

# **A Study to Assess the Adverse Pregnancy Outcome and Related Psychological Distress among Gestational Diabetes Patients Using Modified PAID (Problem Areas in Diabetes) Questionnaire in A Selected Maternity Unit**

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## **ABSTRACT**

Gestational Diabetes Mellitus (GDM) is defined as Impaired Glucose Tolerance (IGT) with onset or first recognition during pregnancy. Worldwide, one in 10 pregnancies is associated with diabetes, 90% of which are GDM. In India, one of the most populous country globally, rates of GDM are estimated to be 10-14.3% which is much higher than the west.<sup>1</sup> This condition is associated with lot of psychological distress which in turn may result in adverse pregnancy outcome. A descriptive research design was used to assess the diabetes related distress and related adverse pregnancy outcome among gestational diabetes patients. Modified Problem Areas in Diabetes Scale (PAID) was used to assess the data. The study results showed that the psychological distress was significantly associated with the adverse pregnancy outcome whereas no significant association was found with the demographic variables. The major problem areas identified were worrying about possibility of serious complications for the baby, feeling anxious about the outcome of pregnancy, feeling “burned out” by the constant effort needed to manage diabetes. Nurses being the primary caregivers can contribute greatly to reduce the psychological distress by one to one counselling regarding the therapeutic regimen which will thereby result into positive pregnancy outcome.

## **Keywords**

Pregnancy, Psychological Distress, Gestational Diabetes, PAID, Maternity

## **INTRODUCTION**

Diabetes is a serious reproductive, maternal and child health issue, with gestational diabetes mellitus (GDM) contributing to maternal morbidity and mortality.<sup>2</sup> Gestational Diabetes Mellitus (GDM) is defined as Impaired Glucose Tolerance (IGT) with onset or first recognition during pregnancy. <sup>1</sup>Effects of Diabetes Mellitus on the fetus are macrosomia, chance of being still born, birth defect, hypoglycemia, Respiratory Distress Syndrome 10%, and risk for developing type II Diabetes Mellitus later in life to child.High risk conditions have a negative impact on the outcome of pregnancies.<sup>3</sup> Very little is known about relationship of GDM with emotional distress and resulting adverse pregnancy outcome. The investigator attempts to determine the extent to which diabetes distress occurs during pregnancy in GDM patients and whether it is associated with adverse pregnancy outcome.

## **OBJECTIVES OF THE STUDY**

1. To assess the prevalence of diabetes distress in gestational diabetes mellitus
2. To associate the diabetes distress with adverse pregnancy outcome
3. To associate the diabetes distress with selected demographic variables

## **METHODOLOGY**

**Study Design-** Descriptive study design was used in the study

**Sample** – women who were diagnosed with GDM, based on an oral glucose tolerance test (OGTT)

**Sampling Technique** – Non Probability Purposive sampling technique was used

**Setting:** The study was conducted in a maternity unit of a tertiary care hospital in Maharashtra.

**Inclusion Criteria**

- Women who were diagnosed as having GDM < 34 weeks
- Who were able to read and write English or Marathi

**Exclusion Criteria**

- Known case of Type1 and Type II Diabetes
- Patients with known case of any other medical disorders like Chronic Kidney Disease, chronic hypertension, mental illness

The adverse pregnancy outcomes were reported by the mother in the antenatal and postnatal period retrospectively and some were reviewed from the medical records. The reliability coefficient of the instrument was 0.97.

**Data Collection Instrument:Modified PAID Questionnaire** – PAID Problem Areas in Diabetes Questionnaire is a scale validated by G Welch, K Weinger, W H Polonsky which is used to measure emotional distress in Diabetes patients.<sup>4</sup> The author has modified this scale for Gestational Diabetes Patients and used it in the study. It consists of 10 items which have ratings as: -

0- Not a problem, 1 - Minor problem, 2 – Moderate problem, 3 – Somewhat serious problem ,4 – Serious problem. A total score of  $\geq 16$  indicates possible diabetes related emotional distress, which warrants further assessment.

