*The Role of Sleep and Physical Health in the Relationship Between Cognitive Functioning and Digital Engagement in Children*

We examined whether digital immersion (DI), objective smartphone use, and smartphone addiction (SA) were linked to executive functioning (EF), impulsivity, sleep, and body health in 129 children (ages 7–12), and whether sleep and health mediated or moderated tech–cognition relationships. Correlational analyses showed impulsivity was positively associated with DI (r = .55, p < .001), SA (r = .64, p < .001), and objective use (r = .34, p < .05). Poorer sleep was linked to higher DI (r = –.41, p < .001) and SA (r = –.46, p < .001), but not objective use; both DI and SA were also associated with worse body health (DI: r = –.29; SA: r = –.26; ps < .01). Among behavioral outcomes, only objective use predicted Go/No-Go performance (r = –.48, p < .001); no digital measures related to Flanker or self-reported EF. Mediation analyses showed sleep significantly mediated DI’s link to impulsivity (ACME = –0.079, p = .018) and EF (ACME = –0.090, p = .012); body health marginally mediated the DI–EF link (ACME = –0.038, p = .062) but not impulsivity. MANCOVAs comparing high/low/none SA and objective use showed no cognitive group differences or interaction effects; sleep and health predicted EF and impulsivity but did not moderate digital links.