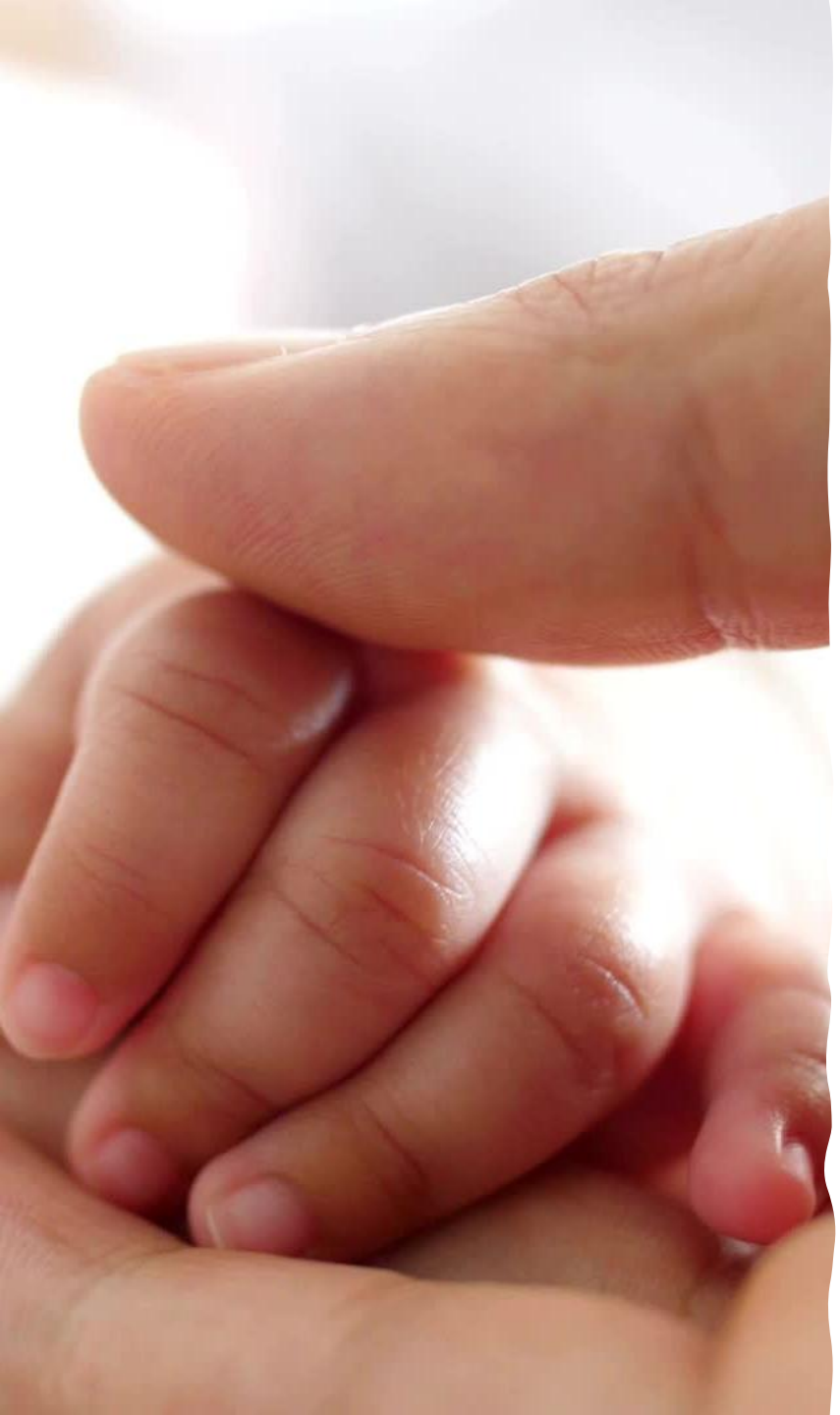

Gestational Diabetes Mellitus (GDM) and its Consequences : A Systemic Review of Maternal and Neonatal Outcomes and Long-Term Risks for Mothers

