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Excess Screen Time in US Children: Association With Family Rules and Alternative Activities

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Abstract

We describe the association of screen time in excess of American Academy of Pediatrics recommendations (≤2 h/d) with family television-use policies and regular nonscreen activities among US school-aged children. Data from the 2007 National Survey of Children's Health were used. The sum of minutes spent on television, videos, video games, and recreational computer use was calculated for children 6 to 17 years old. Bivariate and multivariate logistic regression models were used to calculate relative odds of exceeding American Academy of Pediatrics guidelines and of heavy screen use (>4 h/d) for varying family media-use policies and frequency of alternative activities (physical activity and family meals). In all, 49% of school-aged children had screen time >2 h/d and 16% had screen time >4 h/d. Lower frequency of family meals, presence of TV in the bedroom, absence of rules about TV viewing, and less physical activity were associated with both >2 and >4 hours per day of screen time.

Keywords

children; adolescents; screen time; media use; sedentary behavior; physical activity; National Survey of Children's Health

Introduction

A growing body of evidence suggests that how children spend their time affects body composition, brain development, and behavior patterns, with potential ramifications for health across the life course. Since the introduction of television, concerns have been

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Authors' Note

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raised regarding the effects of electronic media on child growth and development, including changes in caloric intake and energy expenditure, effects of violent content and advertising on behavior, and displacement of other activities that are important for optimum development.[1,2] Higher screen time has been linked to obesity,[3–5] metabolic syndrome,[6] aggressive behavior, and mental health problems.[7]

The American Academy of Pediatrics (AAP) recommends that children's total noneducational screen time (television, videos, video games, and recreational computer use) be limited to no more than 2 hours per day.[8–10] Previous studies of screen-based leisure activities have used varying definitions and measurements, with resulting variation in estimates of daily screen time and proportions exceeding designated cut-offs.[11–21] The expanding array of new devices and frequent multitasking further complicate analyses.[5,19,22] The National Survey of Children's Health (NSCH) and the Youth Risk Behavior Survey collect data about screen time, but summaries of the findings have treated television and computer use separately, without providing estimates of the proportion of children who exceed the AAP guidelines for total screen time.[20,23,24]

Parental behaviors, such as modeling and sharing activities, limit-setting, and providing information, encouragement, and logistic support affect how children spend their time.[11,25–34] Literature points to the importance of parenting style as a determinant of adiposity and obesity-related behavior,[32,35–37] and interventions to change obesity-related behaviors in children are more effective when they involve changing parental behavior.[38–40] However, more insight into parental behaviors associated with excess screen time is needed.

In keeping with concerns that screen time might affect other important activities, such as physical activity and engagement with family, the AAP also recommends that anticipatory guidance regarding media use include emphasis on alternative activities.[41–43] Previous work indicates that greater screen time is associated with less time spent with family members,[5,44] but more recent qualitative findings point to parents' perceived positive effects of media-use on day-to-day family functioning, including management of behavior and conflict.[45,46] Family meals have been linked to similar aspects of family functioning, as well as health behaviors, including dietary choices, substance abuse and risk-taking behaviors, and disordered eating among adolescents.[47–52] The frequency of family meals has been considered a proxy for family connectedness,[51] and evidence also points to independent effects of family meals on adolescent psychosocial well-being.[53,54] Examination of the relationship between family meals and screen time might contribute to better understanding of the complex relationship between family functioning and media use.

The relationship between physical activity and screen time is complex and bidirectional effects have been described.[13,30,55] Although some previous studies have shown an inverse relationship between screen time and physical activity, this relationship is not consistent across geographical regions, cultures, and age-groups.[13,25,55] An Australian longitudinal study spanning childhood and adolescence found reciprocal effects between screen time and physical activity at younger ages (6–8 years), but among adolescents, physical activity was more likely to affect screen time than the reverse.[55] The frequency of physical activity may be an indicator of the family's tendency to encourage nonscreen activities.

As media-use patterns among youth change with introduction of new technologies, ongoing surveillance—on both population and individual levels—is warranted to inform interventions for promoting activities that optimize child growth and development. Findings from a large national survey might help clinicians target their advice about media-use more effectively.

