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Effect of COVID-19 Pandemic On Obesity Risk in High Risk Youth In Brooklyn: A Pilot Study

Introduction: Childhood obesity is a major concern in the US. Minority and children from low socioeconomic families are at a particularly high risk. Not going to school, among other unhealthy behaviors exacerbated by quarantine and remote education may have worsened obesity during the pandemic.

Objectives: The goal of this pilot study is to determine the effect of the pandemic on prevalence of obesity in high-risk children.

Methods: BMI of 11-21y old adolescents seen at Downstate Pediatric clinic for well-child care pre-pandemic (Oct 1, 2019-Mar 15, 2020) was compared to BMI during pandemic (Mar 16, 2020-Feb 28, 2021). BMIs were obtained from the EMR and stratified into underweight (<5%), normal (5-84%), overweight (85-94%) and obese (>95%). Obesity was further stratified into classes I (95-120%), II (121-140%) and III (>140%) for age. Because BMI categories were not normally distributed, Kruskal-Wallis test was used to evaluate differences between groups.

Results: Of 132 patients included, 42.4% were male; 53.0%, 10-15 years old; 53.0% Medicaid/CHIP/uninsured; 78.8% self-reported as Black. Pre-pandemic, 57.6% of children had normal BMI; 16.7% were overweight; 19.7% were obese. Of these, 11.4% were in Class I, 5.3% in Class II and 3.0% in Class III. During the pandemic, 55.3% of the children remained in the same BMI category as before the pandemic. Only 5.3% in the normal BMI category became overweight during the pandemic. Significant worsening of obesity was seen in higher BMI categories ($p < 0.001$): 33.3% in Class I obesity shifted to Class II, 57% in class II shifted to class III, and 75% in class III obesity gained >25 lbs. No differences between groups related to demographic characteristics were observed.

Conclusion: This pilot study shows that children who were obese pre-pandemic are at very high risk of weight gain during the pandemic. Future research is needed to better understand the causes for this weight gain and effective strategies to counter it.

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