Factors Associated with Negative Birth Outcomes: Findings from a Birth Cohort Study

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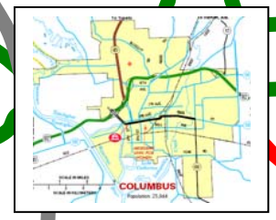
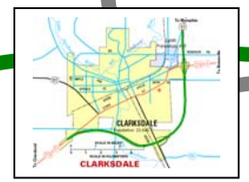
Problem statement and study purpose: Healthy People 2010 objectives include a decrease in infant mortality and the proportion of infants with low birthweight (LBW) and preterm birth (PTB). Identifying subgroups that have a propensity to experience negative birth outcomes may provide clues to assist in achieving these objectives. Mississippi has a long history of high morbidity and negative birth outcomes, traditionally ranking top among the states with the highest prevalence of obesity, diabetes, hypertension, and asthma. Mississippi is also burdened with some of the highest rates in preterm birth, low birthweight, and infant mortality. Low socioeconomic status is closely associated with poor disease management due to barriers such as lack of healthcare coverage, inability to purchase maintenance medications, access to transportation, and related issues. Poorly managed chronic disease may complicate pregnancy resulting in less than optimal birth outcomes.

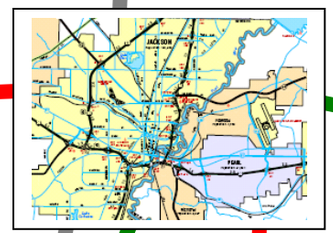
Nursing Implications: The health of mothers and infants is of critical importance, both as a reflection of the current health status of the state and as a predictor of health for future generations.

Research design and sample: A retrospective cohort analysis of 202,931 singleton infants live-born to African American and white women from the Mississippi statewide 1999-2003 births linked with infant deaths was performed. The dependent variables were infant death (defined as an infant who died in the first year of life), low birth weight (birth weight < 2500 grams), and preterm birth (gestational age < 37 weeks). Prevalence of each dependent variable by maternal age, race and selected chronic medical conditions (cardiac disease, chronic hypertension, diabetes, and acute/chronic lung disease) was investigated.

Study question: What is the impact of cardiac disease, chronic hypertension, diabetes, along with race and age among Mississippi women from 1999 to 2003 on infant mortality, low birth weight (LBW), and preterm birth (PTB)?







Methods: Logistic regression analysis was used to compute adjusted odds ratios (ORs) and 95% confidence intervals (CIs). It was also used to estimate the relationship between chronic medical risk factors and infant mortality, low birth weight, or preterm birth, after controlling for maternal age, race and the presence of other chronic risk factors.

Conclusions: We found infant mortality, LBW and PTB were more prevalent among African American mothers, and mothers with cardiac disease, chronic hypertension and diabetes. Additionally, we found that maternal chronic conditions were significant factors associated with negative birth outcomes in Mississippi.

Findings: Infant mortality, low birth weight and preterm birth were more prevalent among African American women compared to white women, very young women (≤ 15 years) compared to other ages, and women with a selected chronic medical condition compared to women without the condition. The risk of infant mortality [OR: 1.5, CI: 1.1-1.9], low birth weight [OR: 2.6, CI: 2.4-2.8], and preterm birth [OR: 1.9, CI: 1.7-2.0] was significantly higher for women with chronic hypertension compared to women without the condition, after controlling for maternal age, race, and medical risk factors. Infants born to women with diabetes had an increased risk of death [OR: 1.5, CI: 1.2-1.9] and preterm birth [OR: 1.3, CI: 1.2-1.4] compared to infants of women without the condition. The risk for infants with low birth weight was significantly higher among women with cardiac disease compared to women without the condition [OR: 1.3, CI: 1.1-1.6].