This study describes screen-based leisure activity (including television, videos, video games, and recreational computer use) among US 6- to 17-year-olds. Also, this study investigates how the likelihood of excess screen time varies with household television-use policies (television in child's bedroom and family rules about program content) and regular nonscreen activities (physical activity and family meals). Excess screen time is examined using 2 different cut-points: exceeding AAP guidelines (>2 h/d) and heavy screen usage (>4 h/d).

Methods

Study Population

This investigation is a cross-sectional study using data from the 2007 NSCH, a module of the State and Local Area Integrated Telephone Surveys administered by the National Center for Health Statistics.[56,57] Households were contacted by random-digit dialing, and were eligible for participation in the NSCH if they included a child younger than 18 years. If the household included more than one child, the sample child was randomly selected from the children in the household. The respondent was an adult living in the household who knew about the child's health and medical care. The computer-assisted telephone interview included questions about the child's health status, activities, and behavior, as well as parental attitudes and neighborhood characteristics.[56] The overall response rate of the NSCH was 46.7%,[57] and the potential for nonresponse bias is discussed further below. During 2007–2008, 91 642 interviews were completed.[57] The present study limited its focus to the 64 076 interviews about children aged 6 to 17 years. After excluding children with missing values for total screen time, as well as 41 outliers reported to spend ≥12 h/d on computer use as well as ≥12 h/d on TV/video/video game use (≥24 h/d total) the study population included 63 145 children. The University of Maryland Institutional Review Board designated this analysis of the NSCH as exempt because it analyzed de-identified data from a publicly available data set.

Dependent Variable: Screen Time

Respondents were asked, "On an average weekday, about how much time does (child) use a computer for purposes other than schoolwork?" and "On an average weekday, about how much time does (child) usually watch TV, watch videos, or play video games?"[56] Responses were recorded as a number and a period (hours or minutes). Total screen time was computed by converting responses from hours to minutes and calculating the sum of minutes from the 2 questions. Because the 2 questions are not necessarily mutually exclusive, some respondents might have counted some electronic games as both computer time and video game time, and some children might have used a computer while watching television. No adjustments were made for possible multitasking or double counting. Don't

own a computer" and "Don't own a TV" responses were recoded as "zero minutes." "Don't know" and "refused" responses were coded as "missing." Observations with missing values for the relevant variables were excluded from the analysis.

Main Independent Variables: Family Television-Use Policies and Regular Nonscreen Activities

Family television-use policies were assessed using yes-or-no responses to the questions "Are there family rules about what television programs (child) is allowed to watch?" and "Is there a television in (child's) bedroom?"[56]

As indicators of regular nonscreen activities, we used the frequency of family meals and the frequency of physical activity. Although these activities are not expected to displace a significant amount of screen time, they may serve as indicators of the family's propensity to encourage and engage in non-screen activities. The frequency of family meals was measured using the question "During the past week, on how many days did all the family members who live in the household eat a meal together?"[56] These responses were dichotomized as 0 to 3 days or 4 to 7 days.

The frequency of physical activity was measured using the question "During the past week, on how many days did (child) exercise, play a sport, or participate in physical activity for at least 20 minutes that made (him/her) sweat and breathe hard?"[56] These responses were collapsed into 4 categories (0 days, 1–3 days, 4–6 days, 7 days).

Covariates

The 2007 NSCH publicly available data set included data on age at last birthday, gender, race/ethnicity, respondent's relationship to child, parental education, and family income. For this study, children were categorized as adolescents (age 12–17 years) and younger children (age 6–11 years). Race/ethnicity was categorized as non-Hispanic white, non-Hispanic black, non-Hispanic multiracial, non-Hispanic other, and Hispanic. For respondent's relationship to child, respondents identified as biological, adoptive or stepmothers and stepfathers were categorized as "mothers" and "fathers"; nonparental respondents were categorized as "other."[57] Respondent's education was categorized as <12 years, 12 years, or >12 years based on the question "What is the highest grade or year of school (you) have completed?"[56] Categories for household income were determined by calculating the ratio of total family income to the federal poverty level for a family of that size.[57]

Statistical Analysis

Data were analyzed using SAS System for Windows (release 9.3; SAS Institute Inc, Cary, NC, 2002–2010). To produce population estimates, sampling weights based on the probability of selection and adjusted for nonresponse were used. SAS survey procedures were used to account for the complex survey design. Ninety-five percent confidence intervals were constructed around estimates. Differences were considered significant if P values were less than .05. No adjustments were made for multiple comparisons. For all items, "don't know" and "refused" responses were coded as missing and observations with missing values for the relevant variables were excluded from the analysis.

