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Variations in Birth Weight

August 29, 2012



A collaborative study including Dr. Stuart Tedders at Georgia Southern University Jiann-Ping Hsu College of Public Health examined Spatial variations in the associations of birth weight with socioeconomic, environmental, and behavioral factors in Georgia, USA. Birth weight is an important indicator of overall infant health and a strong predictor of infant morbidity and mortality, and low birth weight (LBW) is a leading cause of infant mortality in the United States. However, the factors that affect birth weight remain unclear. A spatial statistical technique, Geographically Weighted Regression (GWR) is applied to study the spatial variations in the associations of birth weight with six socioeconomic, environmental, and behavioral factors, including individual-level factors such as maternal smoking, maternal drinking, and prenatal care, as well as community-level family median income, educational attainment, and percentage of urban land.

Researchers found that maternal smoking is the most spatially consistent factor and analysis indicated this behavior has adverse impact on birth weight in most parts of the study area. Moreover, the effects of other factors studied are only significant in some parts of the study area and the results are mixed depending on the socioeconomic and environmental characteristics of communities in which births occurred. These findings suggest that targeting specific factors at a local level is more likely to reduce the risk of LBW.

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