December 12, 2022

Longitudinal Associations Between Use of Mobile Devices for Calming and Emotional Reactivity and Executive Functioning in Children Aged 3 to 5 Years

Jenny S. Radesky, MD[1]; Niko Kaciroti, PhD[1,2]; Heidi M. Weeks, PhD[3]; et al

» Author Affiliations

JAMA Pediatr. 2023;177(1):62-70. doi:10.1001/jamapediatrics.2022.4793

Key Points

Question Is the use of mobile devices to calm young children's emotions and behavior associated with long-term difficulties with their executive functioning and emotional reactivity?

Findings In this cohort study of 422 parents and 422 children, increased use of mobile devices for calming children aged 3 to 5 years was found to be associated with decreased executive functioning and increased emotional reactivity at baseline; however, only emotional reactivity had bidirectional, longitudinal associations with device use for calming at 3 and 6 months of follow-up. The associations were found to be increased in boys and children with higher temperamental surgency.

Meaning The findings of this study suggest that, particularly in young boys or young children with higher surgency, the frequent use of devices for calming should be avoided.

Abstract

Importance Mobile devices are often used to keep young children occupied or calm, but it is not known whether this practice influences child development.

Objective To examine the longitudinal, bidirectional associations between the parent-reported frequency of using mobile devices to calm young children and children's executive functioning (EF) and emotional reactivity, testing moderation by child sex and temperament.

Design, Setting, and Participants This prospective cohort study included a community-based convenience sample of English-speaking parents of typically developing children aged 3 to 5 years. The study duration was from August 2018 to January 2020, with baseline (T1), 3-month follow-up (T2), and 6-month follow-up (T3) waves.

Exposures Parent-reported frequency of use of mobile devices to calm children when upset (5-point Likert scale).

Main Outcomes and Measures At each wave, the child's EF was assessed with the Behavior Rating Inventory of Executive Function–Preschool Version Global Executive Composite and emotional reactivity with the Child Behavior Checklist Emotional Reactivity subscale. Structural equation models were built to examine cross-lagged associations of the use of devices for calming, EF, and emotional reactivity, testing for moderation by child sex or temperament (Child Behavior Questionnaire–Very Short Form surgency score, median split).

Results Of 422 eligible parents with data at T1, 375 (88.9%) provided data at T2 and 366 (86.7%) at T3. At baseline, the mean (SD) age of the 422 children was 3.8 (0.5) years, the number of boys in the sample was 224 (53.1%), the number of individuals of non-Hispanic White race and ethnicity was 313 (74.2%), and among the parents, 254 (60.2%) had a college degree or higher. Among the boys, the use of devices to calm at T2 was associated with higher emotional reactivity at T3 (r [standardized regression coefficient] = 0.20; 95% CI, 0.10-0.30), while higher emotional reactivity at T2 had a nonsignificant association with increased device use for calming at T3 (r = 0.10; 95% CI, −0.01 to 0.21). Among children with high temperamental surgency, the use of devices to calm at T2 was associated with increased emotional reactivity at T3 (r = 0.11; 95% CI, 0.01-0.22), while higher emotional reactivity at T2 was associated with increased device use for calming at T3 (r = 0.13; 95% CI, 0.02-0.24).

Conclusions and Relevance The findings of this study suggest that the frequent use of mobile devices for calming young children may displace their opportunities for learning emotion-regulation strategies over time; therefore, pediatric health care professionals may wish to encourage alternate calming approaches.