Bivariate analysis was performed using logistic regressions with screen time >2 h/d and screen time >4 h/d as dependent variables and each variable described above as a main independent variable. Separate multiple logistic regression models for each of the 4 main independent variables were used to determine the magnitude of effects on the odds of screen time >2 h/d and the odds of screen time >4 h/d, after adjusting for age, gender, race/ethnicity, respondent's education, and respondent's relationship to child. Because poverty ratio and respondent's education were highly correlated and there were more observations with missing data for poverty ratio (8.4%), we included respondent's education but not poverty ratio in multiple logistic regression models as a measure for socioeconomic status. For variables included in the models, the percentage of observations with missing values ranged from 0.14% for gender to 1.39% for total screen time; 4.73% of observations were missing values for one or more of the relevant variables. All logistic regressions were performed using the 61 045 observations with values for all of the relevant variables.

Results

Characteristics of the study population, with corresponding population estimates are shown in Table 1. Half of US children have bedroom TVs, and 1 out of 7 lives in a household with no rules about television program content. One out of 4 has family meals ≤3 d/wk. While 29.9% are physically active for at least 20 minutes every day, 10.2% are reported to have no days with 20 minutes of physical activity.

The distribution of total screen time was highly skewed, with a long right-sided tail, and clustering at multiples of 30 and 60 (Figure 1). In our sample, after excluding outliers with screen time ≥24 h/d, individual totals ranged from 0 to 1200 min/d, with a median and mode of 120 min/d. The weighted population mean total screen time was 171 minutes, including an average of 109 minutes of television, videos and video games, and 62 minutes of recreational computer use daily.

Table 2 shows the mean total screen time and the proportions of children with screen time >2 h/d and >4 h/d for various subpopulations of US 6- to-17-year olds. Almost half of US 6- to 17-year-olds (49.1%) had screen time >2 h/d and 16.3% had screen time >4 h/d. Screen time was higher among adolescents than among younger children. Non-Hispanic black children were more likely than children from other racial and ethnic groups to have excess screen time.

Table 3 shows results of separate logistic regressions indicating how the odds of screen time exceeding the AAP-recommended 2-hour limit varies with family television-use policies and frequency of alternative activities. Having a television in the child's bedroom was associated with significantly greater odds of screen time >2 h/d (odds ratio; OR = 2.07; $P < .0001$). For children in households without rules about TV content, the odds of screen time >2 h/d was significantly greater than in households with such rules (OR = 1.74; $P < .0001$). Regarding regular nonscreen activities, children who had family meals ≤3 times per week had greater odds of screen time >2 hours (OR = 1.48; $P < .0001$) than children with family meals ≥4 times per week. Frequency of physical activity was inversely related to odds of excess screen time. Compared with children reported to have at least 20 minutes of physical

activity every day, inactive children (0 days with at least 20 minutes of physical activity in the past week) had more than twice the odds of screen time >2 h/d (OR = 2.22; $P < .0001$). These associations were attenuated, but still significant, after adjusting for age, gender, race/ethnicity, respondent's education, and respondent's relationship to the child.

Table 4 shows similar findings regarding the relative odds of screen time >4 hours. Children were significantly more likely to be heavy screen users if they had bedroom TVs (OR = 2.28; $P < .0001$), if they had no rules about program content (OR = 1.74; $P < .0001$) and if they had family meals less ≤3 d/wk (OR = 1.48; $P < .0001$). Compared with those with daily physical activity, inactive children had significantly greater likelihood of screen time >4 h/d (OR = 2.65; $P < .0001$). Associations between screen time >4 h/d and bedroom TV, lack of rules about TV content, infrequent family meals and infrequent physical activity remained significant after adjusting for covariates.

