Rurality and Birth Outcomes: Findings from Southern Appalachia and the Potential Role of Pregnancy Smoking

Background: Rates of preterm birth (PTB) and low birth weight (LBW) vary by region, with disparities particularly evident in the Appalachian region of the South. Community conditions related to rurality likely contribute to adverse birth outcomes in this region. This study examined associations between rurality and related community conditions, and newborn outcomes in Southern Appalachia, and explored whether pregnancy smoking explained such associations.

Methods: Data for all births in a Southern Appalachian county over a two year period were extracted from hospital records. Results: Data were available for 4144 births, with 45 different counties of residence. Babies born to women from completely rural counties, on average, weighed 700gm less, were 1.5 inches shorter, and were born over three weeks earlier than less rural infants. In addition, these babies were 4.5 times more likely to be LBW, 4 times more likely to be PTB, and 5 times more likely to be admitted to the NICU. Effects were also found for per capita income, poverty rate, and unemployment rate, all of which were associated with rurality. Some, but not all of the association was explained by elevated rates of pregnancy smoking.

Conclusion: Babies born to women residing in rural and economically depressed counties in Southern Appalachia are at substantially increased risk for poor birth outcomes. Improving these outcomes in the rural South will likely require addressing access to health services and information, health care provider retention, transportation services, employment opportunities, and availability of public health services including smoking cessation assistance.

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