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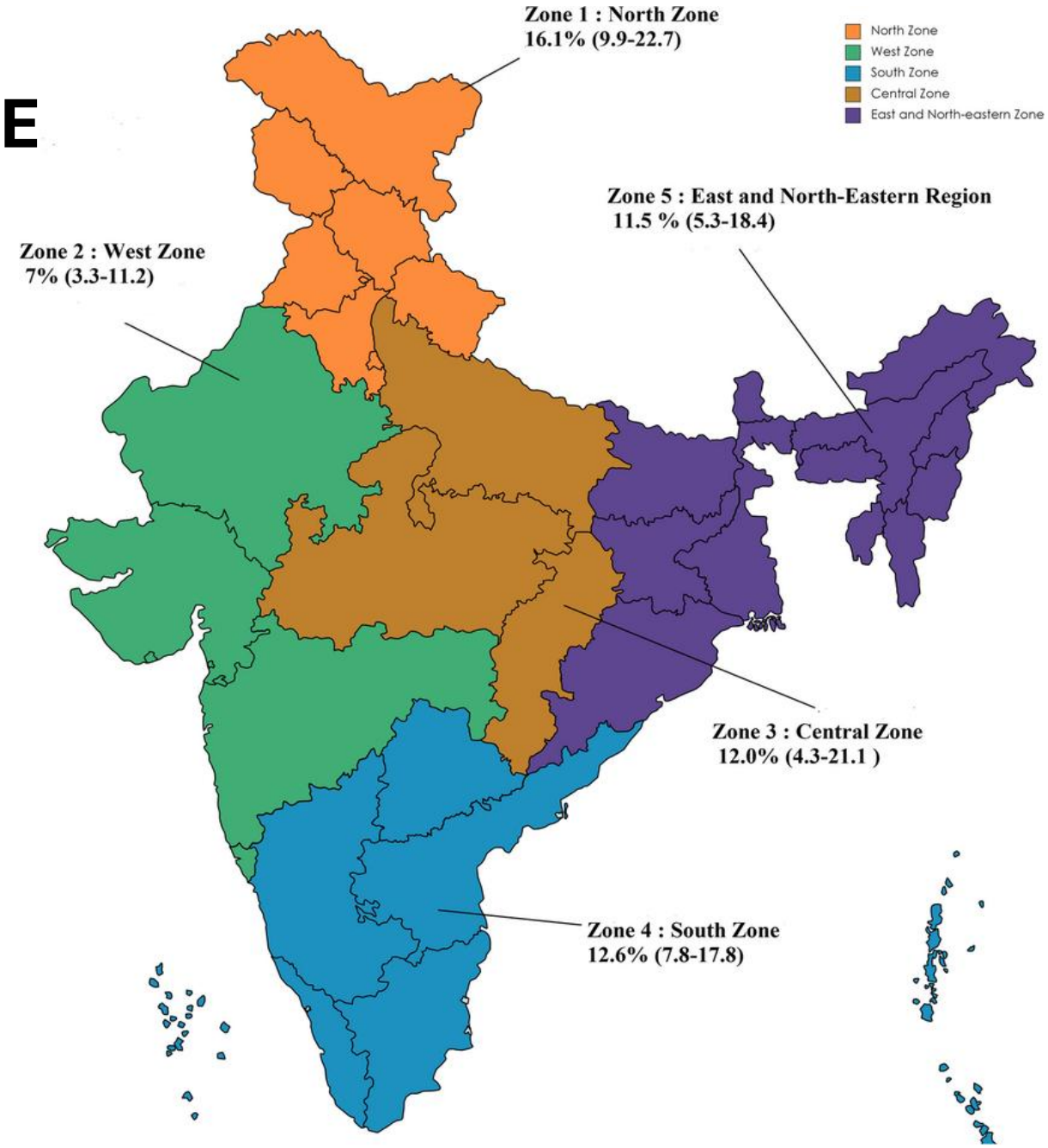
CONTENT