Discussion

This analysis of a large, nationally representative sample adds to previous work[33] by including recreational computer use, as well as TV, videos and video games, for better alignment with AAP guidelines.[8] This study provides additional evidence that excess screen time is common among school-aged children in the United States, with almost half exceeding the AAP guidelines and 1 out of 6 exceeding 4 h/d of screen time. Our findings indicate that the likelihood of excess screen time increases with presence of a TV in the bedroom, a lack of rules about TV content and having family meals ≤3 d/wk, adding to the growing body of literature concerning the association between screen time and the home environment.[19,29,30,33,35,36,44–46] The data also show an inverse relationship between screen time and frequency of physical activity. Furthermore, these results were consistent in multivariate analyses, suggesting that these associations are unlikely to be due to confounding by sociodemographic factors.

We found that parents who reported no rules about program content were more likely than those with such rules to report excess screen time. However, others have found that parental report of rules and children's perception of rules do not always agree and that prevalence of exceeding screen time guidelines was lowest when children concurred with their parents about the presence of consistent rules.[30]

Because frequent family meals might serve as an indicator of aspects of family functioning that might affect media use, the present study tested whether low frequency of family meals predicts excess screen time. Our finding that lower frequency of family meals is associated with greater odds of excess screen time is consistent with earlier data indicating that greater screen time is associated with less time spent with family members.[44] This result should be interpreted with caution because we had no information about the quality of family interactions or media use during family meals.

A growing body of evidence indicates the complexity of the relationship between screen time and physical activity. Screen time and physical activity are independently associated with obesity and overweight.[25,58,59] Each has its own determinants.[16,20,60,61] Because

previous studies have shown inconsistent relationships between screen time and physical activity across cultures and age-groups,[13,25,57] and because frequent physical activity might serve as an indicator of the family's tendency to encourage nonscreen activities, the present study tested whether the frequency of physical activity would predict excess screen time in this large sample of US school-aged children. Although our findings indicate a significant inverse relationship between excess screen time and the frequency of physical activity, from these cross-sectional data we cannot infer a causal relationship. Plausible explanations for this apparent "dose–response" relationship include (*a*) that less active children have more time for screen-based leisure activities or (*b*) that some parents are more likely than others to provide opportunities for participation in alternative activities.

Strengths and Limitations

The NSCH provides data on a large, nationally representative sample of US children and adolescents. The large sample size allows detection of differences between subpopulations. Inclusion of recreational computer use, as well as television, videos and video games in our estimate of screen time, improves over previous studies that do not include computer use or do not distinguish between school work and recreational pursuits.

Measuring screen time and physical activity by parental report raises concerns about the validity of the measures due to variable parental awareness of their children's activities, interpretation of the questions and decisions about what to count.[29,48,62,63] For instance, some parents might count time spent on computer games as both recreational computer use and video games. When a child spends an hour e-mailing friends while watching TV, respondents might count that time block as 1 or 2 hours of screen time. Some parents might count time that the television in on, even if the child is not paying attention to it. Such double-counting or multitasking might inflate estimates of total screen time. If the frequency and magnitude of such screen time measurement errors varies with the presence of family rules and bedroom TVs, or with the frequency of family meals or physical activity, the relationships described might be affected.

In 2008, the Panel Study of Income Dynamics Child Development Supplement III (PSID-CDS-III) collected time-use data on a nationally representative sample of 10- to 18-year-olds using detailed time-use diaries and counting only primary activities when concurrent activities were reported to ensure that reported time blocks were exhaustive and mutually exclusive.[22] Mean total time spent on TV, videos, video games, and recreational computer use from the PSID-CDS-III was 174 min/d, which is very close to our weighted population mean of 171 min/d. This suggests that adding the number of minutes of computer use for purposes other than school work to the number of minutes spent on television, videos, and video games provides a reasonable estimate of total noneducational screen time, despite potential problems due to proxy reports, multitasking, and double-counting.

The overall national response rate for the 2007 NSCH was 46.7%.[57] However, the sampling weights incorporate adjustments for nonresponse. Furthermore, recent research examining potential nonresponse bias in the 2007 NSCH, using several measures including the frequency of family meals, did not find that significant nonresponse bias was likely.[64] If busy, hassled parents are more likely to refuse participation and also more likely to use

screen time to occupy their children, then our findings might underestimate the prevalence of excess screen time in the general population.

Parental reports about media use, physical activity, and family environmental factors might be affected by social desirability,[63] especially among those who are more aware of current guidelines. For example, differences in knowledge of guidelines might contribute to differences between mother's and father's reports of screen time. Better understanding of variation in reported screen time with respondent's relationship to child requires further study.

