Data Release Date: 28 February 2016 or later
Study Type: Cohort/Population Dataset

Purpose

The rapid proliferation of digital screens has fundamentally changed how humans work, play, and socialize. The time spent with these technologies, especially by young people, has sparked concerns their use might be negatively associated with mental well-being. It has been hypothesized that digital screens may have a deleterious influence because they displace rewarding activities, whereas their moderate use has been proposed to be advantageous in a digitally connected world. Unfortunately, these conflicting views, the displacement and the goldilocks accounts, have not been rigorously studied. This gap in our knowledge is problematic because the professional and governmental guidelines for digital screens therefore lack a basis in empirical findings.

This study investigates the relations between mental well-being and the investments young people make in a range of digital screens. Data from a nationally representative sample of 15-year-old English adolescents will be analysed to determine the nature of the relations, if any, that link time spent using smartphones, gaming devices, computers, and passive media technologies, to mental well-being. The registered analysis plan focuses on two hypotheses. First, it evaluates the displacement account which postulates a negative linear relationship between the factors. Second, it tests the goldilocks account, which argues for a curvilinear relationship.

Study Factors

- Outcome Variable
    - Mental Well-being (14-items, WAY Survey Q41)
        - Warwick-Edinburgh Mental Well-being Scale (WEMWBS)
- Explanatory variables
    - Amount of time spent with screens (8 items, WAY Survey Q8 to Q11)
        - Total digital screen time (sum of all types listed)
        - Watching content (e.g. films, clips, streaming shows)
        - Playing games (not on smartphone)
        - Computer use (not on smartphone)
        - Smartphone use
- Control/Confounding Variables for Adjusted Models
    - Participant characteristics
        - Participant gender (WAY Survey Q57)
        - Whether living in deprived area (HSCIC area aggregate based on Q50-Q56)
        - Whether black and minority ethnicity (WAY Survey Q62)
        - Whether parents married (WAY Survey Q48)
        - Whether native born (WAY Survey Q60)

Hypotheses

- H1: Testing the displacement hypothesis
    - This hypothesis posits that there is a negative monotonic relationship between screen time and mental well-being.
- H2: Testing the goldilocks hypothesis
    - This hypothesis posits that there is a curvilinear quadratic relationship between screen time and mental well-being.

Study Sample

- Data are self-report assessments provided by participants recruited as part of the What about Youth (WAY) study, conducted by researchers working with the Health & Social Care Information Centre, the fieldwork commenced in late 2014.
- A nationally representative sample of English 15-year olds (n = 120,115) comprising 18% of the total population.
- Data collection, sampling, and summary statistics documented on Health & Social Care Information Centre website (Published 8 December, 2015)
    - http://www.hscic.gov.uk/catalogue/PUB19244
- Data will be released for the first time on or after February 28, 2016, on the UK Dataservice
    - https://www.ukdataservice.ac.uk

Analytic Approach

- H1: Displacement Hypothesis
    - Linear regression modelling will test the hypothesis that mental well-being (outcome) is accounted for by a composite measure of screen time (sum of estimates; predictor) as well as estimates of individual screen time types (i.e. watching, gaming, computer use, and smartphone use).
        - Unadjusted models, with no statistical controls, and adjusted models, controlling for control and confounding variables will be evaluated.
- H2: Goldilocks Hypothesis
    - Linear and curvilinear regression models will evaluate if there is a quadratic trend linking mental well-being (outcome) to composite and individual estimates of screen time.
        - Unadjusted models, with no statistical controls, and adjusted models, controlling for control and confounding variables will be evaluated.
    - If curvilinear function is found to be statistically significant a local extremum will be computed
        - Data will be bifurcated and linear models for data falling on either side each side of local extremum will be tested for statistical significance.