

### Abstract

Findings from previous cross-sectional studies have linked smartphone use to poorer sleep and poorer mood among adolescents. This study examined the temporal relationship between smartphone screen time, sleep and mood and daytime functioning by using actigraphs and an experience sampling methodology. This study hypothesized a positive association between increased smartphone screen time and poorer sleep, a positive association between better sleep quality and better mood and daytime functioning, and an association between increased smartphone use and decreased mood and daytime functioning on daily basis. 28 Chinese young adults (Age:  $M = 20.46$  years,  $SD = 0.92$  years) completed daily assessments on smartphones to record their smartphone screen time and momentary mood and daytime functioning (four responses per day at 10:00, 14:00, 18:00, and 22:00) for 7 days. Objective sleep indicators were collected by actigraphy devices. By multilevel modeling, the hypotheses were tested. The majority of temporal relationships among the three variables were not significant, where nearly no significant relationship was found with screen time, both being independent variable or dependent variable. However, when compared to other subjective and objective sleep indicators, sleep satisfaction was found to be the most significant towards the following day's mood and daytime functioning.