

Going Beyond Self-report Assessments of Technology Use: Investigating Objective Screen Time Use in the Context of Depression, Anxiety, and Personality

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Background: Worldwide it is debated whether excessive screentime leads to depression or anxiety and how such screentime measures relate to personality. Much of the studies in the field rely on self-report measures to assess screentime, although in the meantime it is well-known that such assessments can be biased. Therefore, it is important to more focus on objective assessments of digital use to overcome such biases. Further, such data can be used in itself to make predictions on varying psychological variables (a field called mobile sensing or digital phenotyping).

Methods: In the present cross-sectional study (preregistered at OSF), we investigated in a final sample of $n = 251$ study participants associations between objective screentime parameters and both depression/anxiety and personality variables. In detail, people donated screenshots of their screentime-measures (one complete week) and filled in questionnaires on depression, anxiety, autistic traits and personality.

Results: Among others we observed that longer screentime was associated with higher depressive tendencies ($\rho = .18$, $p = .003$). Further, longer screentime went also along with lower conscientiousness ($\rho = -.18$, $p = .003$), likely due to larger self-regulation problems. Interestingly, investigations of the association between lower conscientiousness and higher screentime-activity with depressive tendencies as a mediator revealed no mediation effect.

Discussion: The present study shows some meaningful associations between psychological/psychiatric measures and objective screentime-data from the smartphone. Although associations are only in the small area (which does not allow to predict depressive tendencies on individual level from objective screen time data), the associations open the door for investigating links between objective screentime measures and relevant psychological/psychiatric variables. Finally, mediation analysis suggests that the link between conscientiousness and objective screen time, as well as between depression and objective screen time might operate via different paths.