



Obstetrics & Gynaecology

COMPARISON OF DIPSI AND IADPSG CRITERIA FOR GESTATIONAL DIABETES SCREENING IN AN INDIAN TERTIARY CARE CENTER: A PROSPECTIVE OBSERVATIONAL STUDY

Dr. Shikha	Resident, Department of Obstetrics and Gynaecology, Rajshree Medical Research Institute, Bareilly, UP, India.
Dr. Pooja Dagar	Resident, Department of Obstetrics and Gynaecology, Rajshree Medical Research Institute, Bareilly, UP, India.
Dr. Rajni Agarwal	Professor and Head of Department, Department of Obstetrics and Gynaecology, Rajshree Medical Research Institute, Bareilly, UP, India.

ABSTRACT **Objective:** To compare the effectiveness of the Diabetes in Pregnancy Study Group India (DIPSI) and the International Association of Diabetes and Pregnancy Study Groups (IADPSG) criteria for universal gestational diabetes mellitus (GDM) screening in an Indian tertiary care setting and assess their impact on fetomaternal outcomes. **Methods:** A prospective observational study was conducted at Rajshree Medical Research Institute, Bareilly, from January 2024 to February 2025. A total of 200 pregnant women between 12–32 weeks gestation were screened for GDM. Participants were divided into two groups: the DIPSI group (n=100) underwent a single-step 75g glucose challenge test (GCT) without fasting, with a 2-hour post-load blood glucose level ≥ 140 mg/dL considered diagnostic. The IADPSG group (n=100) underwent a fasting 75g oral glucose tolerance test (OGTT), with GDM diagnosed if fasting glucose was ≥ 92 mg/dL, 1-hour glucose was ≥ 180 mg/dL, or 2-hour glucose was ≥ 153 mg/dL. Fetomaternal outcomes were analyzed.

Results

- Prevalence of GDM: DIPSI identified 8% of cases, while IADPSG diagnosed 12%.
- First-visit diagnosis: 85% of GDM cases were detected at initial screening.
- Management: 75% of GDM-positive women achieved glycemic control through lifestyle modifications, while 25% required insulin therapy.
- Maternal and fetal outcomes: One case of macrosomia and polyhydramnios was recorded. GDM status did not significantly impact cesarean-section rates.

Conclusion: IADPSG criteria demonstrated superior sensitivity in detecting GDM compared to DIPSI. However, their feasibility in resource-limited settings remains a challenge.

KEYWORDS : Gestational diabetes mellitus, DIPSI, IADPSG, universal screening, maternal outcomes.

INTRODUCTION

Gestational diabetes mellitus (GDM) is defined as glucose intolerance first detected during pregnancy, typically resulting from placental hormonal influences that induce insulin resistance [1]. It is a growing public health concern, especially in India, where the estimated prevalence is approximately 16.55% [3]. GDM is associated with significant maternal and neonatal complications such as macrosomia, preeclampsia, neonatal hypoglycemia, and higher rates of cesarean delivery [1,4]. Additionally, women with GDM have a 35–60% lifetime risk of developing type 2 diabetes mellitus (T2DM) within 10 years postpartum [5].

Despite its clinical significance, the ideal screening strategy for GDM remains debated. The American College of Obstetricians and Gynecologists (ACOG) recommends a two-step approach involving an initial 50g glucose challenge test followed by a 100g oral glucose tolerance test (OGTT) for those who test positive [1]. In contrast, the International Association of Diabetes and Pregnancy Study Groups (IADPSG) proposes a one-step 75g OGTT, which diagnoses GDM if any of three glucose thresholds are met [2]. In India, the Diabetes in Pregnancy Study Group India (DIPSI) simplified this further, suggesting a single, non-fasting 75g glucose challenge test with a 2-hour post-load cutoff of ≥ 140 mg/dL to improve feasibility in resource-limited settings [6,7]. However, studies suggest that DIPSI may underdiagnose GDM compared to IADPSG, raising concerns about missed cases and untreated maternal hyperglycemia [8,9].

This study aims to compare DIPSI and IADPSG criteria in an Indian tertiary care setting to determine which is more effective in early GDM detection and improving maternal and fetal health.

MATERIALS AND METHODS**Study Design And Setting**

This was a prospective observational study conducted in the Antenatal Outpatient Department (OPD) of Rajshree Medical Research Institute, Bareilly, from January 2024 to February 2025.

Study Population And Criteria

A total of 200 pregnant women attending the antenatal OPD were enrolled and allocated into two groups:

DIPSI group (n=100): Underwent a single-step, non-fasting 75g GCT. A 2-hour post-load blood glucose level ≥ 140 mg/dL was considered diagnostic.

