Children's Hospital of Philadelphia PolicyLab

The Philadelphia Beverage Tax and Pediatric Weight Outcomes

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Importance: Taxation of sweetened beverages is a proposed strategy to reduce excess sugar consumption. The association of such taxes with health outcomes is not well studied. Philadelphia, Pennsylvania, is the largest US city with a beverage tax.

Objective: To assess whether the 2017 Philadelphia beverage tax was associated with changes in pediatric weight outcomes.

Design, setting, and participants: This study used difference-in-differences models weighted by inverse probability of treatment weights to adjust for differences between youth in Philadelphia (tax exposed) and in the surrounding counties (control) on age, sex, race, ethnicity, Medicaid insurance status, health care use, and census-tract socioeconomic index. Mixed-effects linear and logistic regression models estimated differences in posttax changes in standardized body mass index (zBMI) and prevalence of obesity (a BMI 95th percentile or higher for age and sex) between Philadelphia and control. Stratified analyses assessed differences by age, sex, race, Medicaid insurance status, and baseline weight. Data came from electronic health records of a primary care network operating in the Philadelphia region. A panel analysis included youth 2 to 18 years old with 1 or more BMI measurement pretax (2014 to 2016) and 1 or more BMI measurement posttax (2018 to 2019). A cross-sectional analysis included youth 2 to 18 years old with 1 or more BMI measurement at any time from 2014 to 2019. These data were analyzed from December 2020 through July 2024.

Exposure: Living in Philadelphia after implementation of the beverage tax.

Main outcomes and measures: zBMI and obesity prevalence.

Results: In panel analysis of 136 078 youth, the tax was associated with a difference in zBMI change of -0.004 (95% CI, -0.009 to 0.001) between Philadelphia and the control and a 1.02 odds ratio (95% CI, 0.97-1.08) of BMIs in the 95th percentile or higher. In cross-sectional analysis of 258 584 youth, the difference in zBMI change was -0.004 (95% CI, -0.009 to 0.001) and the odds ratio of a BMI in the 95th percentile or higher was 1.01 (95% CI, 0.95-1.07). In subgroup analyses, some differences in zBMI change were evident by race, age, Medicaid insurance status, and baseline weight but these differences were small and inconsistent across samples.

Conclusions and relevance: These results show that 2 years after implementation, the Philadelphia beverage tax was not associated with changes in youth zBMI or obesity prevalence. Though certain subgroups demonstrated small statistically significant changes in zBMI, they are of low clinical significance.

Journal:

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