregnant women with GDM within the Thiruvananthapuram district, enhancing targeted healthcare strategies and interventions. By identifying the prevalence and associated risk factors, healthcare providers can better design screening protocols and therapeutic interventions to improve maternal health outcomes.

Cite this article as: Ramachandran R, Jose R. Antenatal Depression Among Pregnant Women with Gestational Diabetes Mellitus: A Comparative Study in Tertiary Care Hospitals of Thiruvananthapuram District. Kerala Medical Journal. 2022;15(1):10–3.

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OBJECTIVES

1. Determine the prevalence of antenatal depression among pregnant women diagnosed with gestational diabetes mellitus.
2. Compare the prevalence of antenatal depression between gestational diabetes mellitus patients and non-diabetic pregnant women.
3. Identify the potential risk factors associated with antenatal depression in gestational diabetes mellitus patients.

MATERIALS AND METHODS

It was a cross-sectional study design to evaluate the prevalence and risk factors of antenatal depression among pregnant women with and without GDM. The study was conducted in tertiary care hospital in the Thiruvananthapuram district over a period of six months. The study population included pregnant women with a history of GDM attending the tertiary care hospital during the study period. Pregnant women aged 18-40 years and women in their 2nd or 3rd trimester of pregnancy were included in the study. Those patients with a history of mental illnesses or diabetic conditions before conception and high-risk pregnancies due to hypertension or multiple pregnancies were excluded from the study. Based on previous studies, the prevalence of antenatal depression in non-diabetic pregnant women was estimated at 15% ,[1] while for pregnant women with GDM, it was 25%.[6] Using a significance level of 5% and power of 80%, the required sample size was calculated to be approximately 250 participants per group.

DATA COLLECTION

Consecutive sampling was employed, selecting participants who met the inclusion criteria. Data were collected through face-to-face interviews using a semi-structured questionnaire after obtaining informed consent. The questionnaire covered socio-demographic details such as age, education, occupational status, income, reproductive health history including number of pregnancies, history of abortion, neonatal death, diabetes status, anthropometrics details like BMI were collected. Antenatal depression-related items were assessed using the Edinburgh Postnatal Depression Scale (EPDS).

DATA ANALYSIS

Data were analyzed using the Statistical Package for Social Science (SPSS). Descriptive statistics were used to summarize the data. Comparative analyses between GDM and non-GDM groups were conducted using Chi-square tests for categorical variables and t-tests for continuous variables. A p-value <0.05 was considered statistically significant.

RESULTS

The study included 500 participants, with 250 in the GDM group and 250 in the non-GDM group. The socio-demographic characteristics of the participants are detailed in **Table 1.**

Table 1. Socio-demographic Characteristics of Study Participants

Variable		GDM Patients (n=250)	Non-GDM Patients (n=250)
Age (years)	<20	2 (0.8%)	1 (0.4%)
	20-30	90 (36%)	132 (52.8%)
	>30	158 (63.2%)	117 (46.8%)
Occupational Status	Employed	138 (55.2%)	177 (70.8%)
	Non-employed	112 (44.8%)	73 (29.2%)

Table 2 highlights the reproductive health history and BMI of the participants. GDM patients had a higher prevalence of adverse reproductive outcomes.

Table 2. Reproductive Health History

Variable	GDM Patients (n=250)	Non-GDM Patients (n=250)
Reproductive Health History		
Average Gestational Age (weeks)	30	26
History of Abortion	46 (18.4%)	13 (5.2%)
History of Neonatal Death	2 (0.8%)	0
BMI Distribution		
18.5–22.9	37 (14.8%)	97 (38.8%)
23.0–24.9	45 (18%)	88 (35.2%)
25-29.9	93 (37.2%)	37 (15%)
>30	75 (30%)	28 (11.2%)

Prevalence of antenatal depression

The presence of antenatal depression was assessed using Edinburgh Postnatal Depression Scale (EPDS). 91 (36.2%) of patients with GDM and 38(15.2%) participants without GDM had antenatal depression.

Comparison of severity of antenatal depression in both the groups

The severity of antenatal depression was assessed among patients with depression in both the groups. 36 (39.5%) of GDM patients and 18 (47.3%) of non-GDM patients had mild depression. 48 (52.7%) of GDM and 15 (39.4%) non- GDM patients had moderate depression and 7 (7.69%) of GDM and 5

