Children's Hospital of Philadelphia PolicyLab

Pediatric Obesity During COVID-19: The Role of Neighborhood Social Vulnerability and Collective Efficacy

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Childhood obesity increased in the first year of COVID-19 with significant disparities across race, ethnicity, and socioeconomic status. Social distancing led to fewer physical activity opportunities but increased screen time and high-calorie food consumption, all co-determined by neighborhood environments. This study aimed to test the moderation effects of neighborhood socioeconomic and built environments on obesity change during COVID-19. Using electronic health records from a large pediatric primary care network in 2018-2022, we cross-sectionally examined 163,042 well visits of 2-17-year-olds living in Philadelphia County in order to examine (1) the pandemic's effect on obesity prevalence and (2) moderation by census-tract-level neighborhood socioeconomic disadvantage, crime, food and physical activity-related environments using interrupted-time-series analysis, Poisson regression, and logistic regression. Weekly obesity prevalence increased by 4.9 percent points (pp) during the pandemic (January 2021-August 2022) compared to pre-pandemic (March 2018-March 2020) levels. This increase was pronounced across all age groups, racially/ethnically minoritized groups, and insurance types (ranging from 2.0 to 6.4 pp) except the Non-Hispanic-white group. The increase in obesity among children racially/ethnically minoritized groups was significantly larger in the neighborhoods with high social vulnerability (3.3 pp difference between high and low groups), and low collective efficacy (2.0 pp difference between high and low groups) after adjusting for age, sex, and insurance type. Racially/ethnically minoritized children experienced larger obesity increases during the pandemic, especially those in socioeconomically disadvantaged neighborhoods. However, the buffering effect of community collective efficacy on the disparities underscores the importance of environments in pediatric health.

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