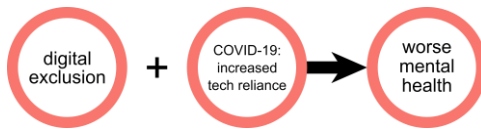# Digital exclusion predicts worse mental health among adolescents during COVID-19

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Background

digital exclusion + COVID-19: increased tech reliance → worse mental health

The COVID-19 pandemic has led previously face-to-face activities to be moved online, increasing our reliance on digital technologies. With adolescents more dependent on technology for education and social connection, restricted access to devices may negatively impact mental health (Orben et al., 2020). Digital inclusion has therefore become much more important, but its impact on adolescent mental health during COVID-19 has not yet been systematically investigated in the scientific literature.

> "… around 1.5m homes [in the UK] remain offline." — Ofcom (2021)

Methods

Data
We use data from the youth survey (issued to 10–15-year-old adolescents) in Understanding Society, a longitudinal study of households in the UK (University of Essex, 2021a, b). The survey is administered once every two years, and during the COVID-19 pandemic an additional survey has been administered once every four months.

Number of participants in each of the four youth surveys used in our analysis

$n =$

| 2,821 | 1,411 | 1,432 | 1,388 |
| 2017-19 | July 2020 | November 2020 | March 2021 |

Variables
Our variables of interest were the responses to the following questions:
"Which of these things do you have at home to help you do your school work?
– Access to a computer
– Good internet connection"
Mental health was measured using the Strengths & Difficulties Questionnaire 'Total Difficulties' score derived from 25-item questionnaires completed by respondents (Goodman et al., 1998).

Analysis
We fit multigroup latent growth curve models (LGMs) to data from four waves of the youth survey ($N =$ 1,387), grouping by computer access and access to a 'good internet connection', and including sex, birth year, mean household income and ethnicity (dichotomous white vs. non-white) as covariates.

Ethics
The University of Essex Ethics Committee has approved all data collection on Understanding Society main study and innovation panel waves, including asking consent for all data linkages except to health records.

Results

Access to a computer
We found that the worsening trajectory of mental health for adolescents with no access to a computer was much more pronounced than for those with access.
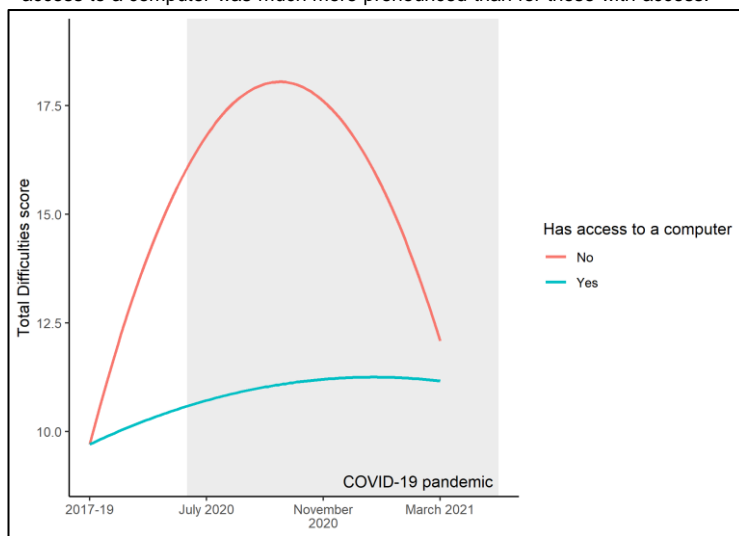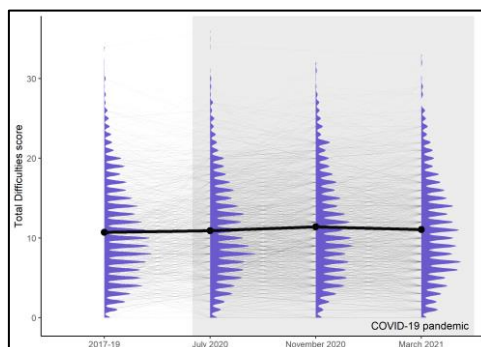

Access to a 'good internet connection'
We did not find evidence that access to a 'good internet connection' was associated with a difference in mental health trajectories in the adolescents.
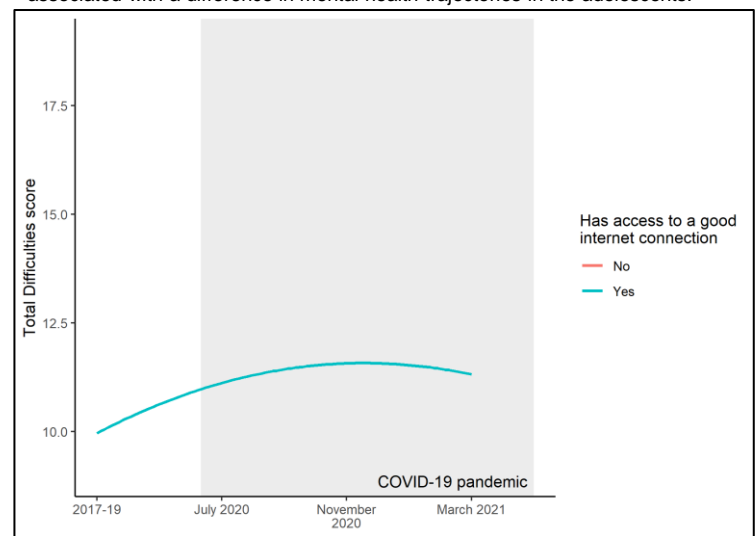
Overall profile of mental health
We found that the mean SDQ 'Total Difficulties' score was highest in the November 2020 wave, and lower in the July 2020 and March 2021 waves.

Discussion

During COVID-19, computer access became necessary for education and social activities, and here we provide evidence that a lack of access leads to a substantial increase in mental health difficulties. In November 2020, when the adolescents' mental health was at its worst, England was under a nationwide lockdown (although schools remained open). In July 2020, restrictions were less severe, and in March 2021 restrictions were starting to be eased following the third national lockdown. The recovery of computer-deprived adolescents' mental health in March 2021 is likely related to the gradual lifting of restrictions.

Without control variables as covariates, access to a good internet connection appears to have a similar effect, but no significant difference is found with covariates.

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