

A PROSPECTIVE OBSERVATIONAL ANALYTICAL CASE-CONTROL STUDY TO ASSESS THE IMPACT OF MATERNAL OBESITY ON MATERNAL HEALTH AND PERINATAL OUTCOMES IN A TERTIARY CARE HOSPITAL IN KAKINADA DISTRICT

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ABSTRACT

Background: The rising prevalence of obesity poses significant health risks for pregnant women, impacting both maternal and perinatal outcomes. The objective is to evaluate the effect of maternal obesity on pregnancy complications and perinatal outcomes compared to normal BMI controls. **Materials and Methods:** This prospective case-control study recruited 100 antenatal women aged 18-35, attending a tertiary care hospital in Kakinada district for their first trimester visits during an 18-month period. Fifty women with BMI ≥ 30 kg/m² (obese) and 50 with BMI 18.5–25 kg/m² (normal) formed the study groups. Demographic, clinical, and pregnancy outcome data were analysed using Excel and SPSS, with $p < 0.05$ considered significant. **Result:** Obese women showed significantly higher rates of menstrual irregularity (42% vs. 16%, $p = 0.004$), infertility (38% vs. 14%, $p = 0.006$), multigravida status (66% vs. 42%, $p = 0.01$), caesarean delivery (56% vs. 30%, $p = 0.01$), labour induction (72% vs. 14%, $p = 0.01$), and prolonged hospital stay (> 5 days, 78% vs. 14%, $p = 0.001$). Incidence of postpartum haemorrhage and wound infection was also higher in obese patients. No significant differences were found for age, education, occupation, or area of residence. **Conclusion:** Maternal obesity is associated with increased obstetric complications, operative interventions, and adverse perinatal outcomes. Early identification and targeted management of obese pregnant women are crucial to improving maternal and neonatal health.

INTRODUCTION

Obesity is a growing global health concern, with its prevalence tripling since 1975. In India, urbanization and dietary transition have led to rising obesity rates, especially among women of reproductive age. Maternal obesity is linked to gestational diabetes, hypertensive disorders, higher risk of caesarean delivery, and poor perinatal outcomes. This study assesses the impact of maternal obesity on pregnancy complications and outcomes in a tertiary care setting in Kakinada District. ^[1-10]

MATERIALS AND METHODS

Study Design and Population: A prospective, observational case-control study was conducted over 18 months in the Department of Obstetrics and

Gynaecology, Government General Hospital, Kakinada.^[2]

Inclusion Criteria

- Pregnant women aged 18–35 years,
- Singleton pregnancies, attending first trimester antenatal visit.
- Obese cases: BMI ≥ 30 kg/m²; normal controls: BMI 18.5–25 kg/m².^[2]

Exclusion Criteria

- Age < 18 or > 35 years,
- Pre-existing chronic conditions (hypertension, diabetes, renal disorders),
- Multiple gestations,
- Congenital anomalies,
- Inability to follow-up to delivery.^[2]

Data Collection: A pre-designed, semi-structured questionnaire captured demographic, obstetric, and clinical data. BMI was calculated using Quetelet's Index. Participants were followed for pregnancy complications and delivery outcomes.^[2]

Statistical Analysis

Data were analysed using Excel and SPSS (v23). Descriptive statistics (means, proportions, percentages) and chi-square tests were used for group comparisons, with $p < 0.05$ considered statistically significant.^[2]

Ethical Considerations: Institutional ethics committee approval and informed consent were obtained. Confidentiality was maintained throughout the study.^[2]

RESULTS

Demographic Characteristics: No significant differences were found between groups for age (mean 24.6 ± 3.8), literacy (86% obese vs. 90% normal were literate), occupation, or urban/rural residence.^[2]

Obstetric and Clinical Outcomes

- Menstrual irregularity: Obese 42% vs. Normal 16% ($p=0.004$).^[3]
- Infertility history: Obese 38% vs. Normal 14% ($p=0.006$).^[3]
- Multigravida status: Obese 66% vs. Normal 42% ($p=0.01$).^[3]
- Caesarean delivery: Obese 56% vs. Normal 30% ($p=0.01$).^[1]
- Induction of labor: Obese 72% vs. Normal 14% ($p=0.01$).^[3]
- Prolonged hospital stays (>5 days): Obese 78% vs. Normal 14% ($p=0.001$).^[3]
- Postpartum hemorrhage (PPH): Obese 10% vs. Normal 6%.^[4]
- Wound infection: Higher incidence among obese group.^[4]

Perinatal Outcomes Obese pregnancies had increased risks of labor complications and adverse neonatal outcomes, including necessity of NICU admission and higher rates of macrosomia.^[5,8]

DISCUSSION

This study confirms maternal obesity as a significant risk factor for obstetric complications and adverse perinatal outcomes, consistent with previous national

and international research. Higher rates of operative delivery, fertility issues, labour induction, and prolonged hospital stay were observed. Effective prenatal surveillance, early intervention, and targeted education for weight management before conception are strongly recommended.^[1-3,5,9]

Limitations

Single-centre study design and modest sample size may affect generalizability. Future multi-centre studies and long-term follow-ups are needed.^[2]

CONCLUSION

Maternal obesity substantially increases the risk of pregnancy complications and operative interventions. Healthcare systems should prioritize screening, counselling, and targeted management strategies for obese pregnant women to reduce maternal morbidity and improve neonatal outcomes.^[1,3,5]

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