

## **The effect of race and rurality on poor pregnancy outcomes**

Karl Meierding, MD,<sup>1</sup> Mark K. Santillan, MD, PhD<sup>1</sup>

**Keywords:** Preeclampsia, hypertension, race, rurality, pregnancy, morbidity, disparities

**Objective:** To assess the independent effect of race and rurality on differential poor outcomes in obstetrics, while controlling for factors such as maternal age, obesity, and hypertensive disease of pregnancy.

**Methods:** A retrospective cohort study was conducted using clinical data from pregnancies delivered at the University of Iowa from 2009-2023. Chi-squared tests and T-test analyses were utilized to determine independent variables of interest. Multiple logistic regressions were performed with the pre-determined independent variables. The final set of independent variables were then determined using backward stepwise regression and bivariate analyses. Outcomes of interest included a composite severe maternal morbidity and mortality variable and a poor

neonatal outcome variable. Independent variables included rurality, minority status, preeclampsia diagnosis, diabetes diagnosis, maternal age, and maternal BMI.

**Results:** The analysis included 29,339 births (9,712 rural patients and 19,627 urban patients). The analysis found that rurality is independently associated with increased risk of severe maternal morbidity (OR 1.233 with 95% CI 1.062-1.432), as is minority status (OR 1.239 with 95% CI 1.061-1.448). A separate analysis found that rurality is associated with an increased risk of poor neonatal outcome (OR 1.221 with 95% CI 1.157-1.289), while minority status was associated with a lower risk of poor neonatal outcome (OR 0.924 with 95% CI 0.842-0.948).

<sup>1</sup>*Department of Obstetrics and Gynecology, Carver College of Medicine, University of Iowa Hospitals and Clinics, Iowa City, IA, 52242*

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*Corresponding author: Karl K. Meierding, Department of Obstetrics and Gynecology, University of Iowa, 200 Hawkins Drive, Iowa City, IA 52242, [karl-meierding@uiowa.edu](mailto:karl-meierding@uiowa.edu)*

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**Conclusion:** Race and rurality are significant drivers of maternal and neonatal morbidity, independent of maternal age, BMI, or preeclampsia diagnosis.

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