Abstract
This dissertation evaluated the contribution of the geographic context to black-white disparities in hypertension. Few studies of area-level factors and hypertension disparities have focused on geographic variation both within and between race groups. Uncovering the mechanisms underlying within-group variation may help elucidate the particular environmental factors that contribute to hypertension disparities and highlight potential targets for interventions. Understanding how the distribution of high blood pressure compares for Blacks versus Whites across different environments helps shed light on the mutability of the disparity and potential ways in which it can be reduced.

The studies in this dissertation investigated (1) regional geographic factors related to hypertension differences among and between Blacks and Whites; (2) the association between metropolitan-level racial residential segregation and hypertension and neighborhood poverty as a mediating pathway; and (3) the link between neighborhood-level racial residential segregation and hypertension and interactions with area- and individual-level factors.

The key finding was that race differences are not invariant. Hypertension prevalence varied significantly within race groups and race differences in hypertension were modified by context. Blacks and Whites born in the South and those living in metropolitan areas located in the South were more likely to be hypertensive than those born or living in other parts of the country. Blacks living in more segregated metropolitan areas had significantly higher odds of hypertension than those in less segregated areas, and the impact of segregation varied by metropolitan area and neighborhood poverty. Race differences in hypertension prevalence ranged from 82% higher for Blacks versus Whites to a low of 13% higher depending on which geographic groups were compared. Race differences also varied significantly by metropolitan-level segregation and neighborhood poverty; in high segregation, low poverty areas Blacks had over 4 times higher odds of hypertension versus Whites whereas Blacks in low segregation, high poverty areas had just 1.2 times higher odds.

These findings suggest that race differences in hypertension result not from innate differences but from contextual factors. Specifically, eliminating the processes that lead to residential segregation and the resultant inequitable distribution of neighborhood resources could reduce the unequal burden of hypertension in Blacks versus Whites.