Abstract

The study of screen use in relation to mental health and well-being is growing rapidly, with prominent voices raising alarm about screens as likely culprits behind rising mental illness and suicide (Twenge et al., 2018). However, rigorous work shows that associations between screen use and well-being are trivially small (Hoare et al., 2016; Orben, 2020; Tang et al., 2021) and others show that social media (e.g., Instagram, TikTok, Facebook), is associated with increases in social capital, feelings of connectedness, and positive well-being (Verduyn et al., 2017). Despite frequent media attention to this potential problem, a priority for new research and the goal of this study, was to describe the nature and quality of young people’s smartphone use, and identify which narrower, specific uses of screens (social media, entertainment, communication, productivity) are linked to well-being, if any.

The current study used device-logged screen time records to measure week-to-week associations between stress and screen time in undergraduate students, focusing on differences across types of app used and whether accumulated screen use each week, across types of app, predicted end-of-week mood states. Participants (N = 187, *M*age = 20.1) were undergraduate students attending a Canadian university in the Fall of 2020, and who used a smartphone equipped with Apple’s iOS operating system. After completing an intake questionnaire, eligible participants were invited to complete 12-weekly surveys (September 2020 – December 2020) assessing stress, mood, and COVID-19 experiences. They were also asked to upload weekly screenshots from their “Screen Time” settings display. We extracted four indicators of screen time from the device’s data: (1) overall average daily screen time, (2) average daily hours spent on frequently used apps, (3) overall average daily device pickups, and (4) average pickups associated with most frequently accessed apps.

Trends over time in overall and app-specific screen time were stable over 12 weeks. In multilevel models, the linear slopes for study week were trivially small and not significantly different from zero (range: *B* = -.003 to *B* = .01), implying mean change in screen time of no more than 36 seconds per week, on average. Likewise, trends for overall and app-specific pickups were stable. Linear slopes for study week were also no different from zero (range: B = -.51 to .04), implying mean change of up to half a pickup a week. Tests of time-varying associations between self-reported stress and screen use produced effects that were non-significant and trivially small. When separated by app, only the association between self-reported stress and screen time for entertainment and games app use was positive and statistically significant, surviving correction for multiple testing (*Est* = .072, *CI95%* = .023, .122, *p* = .0042). This indicates that for students whose most frequently used app was entertainment and games and during weeks when a student’s stress levels were one standard deviation higher than usual, they would be expected to spend an extra 4.32 minutes per day on their screens. Associations for other categories of frequently used apps were smaller and not statistically significant, indicating no support for the hypothesis that weeks of higher stress were associated with more time spent on social networking or information/reading/productivity apps.

The findings from this study lend support to the literature highlighting the importance of objectively measured screen time and research showing that associations between screen use and well-being are trivially small. We found no evidence that smartphone use among undergraduate students contributes to negative well-being or significant increases in stress.