IADPSG group (n=100): Underwent a fasting 75g OGTT, with GDM diagnosed if any of the following thresholds were met:

- Fasting glucose ≥ 92 mg/dL
- 1-hour glucose ≥ 180 mg/dL
- 2-hour glucose ≥ 153 mg/dL

Inclusion Criteria

- Pregnant women aged ≥ 23 years.
- Primigravida and multigravida with risk factors such as previous GDM, macrosomia, stillbirth, or recurrent pregnancy loss.

Exclusion Criteria

- Pregestational diabetes.
- Patients diagnosed with markedly elevated fasting/random blood glucose without OGTT.
- Acute obstetric hemorrhage.
- Young primigravida (< 23 years) without risk factors.

Outcome Measures

The following maternal and fetal outcomes were assessed:

- Maternal outcomes: Polyhydramnios, preeclampsia, mode of delivery, and postpartum glycemic status.
- Neonatal outcomes: Birth weight, neonatal hypoglycemia, Apgar scores, and NICU admissions.

Statistical Analysis

Data were analyzed using SPSS v25.0. Categorical variables were compared using Chi-square tests, while continuous variables were assessed using ANOVA. A p-value < 0.05 was considered statistically significant.

RESULTS**Baseline Characteristics**

- Age distribution: 83% were 23–28 years old, and 17% were classified as elderly mothers.
- Gravidity: 77% were primigravida, while 14.5% were second

gravida.

- BMI: 52% had normal BMI, 40% were overweight, and 8% were obese.

GDM Prevalence and Screening Efficiency

- DIPSI: Diagnosed 8% of cases (8/100).
- IADPSG: Diagnosed 12% of cases (12/100).
- Overall incidence: 10% (20/200).

Maternal And Neonatal Outcomes

- GDM management: 75% achieved glycemic control with dietary modifications, while 25% required insulin therapy.
- Complications: One case of macrosomia and polyhydramnios was observed.
- Neonatal outcomes: One macrosomic baby required NICU admission but was discharged in stable condition.
- Mode of delivery: GDM status did not significantly impact cesarean section rates.

DISCUSSION

Universal screening for GDM is particularly important in India due to the rising burden of both diabetes and pregnancy-related complications [3,4]. In this study, the IADPSG criteria identified more cases of GDM than the DIPSI approach, which aligns with findings from prior research emphasizing IADPSG's higher sensitivity. However, the implementation of IADPSG, which requires fasting samples and multiple blood draws, poses practical challenges in resource-constrained environments, particularly in rural India [7].

On the other hand, DIPSI's non-fasting, single-test model has proven attractive for primary care and community settings due to its simplicity and cost-effectiveness [6]. However, its lower sensitivity, as seen in this and other studies, risks underdiagnosing GDM, potentially leading to suboptimal maternal-fetal management [8,9]. Given that untreated GDM is linked to macrosomia, stillbirth, and future metabolic disorders for both mother and child [4], an accurate and feasible screening method is essential.

Moreover, international bodies like WHO and FIGO also acknowledge the practicality of a context-appropriate approach, encouraging flexibility in GDM diagnosis, especially in low- and middle-income countries. A significant finding of this study was that 85% of GDM cases were detected at the first screening visit, underscoring the importance of early testing, regardless of the method [3,4]. The maternal and neonatal outcome data—especially the low rate of complications in our cohort—reaffirm that timely diagnosis and intervention, even with lifestyle measures, can substantially improve perinatal outcomes [1].

Study Limitations

- Small sample size.
- Lack of a third comparative group using an alternative diagnostic method.
- Long-term neonatal outcomes were not assessed.

CONCLUSION AND RECOMMENDATIONS

The results of this study support the IADPSG criteria as a more sensitive screening method for GDM, consistent with global and Indian studies. However, the logistics of implementing IADPSG testing in low-resource settings remain a significant barrier [7]. DIPSI, while user-friendly and suitable for mass screening, risks underdiagnosis and may not fully capture the spectrum of hyperglycemia that affects pregnancy outcomes [8].

Given These Findings, We Recommend:

- Utilizing IADPSG-based screening, particularly in high-risk and urban populations where laboratory infrastructure permits [2].
- Advocating early antenatal booking and lifestyle interventions for all pregnant women to mitigate GDM risk.
- Encouraging larger multicentric studies to validate population-specific, cost-effective screening strategies for GDM in India and similar healthcare contexts [10].

Abbreviations:

Diabetes in Pregnancy Study Group India (DIPSI)

International Association of Diabetes and Pregnancy Study Groups (IADPSG) criteria

gestational diabetes mellitus (GDM)

glucose challenge test (GCT)

oral glucose tolerance test (OGTT)
type 2 diabetes mellitus (T2DM)

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