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Short and medium-term effects of the COVID-19 lockdowns on child and parent accelerometer-measured physical activity and sedentary time: a natural experiment

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Publication

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Abstract

Background

The COVID-19 pandemic has resulted in marked impacts on children's physical activity, with large reductions in moderate-to-vigorous physical activity (MVPA) reported during lockdowns. Previous evidence showed children's activity levels were lower and sedentary time higher immediately post-COVID lockdown, while there was little change in parental physical activity. We need to know if these patterns persist.

Methods

Active-6 is a natural experiment using repeated cross-sectional data conducted in two waves. Accelerometer data were collected on 393 children aged 10–11 and their parents from 23 schools in Wave 1 (June 2021-December 2021), and 436 children and parents from 27 schools in Wave 2 (January 2022-July 2022). These were compared to a pre-COVID-19 comparator group (March 2017-May 2018) of 1,296 children and parents in the same schools. Mean minutes of accelerometer-measured MVPA and sedentary time were derived for week- and weekend-days and compared across waves via linear multilevel models. We also analysed the date of data collection as a time series, to explore temporal patterns via generalised additive mixed models.

Results

There was no difference in children's mean MVPA in Wave 2 (weekdays: -2.3 min; 95% CI: -5.9, 1.3 and weekends: 0.6 min; 95% CI: -3.5, 4.6) when compared to the pre-COVID-19 data. Sedentary time remained higher than pre-pandemic by 13.2 min (95% CI:5.3, 21.1) on weekdays. Differences compared to pre-COVID-19 changed over time, with children's MVPA decreasing over winter, coinciding with COVID-19 outbreaks, and only returning to pre-pandemic levels towards May/June 2022. Parents' sedentary time and weekday MVPA was similar to pre-COVID-19 levels, with MVPA higher than pre-pandemic by 7.7 min (95% CI: 1.4, 14.0) on weekends.

Conclusion

After an initial drop, children's MVPA returned to pre-pandemic levels by July 2022, while sedentary time remained higher. Parents' MVPA remained higher, especially at weekends. The recovery in physical activity is precarious and potentially susceptible to future COVID-19 outbreaks or changes in provision, and so robust measures to protect against future disruptions are needed. Furthermore, many children are still inactive, with only 41% meeting UK physical activity guidelines, and so there is still a need to increase children's physical activity.

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