

Clinical, Sociodemographic, and Neighborhood Characteristics Associated with Adverse Pregnancy Outcomes

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Abstract

Background: Cardiovascular risk is increased by a history of adverse pregnancy outcomes (APOs). Efforts to understand and prevent these adverse outcomes may improve both fetal and birthing persons' outcomes in the peripartum period, and over the patient's lifetime. This study aims to assess the association of clinical, sociodemographic, and economic neighborhood factors with preterm birth (PTB) and APOs (the composite of stillbirth, small for gestation age, and low birthweight). **Materials and Methods:** This is a cross-sectional study using the electronic medical records of deliveries from seven Northwell Health hospitals between January 1, 2018 and July 31, 2020. There were 62,787 deliveries reviewed in this study. Deliveries that were not the first for the patient during the study period and multiple gestational pregnancies were excluded. Patients with incomplete data on outcome were also excluded. Main outcomes were PTB and composite APOs. Measures included history of PTB, hypertension, diabetes, body mass index, race/ethnicity, age, preferred language, marital status, parity, health insurance, and median income, percent unemployment, and mean household size by zip code. **Results:** Of the 62,787 deliveries, 43.3% were from white, Non-Hispanic, and Non-Latino patients. There were 4,552 (7.2%) PTBs and 8,634 (13.8%) APOs. Patients enrolled in public insurance had higher odds of PTB (odds ratio [OR] 1.15, 95% CI 1.06-1.24) and APOs (OR 1.19, 95% CI 1.12-1.25). There was a statistically significant association of both PTB ($p = 0.037$) and APOs ($p = 0.005$) when comparing patients that live in a zip code with a median income over 100k

to those with an income <100k. In addition, living in a zip code within the second quintile of unemployment was associated with lower odds of APOs (OR 0.92, 95% CI 0.84-0.99). **Conclusions:** Numerous sociodemographic and clinical factors are associated with both PTB and APOs. Tailored programs addressing these disparities may improve outcomes in pregnant persons.

Keywords: cardiovascular risk factors; low birthweight; preterm birth; small for gestational age; stillbirth.