The 2007 NSCH predates the widespread use of smart phones and tablet computers and newer data now exist. Although using data from 2007 may limit the generalizability to current practices, it allows this analysis to serve as a baseline of screen time behavior against which newer data, measuring the use of newer technologies, may be compared. Illumination of health outcomes related to changing patterns of media use among young people will require continued surveillance using clear benchmarks.

Conclusion

Almost half of US 6- to 17-year-olds exceeded current AAP screen time guidelines. Excess screen time was associated with having a TV in the bedroom, having no rules about TV content and having family meals less than 4 d/wk. Screen time was inversely related to the frequency of physical activity.

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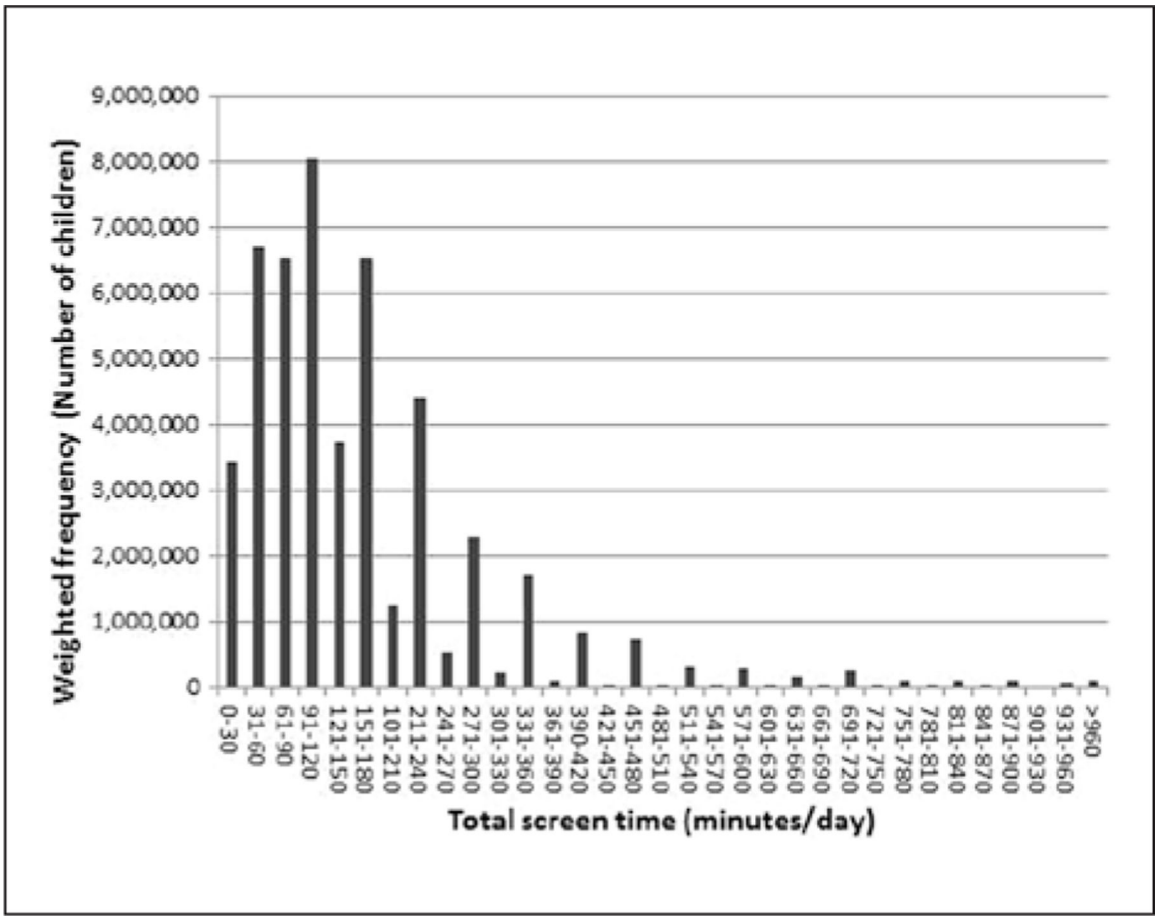

Figure 1.

Frequency distribution of total screen time in 6- to 17-year-olds: United States, 2007.

Parental reports of time spent watching television or videos, playing video games, and using a computer for purposes other than schoolwork.