**Data Collection Procedure and ethical aspects:**

1. Permission from the concerned Hospital authorities (Setting - tertiary care teaching hospital)
2. Written Informed consent from the patients was taken for participation in the study.
3. Modified PAID (Problem Areas in Diabetes Questionnaire was administered during antenatal period)
4. Assessment of adverse pregnancy outcomes (self-reported or through medical records)

**RESULTS:**

**The findings of the study are as follows:**

**Section 1: Distribution of samples according to demographic variables and their association with diabetes distress using chi square (n=57)**

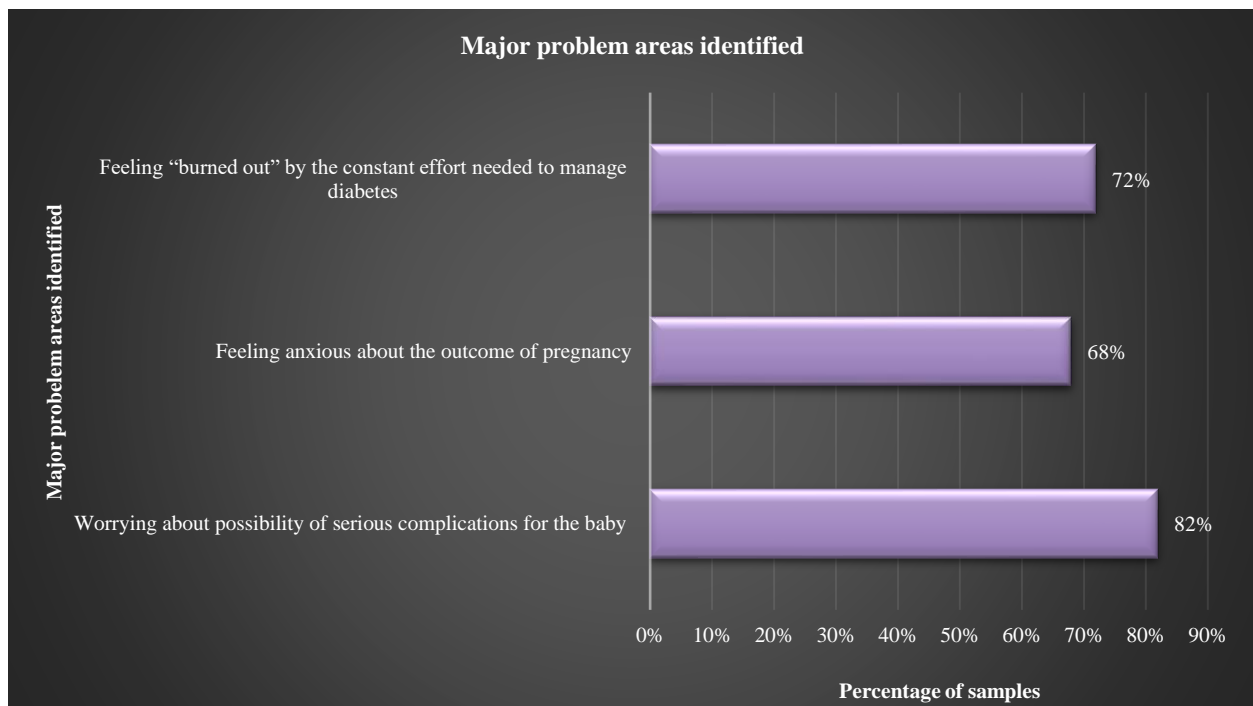
Sr. No.	Variable	Frequency	Percentage	Association of demographic variable with diabetes distress using chi square
1	Age (26-30 years)	41	72%	No significant association
2	Primigravida	39	68%	No significant association
3	Education upto Higher Secondary school	51	89%	Significant association at <0.05
4	Family Income – Rs. 15,001 and above	43	76%	No significant association

5	H/O GDM in previous pregnancies	No	-	No significant association
6	Adverse Pregnancy outcomes in previous pregnancy	8 (6 abortions, 1 preterm delivery, 1 IUD)	14%	No significant association
7	Insulin Use	25	44%	No significant association
8	BMI (25–29.9)	46	80%	No significant association

A total of 57 women were included out of which majority, i.e. 72% of samples belonged to the age group of 26-30 years and mean BMI for the patients was 28.4. 68% of the samples were primigravida. 89% of the samples had taken formal education up to higher secondary school. 76% had monthly family income of more than Rs. 15,000. None of the patients reported of history of GDM in previous pregnancies. 14% of patients reported history of adverse pregnancy outcomes in previous pregnancies like abortion and history of NICU admission due to fetal distress. A significant association was found between the PAID scores and adverse pregnancy outcomes and educational status of the women at 0.05 level of significance.

