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Problematic Smartphone Usage, Objective Smartphone Engagement, and Executive Functions: A Latent Variable Analysis

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Abstract

The negative consequences of smartphone usage have seen frequent discourse in popular media. While existing studies seek to resolve these debates in relation to executive functions, findings are still mixed, partly due to the lack of conceptual clarity, the use of self-reported measures, and task impurity. Addressing these limitations, the current multi-session study utilizes latent variable approaches to examine various smartphone usage, including objectively measured data-logged screen time and screen-checking, and 9 executive function tasks in 260 young adults. Our structural equation models showed no evidence that self-reported normative smartphone usage, objective screen time and objective screen-checking are associated with deficits in executive functions. Only self-reported problematic smartphone usage was associated with deficits in latent factor of task-switching. These findings shed light on the boundary conditions of the link between smartphone usage and executive functions and suggest that smartphone usage in moderation may not have inherent harms on cognitive functions.