Data from the 2007 National Survey of Children's Health.

Table 1.

Characteristics of 6- to 17-Year-Olds From the 2007 National Survey of Children's Health, with Overall Population Estimates Indicated by Weighted Percentages: United States, 2007.[a]

	No. in Sample	Percentage (weighted)
Overall	63 145	
Gender		
Boys	32 795	51.1
Girls	30 262	48.9
Age (years)		
6–11	27 470	48.7
12–17	35 675	51.3
Race/ethnicity		
Non-Hispanic white	43 355	57.6
Non-Hispanic black	6265	14.9
Hispanic	7199	19.2
Non-Hispanic multiracial	2732	3.8
Non-Hispanic other race	2563	4.6
Respondent's relationship to child		
Mother	46 137	74.7
Father	13 209	18.9
Other	3787	6.4
Respondent's education (years)		
<12	5084	12.0
12	12 829	25.7
>12	44 448	62.3
Household poverty ratio		
≤100%	5947	16.3
>100% and ≤200%	9444	20.5
>200% and ≤300%	10 662	18.5
>300% and ≤400%	9391	14.2
>400%	22 551	30.4

	No. in Sample	Percentage (weighted)
TV in bedroom		
No	32 933	49.9
Yes	30 058	50.1
Rules about TV content		
No	9775	14.1
Yes	53 132	85.9
Family meals (times/week)		
0–3	16 442	25.6
4–7	46 547	74.4
Days/week with ≥20 minutes of exercise		
0	5620	10.2
1–3	15 850	25.4
4–6	23 257	34.6
7	17 866	29.9

[a]Data from the 2007 National Survey of Children's Health.

Table 2.

Total Screen Time and Prevalence of Screen Time Greater Than 2 Hours per Day and Greater Than 4 Hours per Day Among 6- to 17-Year-Olds by Demographic Characteristics, Family Television Policies, and Regular Nonscreen Activities: United States, 2007.[a]

	Total Screen Time (min/d)		Prevalence of Total Screen Time >2 h/d		Prevalence of Total Screen Time >4 h/d	
	Mean (Weighted)	95% Confidence Interval	Percentage (Weighted)	95% Confidence Interval	Percentage (Weighted)	95% Confidence Interval
Overall	171	168–174	49.1	48.2–50.2	16.3	15.6–17.0
Gender						
Boys	177	173–182	50.5	49.1–51.9	17.5	16.5–18.6
Girls	164	161–168	47.6	46.1–49.0	14.9	14.0–15.9
Age (years)						
6–11	142	138–146	39.5	38.0–40.9	10.6	9.7–11.5
12–17	198	195–202	58.2	56.8–59.5	21.7	20.6–22.7
Race/ethnicity						
Non-Hispanic white	158	155–160	45.2	44.0–46.3	13.4	12.6–14.2
Non-Hispanic black	234	223–245	65.5	63.2–67.8	30.6	28.3–32.9
Hispanic	166	159–173	49.3	46.2–52.4	14.6	12.6–16.6
Non-Hispanic multiracial	180	162–198	49.6	44.6–54.5	18.0	14.3–21.7
Non-Hispanic other race	149	138–160	44.1	38.4–49.8	10.6	8.4–12.8
Respondent’s relationship to child						
Mother	167	163–170	47.1	46.0–48.2	15.6	14.8–16.4
Father	176	169–184	53.4	51.1–55.7	16.1	14.5–17.8
Other	206	195–218	59.3	55.4–63.2	24.4	21.1–27.6
Respondent’s education (years)						
<12	181	173–190	52.8	49.3–56.3	18.9	16.5–21.3
12	195	189–200	57.0	54.9–59.0	21.8	20.2–23.5
>12	159	156–163	45.0	43.8–46.2	13.5	12.6–14.3
Household poverty ratio						
≤100%	187	179–196	51.7	49.0–54.4	20.8	18.8–22.8
>100% and ≤200%	188	181–195	54.8	52.4–57.3	20.7	18.7–22.7
>200% and ≤300%	179	173–185	52.7	50.3–55.2	17.8	16.0–19.5
>300% and ≤400%	167	157–177	47.8	45.0–50.7	14.3	12.3–16.2

