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Residential Racial Segregation and Neighborhood Adversity: Associations with Hemoglobin A1c in Adolescents with Type 1 Diabetes

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Residential Racial Segregation and Neighborhood Adversity: Associations with Hemoglobin A1c in Adolescents with Type 1 Diabetes

Black adolescents with Type 1 Diabetes (T1D) are at increased risk for disparities in health outcomes. More research is necessary on the effects of neighborhood characteristics such as residential racial segregation (RRS) and neighborhood adversity on health.

149 Black youth with T1D were recruited from seven pediatric diabetes clinics in Detroit and Chicago to participate in a clinical trial to improve diabetes management. RRS was calculated at the census block group level based on US census data using Location Quotients. LQs represented the ratio of patients to total population in the block group compared to the same ratio in the metro area. Neighborhood adversity was assessed at the census block group level using the Neighborhood Adversity Index (NAI). Bivariate associations between RRS, NAI and HbA1c were calculated at baseline and 18-month follow-up, controlling for multiple factors including age, sex, and family income.

At baseline, mean youth age = 13.4 years \pm 1.7, mean family income = \$35,276 \pm \$27,181, and 49.7% were from single-parent households. Mean HbA1c = 11.49 \pm 2.71, suggesting suboptimal control. In bivariate associations, HbA1c was significantly associated with RRS ($r=.32$, $p=.002$) and NAI ($r= 0.35$ $p< 0.001$) at baseline and with RRS ($r=.38$, $p< .001$) and NAI ($r=.25$ $p=.016$) at follow-up.

Black adolescents with T1D residing in adverse and segregated neighborhoods are more likely to have persistently poorer glycemic control. Culturally competent physicians are vital for providing information to patients on neighborhood resources and improving glycemic outcomes.

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