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Commentary on: Brosnan B, Haszard JJ, Meredith-Jones KA, Wickham SR, Galland BC, Taylor RW. Screen Use at Bedtime and Sleep Duration and Quality Among Youths. *JAMA Pediatr*. 2024;178(11):1147–1154.

Implications for practice and research

- The type of screen activity during the period up to going to sleep can influence sleep duration or quality.
- On-line activities that were passive, for example watching television, which might be relevant in hospital settings, rather than interactive activities, for example gaming, could be relaxing but did delay sleep onset.

Context

Smartphone screen time has risen sharply in recent years, with a suggested correlation between sleep duration and quality. Brosnan *et al*'s[1] cross-sectional questionnaire-based study explored the impact of evening screen time on the duration and quality of sleep in young people, aged 11–15 years.

Methods

Screen time and sleep duration and quality were objectively measured in 79 young people aged 11–15 years for four non-consecutive nights over a 1-week period. Sleep was measured using waterproof Axivity accelerometers on the non-dominant wrist 24 hours a day for 8 days following parental demographic data gathering. Screen time was captured through a wearable camera, attached to a chest harness (camera facing outward), and recorded from 2 hours before and up to bedtime. The stationary camera (tripod mounted in the bedroom) captured any screen use after the participant had gone to bed until waking the next morning.

Data analysis included coding the content of the video recordings, when and for how long participants spent time on different devices (smartphone, tablet, laptop computer, desktop computer, handheld gaming console, gaming console, television, and other), and screen activities (watching, listening, reading, educational or creative, browsing the internet, communication, social media, video gaming, multitasking within a device, and multitasking across multiple devices). Screen activities were also collapsed into passive (watching, listening, reading, browsing and other unknown passive) and interactive (gaming, communication including messaging, device-based multitasking, educational or creative tasks and other unknown interactive) groups. Social media (scrolling feeds, viewing stories and interacting with posts, not including messaging) was excluded from these broader categories, being a blend of both passive and interactive activities.

The association between the data collected on screen use and sleep measures was analysed primarily using regression models, which accounted for differences between repeat measure variability, including different nights of the week such as consecutive nights or day of the week.

Findings

Screen time in the 2 hours before bed had no overall association with sleep outcomes. On nights when screens were used in the period up to 'shut eye', the mean difference in sleep onset varied from 5 min (95% CI −11 to 20 min) for social media to 32 min (95% CI 11to 53 min) for passive screen time. However, these differences were offset by comparable mean differences in sleep time from 6 min (95% CI −9 to 21 min) for social media to 27 min (95% CI 7 to 47 min) for passive screen time, such that no difference in total sleep time was observed. By contrast, using screens once in bed and prior to attempting sleep was associated with poor sleep health in several ways. All types of screen behaviours were associated with delayed sleep onset, but particularly interactive screen use, which was associated with delayed onset of 10 min. The main finding was that sleep duration and quality are not affected unless the screen time is physically in bed and interactive.

Commentary

Significant increase in smartphone and digital platform use has resulted in concerns about the impact of screen time use on children and young people's development, health and well-being. An updated review of the effects of screen time on child development found screen time could enhance education and learning, aid connecting with others, but could lead to obesity, sleep problems and anxiety.[2] Brosnan *et al*'s[1] findings challenge a common belief that screen use before bed is detrimental to sleep. However, interactive screen activities and multitasking while in bed are associated with greater delays in sleep onset and reduced sleep duration compared with screen use in the hours before bedtime.

Poor sleep has been associated with poor educational performance and behavioural problems in children and young people. A recent meta-review found individual and environmental factors including screen use, day of the week, gender, substance use, family environment and sleep boundaries impact on sleep in young people.[3] However, while a correlation between these factors exists, it is difficult to establish a causal relationship.

Currently, there is no guidance from the National Institute for Health and Care Excellence specifically relating to sleep for children and young people. However, the National Health Service information on sleep in children emphasises the importance of consistent sleep schedules, a relaxing bedtime routine including limiting screen time before bed, and a suitable sleep environment for children and young people. While there is a lack of definitive sleep guidelines, findings from Brosnan *et al*'s[1] study might reasonably suggest reducing or limiting interactive screen time used before bed, but passive activity for relaxation might enhance sleep duration and quality.

Future research exploring the association between smartphone use and sleep duration and quality might consider smartphone-related patterns of behaviour in wider age ranges and broader socioeconomic backgrounds with subsequent academic and social attainment.

Competing interests None declared.

Provenance and peer review Commissioned; internally peer reviewed.

References

1 **Brosnan B**, Haszard JJ, Meredith-Jones KA, *et al*. Screen Use at Bedtime and Sleep Duration and Quality Among Youths. *JAMA Pediatr* 2024;178:1147–54.

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