

## **Effects of gestational diabetes mellitus on risk of adverse maternal outcomes: A prospective cohort study in Northwest Ethiopia**

Achenef Asmamaw Muche<sup>1,2\*</sup>, Oladapo O. Olayemi<sup>3</sup>, Yigzaw Kebede Gete<sup>2</sup>

### **Author affiliations:**

1. Pan African University Life and Earth Sciences Institute ( including health and agriculture), Department of Obstetrics and Gynaecology, College of Medicine, University of Ibadan, Ibadan, Nigeria
2. Department of Epidemiology and Biostatistics, Institute of Public Health, University of Gondar, Gondar, Ethiopia
3. Department of Obstetrics and Gynaecology, College of Medicine, University College Hospital, University of Ibadan, Ibadan, Nigeria

### **\*Corresponding author:**

Achenef Asmamaw Muche

Institute of Public Health, University of Gondar

Gondar, Ethiopia

P.O.BOX: 96

Tel: +251-939-52-98-88

E-mail: [ashua2014@gmail.com](mailto:ashua2014@gmail.com)

## **Abstract**

**Background:** Gestational diabetes mellitus is a growing global public health problem of women encountered during pregnancy but the potential impacts on risk of adverse maternal outcomes has seldom been examined and not well documented in Ethiopia. The study aimed to assess the effects of gestational diabetes mellitus on the risk of adverse maternal outcomes in Northwest Ethiopia.

**Methods:** A prospective cohort study was conducted on 1,027 pregnant women recruited from antenatal clinics and followed until delivery. Gestational diabetes mellitus status was determined by using a two-hour 75 g oral glucose tolerance test and based on updated international diagnostic criteria. Multivariable log-binomial model was used to predict the risk of adverse maternal outcomes.

**Results:** Of the women recruited, 694 were completed the follow-up. Women with gestational diabetes mellitus had a higher risk of composite adverse maternal outcome (ARR=1.58, 95% CI: 1.22, 2.04), caesarean delivery (ARR=1.67; 95%: 1.15, 2.44), pregnancy induced hypertension (ARR= 3.32; 95%: 1.55, 7.11), premature rupture of membranes (ARR= 1.83; 95%: 1.02, 3.27), antepartum hemorrhage (ARR= 2.10; 95%: 1.11, 3.98) and postpartum hemorrhage (ARR= 4.85; 95%:2.28, 10.30) than women without gestational diabetes mellitus. However, it was not associated with risk rate for induction of labor.

**Conclusion:** Gestational diabetes mellitus was associated with increased risk for adverse maternal outcomes. This implies that maternal care and intervention strategies relating to women with GDM should be strengthened.

**Keywords:** Gestational diabetes mellitus, adverse maternal outcome, pregnancy induced hypertension, premature rupture of membranes, antepartum hemorrhage, postpartum hemorrhage