INTRODUCTION

- Gestational Diabetes Mellitus "the glucose intolerance that is primarily identified during the pregnancy, mostly in 2nd or 3rd trimester." It happens when the natural physiological changes during pregnancy reduce the body's efficiency in utilizing insulin properly, resulting in high blood glucose levels.
- According to the International Diabetes Federation (IDF), nearly 16.7% of all live births are affected by high blood sugar during pregnancy, and the majority—around 86%—are due to GDM.
- From a public health point of view, pregnancy provides a unique window of opportunity. Since most women are in regular contact with healthcare providers during this time, it's an ideal period for early screening, education, and preventive action.
- Dual burden: short-term + long-term risks

BACKGROUND & SIGNIFICANCE

- Insulin resistance increases in pregnancy
- The prevalence of GDM in India varies from 10-14.3% in different parts of the country (as per technical guidelines of GOI), depending on where the study is done, which diagnostic methods are used, and the characteristics of the local population.
- GDM has been found to be more prevalent in urban areas than in rural areas.
- Key causes: lifestyle changes, urbanization



RESEARCH OBJECTIVES AND RESEARCH QUESTIONS

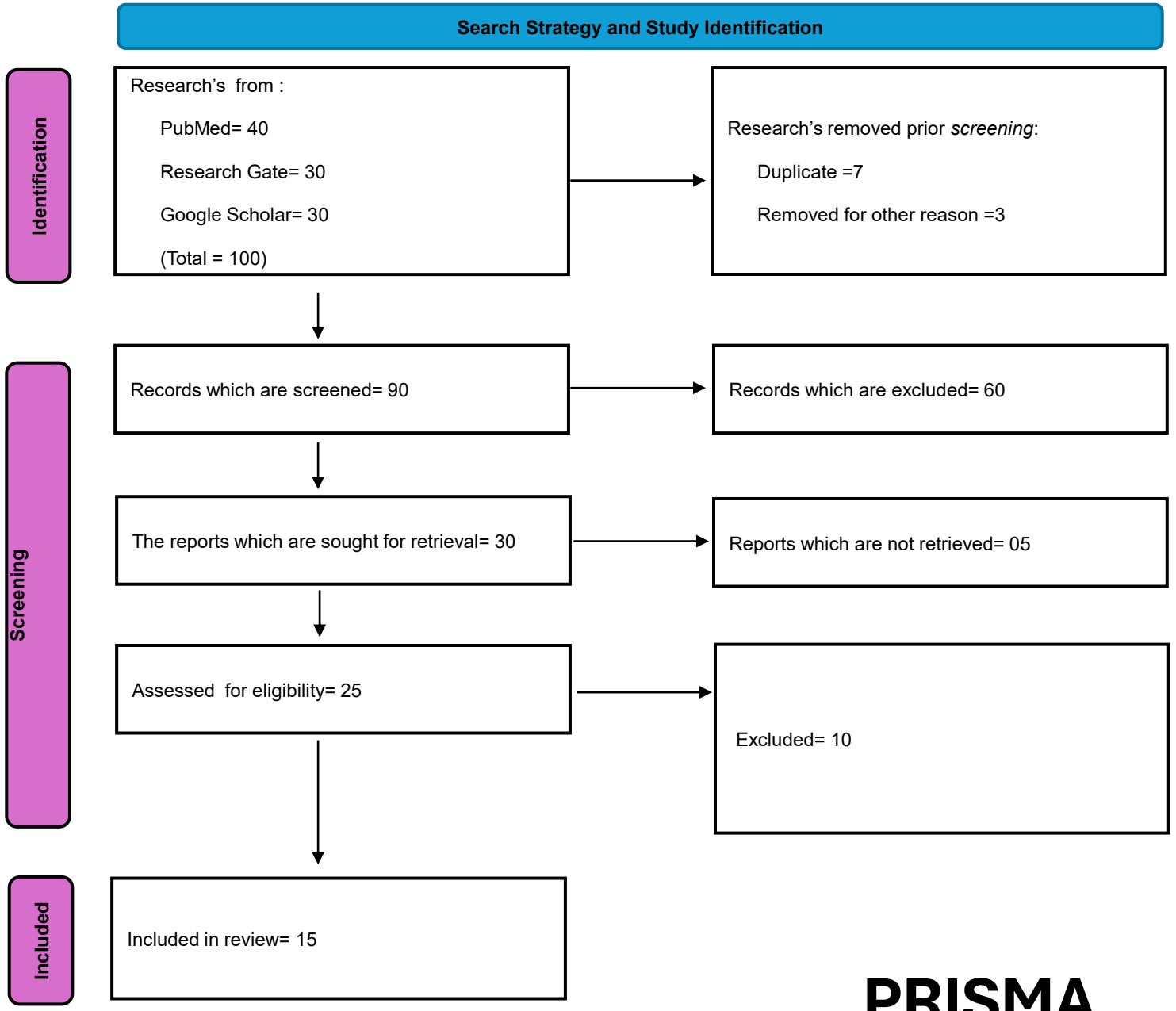
- To explore how GDM impacts maternal health, particularly in relation to complications such as preeclampsia, higher cesarean rates, and post-pregnancy health challenges.
- To examine neonatal outcomes associated with GDM, including rates of macrosomia, birth injuries, neonatal hypoglycemia, breathing issues, and admissions to neonatal intensive care units (NICUs).
- To assess the long-term risk of mothers developing T2DM and other chronic conditions after a pregnancy affected by GDM.