**Section 2: Distribution of samples according to Diabetes distress**

Elevated diabetes distress was reported by 56% of the women. The major problem areas which were identified are: 1) Worrying about possibility of serious complications for the baby 2) Feeling anxious about the outcome of pregnancy 3) Feeling “burned out” by the constant effort needed to manage diabetes.



**Section 3: Distribution of samples according to adverse pregnancy outcome and association with diabetes distress. (n=57)**

Sr. No.	Adverse pregnancy outcome	Frequency	High Diabetes Distress (PAID score >16)	Low Diabetes Distress (PAID Score <16)	P value	Result S- Significant N.S. - Not significant
1	Preeclampsia	38	22	16	.702601	N.S. at p<.05
2	Cesarean section	52	32	20	.008968	Significant at p<.05
3	Breast complications	16	12	4	<.00001	Significant at p<.05
4	Failure to initiate timely breastfeeding	19	14	5	.000639	Significant at p<.05
5	Neonatal hospitalization	32	24	8	.000038	Significant at p<.05
6	Macrosomia	18	10	8	.226685	Significant at p<.05
7	Neonatal jaundice	32	24	8	.000038	Significant at p<.05
8	Neonatal Hypoglycemia	7	5	2	.11654	N.S. at p<.05

Adverse pregnancy outcomes in present pregnancy (collected via self-report and if feasible from the medical records) were pre-eclampsia, caesarean section, postpartum hemorrhage (2%), breast complications, failure to initiate timely breastfeeding, neonatal hospitalization, macrosomia, jaundice, hypoglycemia, and others like preterm delivery, low birth weight babies, hypoxia postpartum hemorrhage were few in number. Except for preeclampsia and neonatal hypoglycemia, all the adverse pregnancy outcomes had significant association with diabetes distress at .05 level of significance. So it can be concluded that prevalence of diabetes distress during pregnancy can result into adverse pregnancy outcome.

**DISCUSSION**

Egan et al. (2017) reported no association between antepartum depression, stress or anxiety and pregnancy outcomes such as preterm delivery, delivery type or infant Apgar scores in women with GDM, type 1 diabetes or without diabetes while other studies did report an association between prenatal maternal stress and perinatal complications in pregnant women in general.<sup>5</sup> In this study, a significant association was found between the PAID scores and history of previous adverse pregnancy outcomes and educational status of the women.

Charlotte B. Schmidt, Ilse Voorhost, et.al conducted a prospective cohort study on 100 gestational diabetic mothers in Amsterdam based teaching hospital to assess the diabetic specific emotional distress and its relation with adverse pregnancy outcome. Elevated diabetes distress was reported by 36% of women and the study also reported significant association of distress with adverse pregnancy outcome.<sup>6</sup>In the present study, diabetes distress was prevalent in 56% of women and a significant association was found between the PAID scores and adverse pregnancy outcomes.

## CONCLUSION

In women with GDM, intensified treatment and lack of informational and social support are associated with distress. These aspects of GDM care appear to be appropriate targets for future research and interventions aimed at reducing the level of distress in these patients. As the study findings suggest that adverse pregnancy outcomes had significant association with the PAID scores, Nurses can train themselves as Diabetes Educators to provide individualized care in order to alleviate the anxiety of mothers suffering with gestational diabetes mellitus which in turn will result in positive pregnancy outcomes.

### Abbreviations:

**BMI:** Body Mass Index

**GDM:** Gestational Diabetes Mellitus

**PAID:** Problem Areas in Diabetes

Conflict of Interest - None

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