Effect of COVID-19 on Change in the Health Behaviors of Low-income Preschoolers: A Difference-in-differences Analysis

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Objectives

Our study examines the impact of the coronavirus pandemic on the health behaviors of low-income preschool-aged children.

More specifically, we

• compare changes in children’s daily physical activity, screen time and sleep for the academic year prior to the coronavirus pandemic (2018-2019) to the year of the pandemic (2019-2020).

Methods


Data Collection: Each academic year, one parent per family completed a survey in fall and spring. At each time point, parents reported the daily time their child spent engaged in screen time (watching TV/videos, using a computer or game console or using a smartphone or tablet), physical activity (unstructured free play + organized physical activity), and sleeping (not including naps).

Data Analysis: Three Difference-in-differences (D-I-D) models were run to compare changes over time of the three behaviors. Interaction terms(exposure * time of measurement ) were examined.

Results

Compared with the year prior to the pandemic, children showed large increases in physical activity during the year of the pandemic (p < .001).

Compared with the year prior to the pandemic, children showed large increases in screen time during the year of the pandemic (p < .001).

In Spring 2020, what is the average time children spent on each device?

- 40 minutes on computer or video game
- 56 minutes on a tablet or smartphone
- 89 minutes watching TV

In Spring 2020, for what percent of children did screens interfere with a restful nights sleep?

- 43% of children had a TV in the room they sleep in
- 19% of children were put to bed with a screen-based device

Supplemental Results

Percent of children meeting health recommendations for screen time, sleep duration, and physical activity from Fall 2018 to Spring 2020

Conclusions

• While controlling for race/ethnicity and sex, the significant interaction terms (exposure*time) in all three models indicates that the difference-in-differences is significant. In other words, there was a significant difference in within-year change in child health behaviors between the children exposed to the pandemic and the children not exposed to the pandemic.

• These results provide evidence that the pandemic has significantly affected children’s health behaviors.

• As in previous studies, it appears that COVID-19 led to an increase in the time children spend on screens each day.

References