Smartphone Engagement During School Hours Among US Youths

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Introduction

Smartphone use in schools is an increasingly recognized problem. Although benefits may exist (eg, accessing educational resources), such use is associated with negative academic outcomes.[1,2] Teachers report in-class smartphone distraction is a problem,[3] and social media poses greater risk of negative outcomes than nonsocial use.[4] However, objective evidence of student smartphone and/or social media use during school hours remains limited. In a 9-day passive sensing study, 203 smartphone users aged 11 to 17 years logged, on average, 43 minutes of smartphone use during school hours, with social media applications (apps) used the most.[5] A 2-month passive sensing study of 117 youths aged 13 to 18 years reported that they averaged 1.5 hours on smartphones at school and 25% spent greater than 2 hours a day, with social apps used most.[6] The goal of this observational analysis was to extend previous work on objectively measured, school-day device usage in a larger cohort, with a wider age distribution, and over a longer sampling window.

Methods

This cross-sectional study analyzed deidentified data from the Aura app. Aura is an app available for parents and caregivers in the US to monitor youth device activity. Other than year of birth, no identifying information was available from students (see Supplement 1 for additional details about the app and waiver of consent).

Data from 11 382 students (6564 students aged 10-13 years; 4818 students aged 14-17 years) collected after September 4, 2024 (beginning of the school year), and before February 10, 2025, were analyzed, excluding Thanksgiving Week (November 24 to November 30, 2024) and December holidays through the New Year (December 22, 2024, to January 4, 2025). In line with past research,[6] any student user with 2 or more weekdays of data from school hours was included. STROBE reporting guidelines were followed as appropriate for this study.

Table. Device Usage Patterns Across Weekdays and During School Hours

Variable	No. of participants	Overall smartphone use, min	
		Median (IQR) [range]	Mean (95% CI)
24 h Smartphone use (weekdays)	11 382	141.0 (68.0-245.0) [1-929]	175.8 (175.5-176.2)
24 h Social app use (weekdays)	11 247	102.0 (38.0-197.0) [1-927]	137.4 (137.1-137.7)
Smartphone use during weekday school hours (8:00 AM-2:30 PM)	11 382	35.0 (11.0-84.0) [1-391]	58.4 (58.2-58.6)
Social app use during weekday school hours (8:00 AM-2:30 PM)[a]	11 022	25.0 (7.0-64.0) [1-391]	46.6 (46.4-46.8)
Social app use during school day			
TikTok	4475	18.5 (5.0-49.0) [1-374]	36.6 (36.3-36.9)
Snapchat	3196	10.0 (4.0-25.0) [1-379]	20.3 (20.1-20.4)
Facebook	5680	5.0 (2.0-13.0) [1-352]	12.1 (12.0-12.2)
X (Twitter)	1450	4.0 (1.0-13.0) [1-272]	12.2 (11.7-12.7)
YouTube	9688	14.0 (4.0-42.0) [1-391]	33.4 (33.2-33.6)
Instagram	3718	12.0 (4.0-30.0) [1-376]	23.5 (23.3-23.7)

[a] Overall social app use was calculated using a list of 58 different apps (eAppendix in Supplement 1). The majority of this use, however, was concentrated on the 6 apps listed separately here.

Smartphone activity was calculated by taking total minutes that students were active on a device between 8:00 AM and 2:30 PM on weekdays and then averaging across available days using Aura app versions 3.27.0 through 3.32.0. If a participant was not active on their phone during a given school day (logging 0 active minutes in the 24-hour period), data from that day were not included in the mean and median and were considered missing. See the eAppendix in Supplement 1 for more analytic strategy details.

Results

Overall, 798 983 user-days were available for analysis, of which 176 491 (22%) were excluded on the basis of no available device data. Most users (94%) had time limits and/or app restrictions on their devices through the Aura app. Of 622 492 total user-days analyzed with some activity during a 24-hour weekday period, 444 025 (71%) had at least some activity during school hours (216 570 user-days [61%] for students aged 10-13 years; 227 455 user-days [86%] for students aged 14-17 years). On these days, youths spent a mean (SD) of 58.4 minutes (64.0) on on smartphones during school hours (48.2 minutes [62.1 minutes] for students aged 10-13 years; 68.1 minutes [64.2 minutes] for students aged 14-17 years) (**Table**), which represented 15% of the school day and 33% of mean total weekday smartphone use (2.9 hours; 32% for students aged 10–13 years; 33% for students aged 14–17 years). Few students (875 students [8%]) spent more than 2 hours per school day on average (341 students [5%] aged 10–13 years; 534 students [11%] aged 14–17 years). Students spent 46.6 minutes (SD + 57.0 minutes) on social media apps during school hours (42.4 minutes [58.1 minutes] for students aged 10–13 years; 50.2 minutes [55.9 minutes] for students aged 14–17 years), which represented most smartphone usage during the school day (73% for students aged 10–13 years; 74% for students aged 14–17 years).

Discussion

This cross-sectional study found that when adolescents had their phones at school, they spent nearly an hour per school day on smartphones, with most of this time on social media. The results extend prior work indicating that smartphone use during instructional hours, especially social-specific use, is not trivial.[6] These results also highlight developmental differences, with younger adolescents using smartphones and social media less than older adolescents. The overall times are lower than reported previously and may relate to the fact that 94% of users had time limits and/or app restrictions on their devices through the Aura app compared with 22% (26 of 117 youths) in the previous study,[6] and because the present study included younger students who tended to use devices less than older youths.

Limitations include a lack of participant demographic data (hindering knowledge of generalizability) and information regarding school smartphone-related policies. We excluded days where there was no device usage, which may have influenced the outcomes. Future studies should examine diverse US populations, consider school-specific policies, and further delineate device usage during class times vs other noninstructional time (eg, lunch, recess).

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Data Sharing Statement: See Supplement 2.

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SUPPLEMENT 1.
eAppendix. Supplemental Methods

SUPPLEMENT 2.
Data Sharing Statement