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	Total Screen Time (min/d)		Prevalence of Total Screen Time >2 h/d		Prevalence of Total Screen Time >4 h/d	
	Mean (Weighted)	95% Confidence Interval	Percentage (Weighted)	95% Confidence Interval	Percentage (Weighted)	95% Confidence Interval
>400%	150	146–154	42.7	41.0–44.3	11.3	10.2–12.3
TV in bedroom						
No	144	141–147	40.1	38.7–41.5	10.9	10.1–11.8
Yes	198	194–203	58.2	56.8–59.6	21.7	20.6–22.8
Rules about TV content						
No	208	200–216	59.7	57.0–62.3	23.6	21.6–25.6
Yes	165	162–168	47.5	46.4–48.5	15.1	14.4–15.9
Family meals (times/week)						
0–3	193	188–198	56.5	54.6–58.4	20.6	19.2–22.1
4–7	163	160–167	46.5	45.3–47.6	14.7	13.9–15.5
Days/week with ≥20 minutes of physical activity						
0	215	205–225	60.9	57.6–64.3	27.7	24.8–30.5
1–3	185	180–191	55.9	53.9–57.9	18.7	17.2–20.2
4–6	163	158–168	45.9	44.3–47.5	14.2	13.0–15.3
7	151	147–156	42.4	40.6–44.3	12.7	11.5–13.8

[a]Data from the 2007 National Survey of Children's Health.

Table 3.

Change in Likelihood of Screen Time Greater Than 2 Hours per Day With Family Television Policies and Regular Alternative Activities: United States, 2007.[a]

	OR	95% CI	*P* [b]	AOR[c]	95% CI	*P* [b]
TV in bedroom						
No	Reference			Reference		
Yes	2.07	1.90–2.25	<.0001	1.69	1.54–1.85	<.0001
Rules about program content						
No	1.65	1.46–1.86	<.0001	1.19	1.05–1.35	<.01
Yes	Reference			Reference		
Family meals (days/week)						
0–3	1.48	1.35–1.62	<.0001	1.27	1.16–1.40	<.0001
4–7	Reference			Reference		
Days/week with ≥20 minutes of physical activity						
0	2.22	1.89–2.61	<.0001	1.74	1.46–2.07	<.0001
1–3	1.72	1.54–1.93	<.0001	1.51	1.35–1.70	<.0001
4–6	1.15	1.04–1.28	<.01	1.11	0.99–1.23	>.05
7	Reference			Reference		

Abbreviations: OR, odds ratio; 95% CI, 95% confidence interval; AOR, adjusted odds ratio.

[a] Data from the 2007 National Survey of Children's Health.

[b] *P* values indicate the probability of the observed Wald χ^2 if there is no true difference from the reference category.

[c] AORs represent the results of separate logistic regressions for each reported independent variable and are adjusted only for child's age (years), gender, race/ethnicity, respondent's education, and respondent's relationship to child.

Table 4.

Change in the Likelihood of Screen Time >4 Hours per Day With Family Media Policies and Regular Alternative Activities: United States, 2007.[a]

	OR	95% CI	*P* [b]	AOR[c]	95% CI	*P* [b]
TV in bedroom						
No	Reference			Reference		
Yes	2.28	2.04–2.55	<.0001	1.71	1.52–1.92	<.0001
Rules about program content						
No	1.74	1.53–1.98	<.0001	1.27	1.10–1.45	<.001
Yes	Reference			Reference		
Family meals (days/week)						
0–3	1.48	1.33–1.66	<.0001	1.22	1.08–1.37	<.001
4–7	Reference			Reference		
Days/week with ≥20 minutes of physical activity						
0	2.65	2.22–3.17	<.0001	2.14	1.76–2.59	<.0001
1–3	1.55	1.34–1.79	<.0001	1.40	1.20–1.64	<.0001
4–6	1.12	0.97–1.29	>.05	1.09	0.94–1.27	>.05
7	Reference			Reference		

Abbreviations: OR, odds ratio; 95% CI, 95% confidence interval; AOR, adjusted odds ratio.

[a] Data from the 2007 National Survey of Children's Health.

[b] *P* values indicate the probability of the observed Wald χ^2 if there is no true difference from the reference category.

[c] AORs represent the results of separate logistic regressions for each reported independent variable and are adjusted only for child's age (years), gender, race/ethnicity, respondent's education, and respondent's relationship to child.