Myopia progression before, during and after the COVID-19 pandemic in North American children

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Purpose

To investigate the effect of social restrictions during the COVID-19 pandemic on myopia progression in North American children.

Methods

Myopic children aged 6 to 10 years were enrolled in CYPRESS (NCT03623074): a double-masked, randomized, controlled clinical trial to evaluate the safety and efficacy of DOT spectacle lenses across 14 North American sites. Participant enrolment began in July 2018. The 24 to 36-month visits (from March 2020 to April 2022) coincided with COVID-19 social restrictions in North America. The 42-month visit window was January 2022 to September 2022 (when restrictions had ceased). Axial Length (AL) and Spherical Equivalent Refraction (SER) were measured at 0, 12, 24, 36 and 42 months.
AL progression of the CYPRESS Control group (n=42; wearing standard single vision spectacles) was compared to age-matched myopic AL growth data from the Orinda Longitudinal Study of Myopia (OLSM; collected between 1989 to 2001) to evaluate the potential impact of the COVID-19 pandemic.

Results

Pre-pandemic, Control group mean change in AL and SER (± SD) from 0-12 months was 0.32 ± 0.17 mm and -0.58 ± 0.52 D, respectively. AL and SER progression nearly halved during the pandemic (from 12-24 months AL 0.23 ± 0.18 mm, SER -0.35 ± 0.41 D; from 24-36 months AL 0.20 ± 0.15 mm, SER -0.34 ± 0.33 D). The children reported altered school routines during this period. Post-pandemic, AL and SER progression from 36-42 months (in 6 months) was 0.11 ± 0.09 mm and -0.22 ± 0.26 D, respectively. Comparison with age-matched AL growth data from the OLSM showed a difference between means (CYPRESS – OLSM) of +0.05 mm pre-pandemic, -0.08 mm during the pandemic and 0.00 mm post-pandemic.

Conclusion

The progression of myopia among CYPRESS Control children decreased during the COVID-19 pandemic. Changes in lifestyle, behaviour and schooling during the COVID-19 pandemic may have contributed to reduced myopia progression.