Research Question: What are the short-term and long-term health consequences of Gestational Diabetes Mellitus (GDM) for both mothers and neonates?

METHODOLOGY

This study offers a comprehensive review of the current literature to examine the multifaceted impact of GDM on both neonatal & maternal health. It explores not only present pregnancy-related problems associated with Gestational Diabetes but also its long future consequences, including the risk of developing chronic conditions such as type 2 diabetes in mothers and metabolic disorders in their children.

- Study Design: Systematic Review (PRISMA guidelines)
- Setting: India
- Databases: PubMed, ResearchGate, Google Scholar
- Study Timeline: 2.5 months

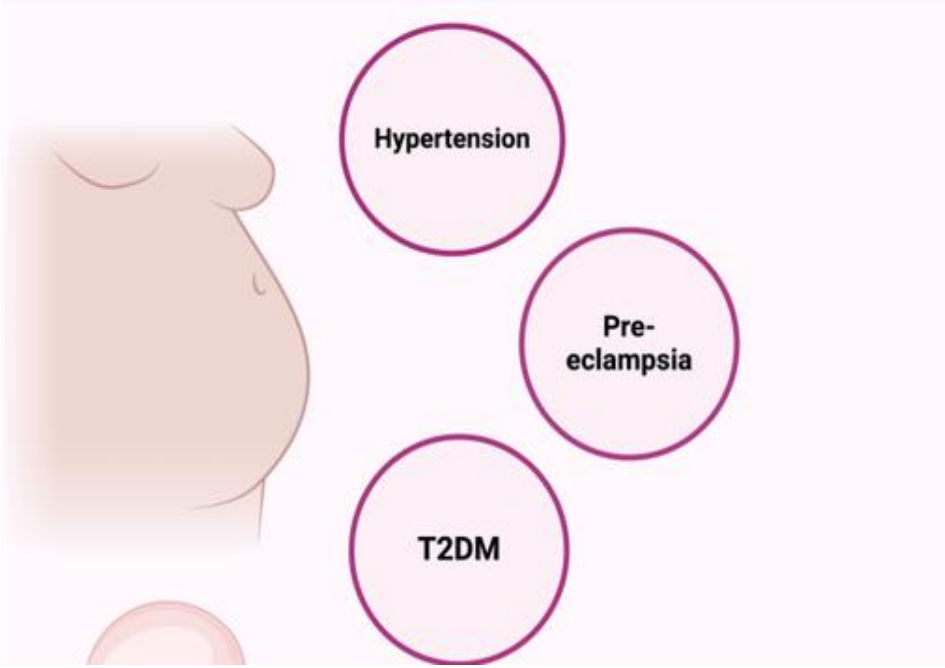

Search Strategy and Study Identification
Identification
Research's from :
PubMed= 40
Research Gate= 30
Google Scholar= 30
(Total = 100)
Research's removed prior *screening*:
Duplicate =7
Removed for other reason =3
Screening
Records which are screened= 90
Records which are excluded= 60
The reports which are sought for retrieval= 30
Reports which are not retrieved= 05
Assessed for eligibility= 25
Excluded= 10
Included
Included in review= 15