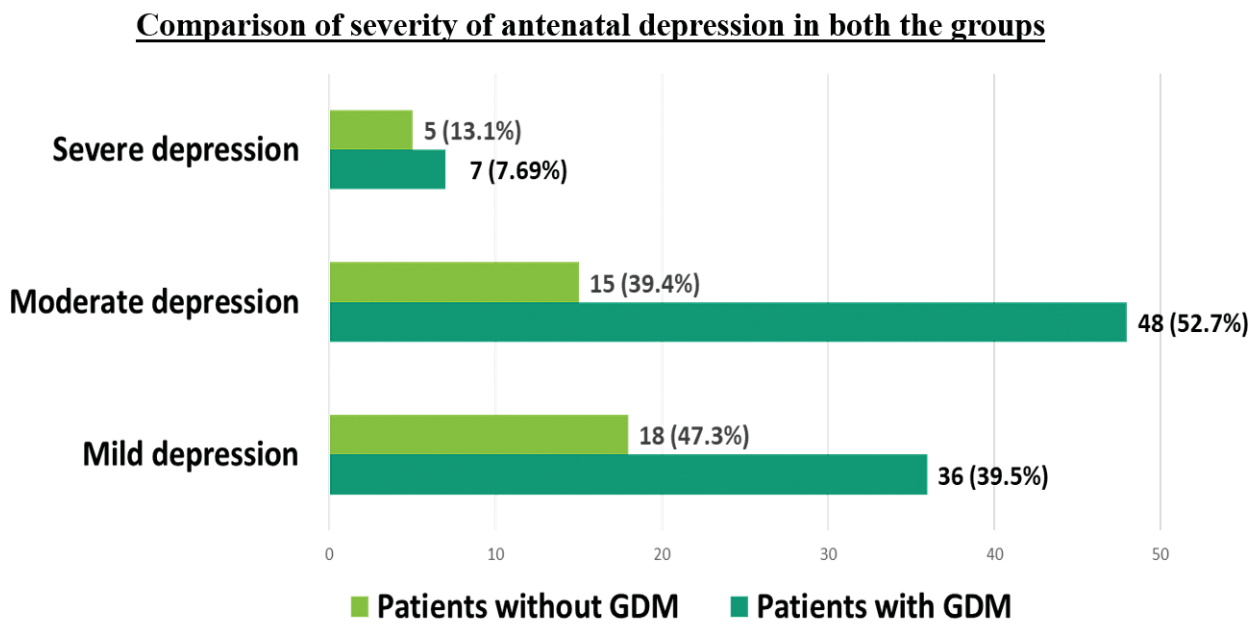

Figure 1. **Severity of antenatal depression among GDM and Non-GDM patients**

(13.1%) of non- GDM patients had severe depression. In all the severity scale, prevalence was more among GDM patients **(Figure 1).**

Potential risk factors associated with antenatal depression

Correlation of various factors with antenatal depression was assessed. Socio-demographic factors did not show a significant correlation with depression. However, a history of reproductive health issues (e.g., abortion) and uncontrolled glycemic status were associated with an increased risk of depressive disorders .

DISCUSSION

The findings of this study reveal a significantly higher prevalence of antenatal depression among pregnant women with GDM compared to their non-GDM counterparts. The prevalence rate of 36.2% in GDM patients is considerably higher than the global average of 16% for antenatal depression, underscoring the compounded risk faced by this group.[4] The high prevalence of antenatal depression among GDM patients aligns with previous research by Minschart et al. in which they reported a similar trend, noting that women with GDM are at an increased risk of developing depressive symptoms due to the additional physical and psychological stressors associated with the condition.[7] Yin et al. also identified a higher prevalence of antenatal depression among women with GDM, reporting a mean prevalence of 35%, which aligns closely with our findings.[8] Similarly, Johnson et al. identified a positive correlation between antenatal depression and poor glycemic control in GDM patients, corroborating our results.[4]

Uncontrolled glycemic status emerged as a significant risk factor for antenatal depression among GDM patients. Poor glycemic control can exacerbate physical symptoms, increasing psychological strain. Furthermore, a history of adverse reproductive outcomes (e.g., previous abortions or neonatal deaths) was significantly associated with higher depression rates. These findings highlight the importance of comprehensive care that addresses both physical and mental health needs.

CONCLUSION

91 (36.2%) of patients with GDM and 38 (15.2%) participants without GDM had antenatal depression. Gestational diabetes mellitus is significantly associated with a high prevalence of depressive symptoms, exacerbated by factors such as poor glycemic control and adverse reproductive history. Regular screening for depression and glycemic status, along with counseling sessions, are recommended for GDM patients throughout pregnancy. Implementing these measures can improve maternal and neonatal health outcomes.

Implications

The high prevalence of antenatal depression among GDM patients necessitates regular screening for depressive symptoms as part of routine antenatal care. Healthcare providers should be trained to recognize signs of depression and offer appropriate referrals for mental health support. Interventions such as counseling, stress management techniques, and support groups can be beneficial in mitigating the impact of depression.

Recommendations

Routine Screening: Incorporate regular screening for antenatal depression and glycemic control into antenatal care protocols for pregnant women with GDM.

Integrated Care: Develop integrated care models that address both the physical and psychological needs of pregnant women with GDM.

Education and Support: Provide education and support to pregnant women with GDM, emphasizing the importance of mental health and available resources for support.

END NOTE

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Conflict of Interest: None declared

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