PRISMA

RESULT

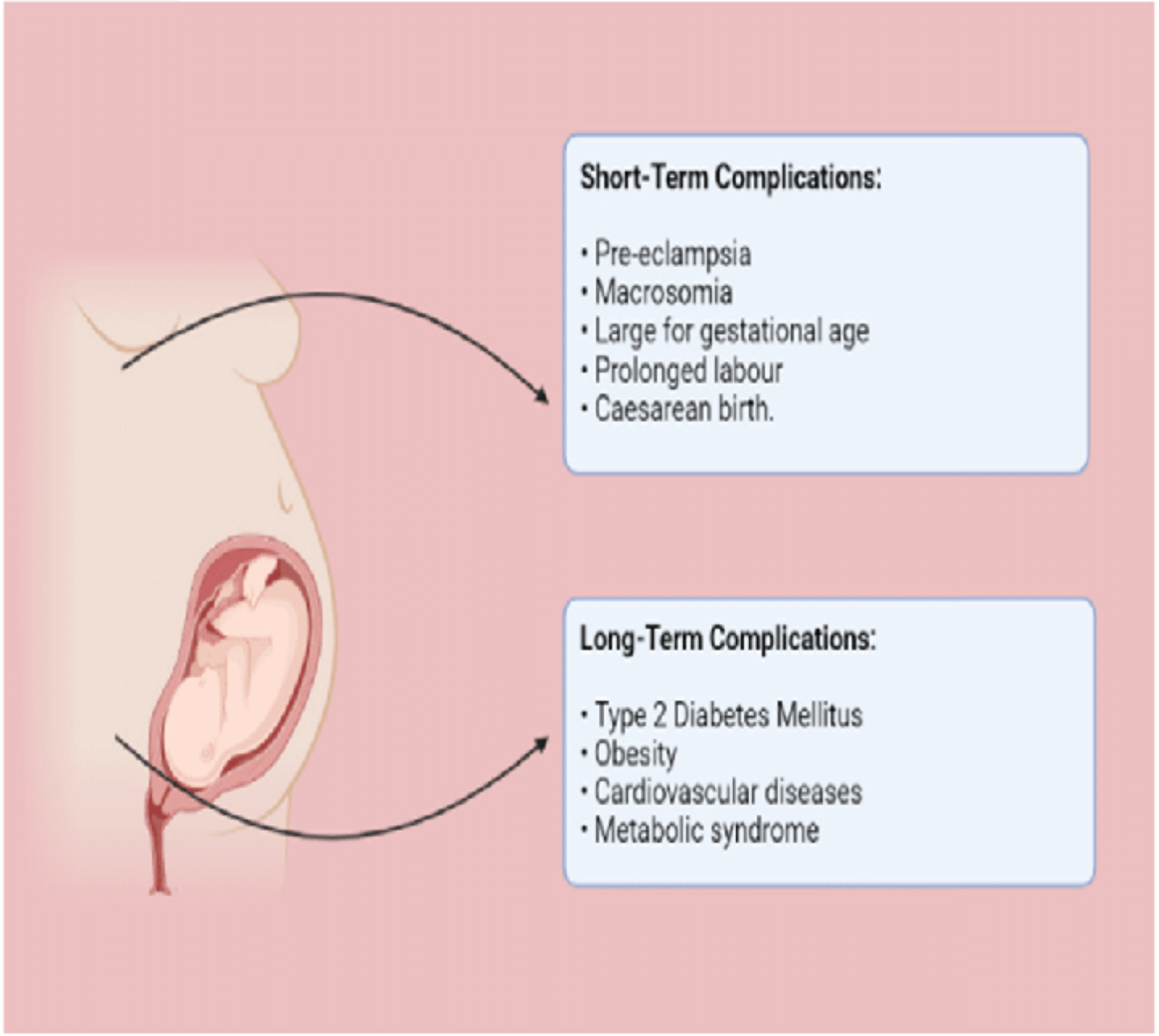
MATERNAL OUTCOMES

- Gestational hypertension and pre-eclampsia were common in GDM pregnancies.
- Higher rates of the cesarean section were observed, often due to fetal macrosomia or poor glycemic control.
- Some studies reported increased rates of polyhydramnios and preterm labor.
- Recurrent GDM in subsequent pregnancies was noted in up to 50% of cases.
- Several studies highlighted the psychosocial stress and anxiety associated with a GDM diagnosis.



LONG-TERM MATERNAL RISKS

- Lack of postpartum follow-up and lifestyle counseling was a common gap across several reports
- After a GDM pregnancy, many women acquired type 2 diabetes mellitus 5–10 years later.
- Research has shown a connection between GDM and a higher risk of metabolic diseases and CVD.



SHORT-TERM MATERNAL RISKS

Women diagnosed with GDM faced significantly higher short-term pregnancy complications compared to non-GDM mothers. The most common short-term maternal risks reported were:

- Gestational hypertension: Frequently observed due to increased vascular resistance and poor glycemic control.
- Preeclampsia: Elevated blood pressure combined with proteinuria was reported in many GDM cases.
- Polyhydramnios: Excessive amniotic fluid was observed in several studies, attributed to fetal hyperglycemia.
- Preterm labor: Some studies noted increased rates of early labor in women with uncontrolled GDM.
- Increased cesarean section rates: Due to complications like macrosomia and fetal distress, cesarean deliveries were more common.
- Urinary tract infections (UTIs) and vaginal infections: More frequent in GDM pregnancies due to elevated glucose levels.
- Obstetric interventions: Higher rates of induced labor or early delivery were recorded to prevent complications.

NEONATAL OUTCOMES:

- Neonates would be more vulnerable if their mothers had GDM. Immediate postnatal complications, including:
- Macrosomia: A birth weight exceeding 4 kilograms was frequently observed and often linked to delivery-related complications, particularly shoulder dystocia.
- Neonatal hypoglycemia: Due to abrupt withdrawal of high maternal glucose supply, resulting in low blood sugar levels postpartum.
- Respiratory distress syndrome (RDS): A result of immature lung development, especially in preterm GDM deliveries.
- Hyperbilirubinemia: Jaundice was common due to immature liver function and red cell turnover.
- Birth trauma: Due to larger birth weight and prolonged or obstructed labor.
- NICU admissions: Higher rates of neonatal intensive care were required for stabilization and monitoring.
- Stillbirths: Though less common, were noted in studies where GDM was not diagnosed or managed early.

RECOMMENDATIONS

- Universal GDM Screening in all ANC checkups (DIPSI or IADPSG protocols).
- Medical management should be done, if women found GDM positive during screening. (Referred to higher facility)
- Structured postpartum glucose monitoring at 6 weeks, 6 months, and annually.
- Integrate GDM follow-up in RMNCH+A & NCD programs.
- Frontline worker training (ASHAs, ANMs) in identifying and educating GDM cases.
- Use digital health (SMS reminders, mHealth apps) for postpartum follow-up.
- Promote lifestyle interventions: culturally tailored diet + physical activity plans. [MNT{Medical Nutrition Therapy }]
- Research investments for cost-effective GDM care models in rural India

CONCLUSION

- GDM is preventable and manageable
- Timely care improves outcomes
- Long-term health at stake

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Full list in dissertation appendix

THANK YOU

Open for Questions & Answers