



# Family and developmental correlates of adolescent involvement in decision making about screen use

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## ABSTRACT

**Objective:** Assess how child involvement in making rules about screen time relates to age, child prosocial functioning, and amount of screen use.

**Methods:** NORC's AmeriSpeak Panel was used to recruit a nationally representative sample of parents or guardians of school-aged children (age 5–17) in the United States (n = 2084). Parents completed survey that included measures of screen time, child involvement in rule making about screen use, family functioning, and dimensions of child psychosocial functioning.

**Results:** Across all age categories, most families had some form of rules about the allowable amount of screen-based digital media for uses other than schoolwork: 86% of elementary school-aged children (ages 5 to 10), 81% of middle school-aged children (ages 11–13), and 61% of high school aged children (ages 14–17). Across all age groups, having rules was associated with fewer hours of screen time (elementary school: B = -1.31, 95% CI = -1.80 to -0.81, p < 0.001; middle school: B = -1.40, 95% CI = -2.20 to -0.59, p < 0.001; high school: B = -0.97, 95% CI = -1.68 to -0.27, p = 0.007). Child involvement in making rules was significantly greater for high school students as compared to elementary school students (β=0.12, p < 0.001), and not associated with high school- or middle-school aged child screen time. Across all age groups, child involvement in making rules was associated with higher levels of prosocial functioning (elementary school: β=0.07, p < 0.001; middle school: β=0.19, p = 0.001; high school: β=0.21, p < 0.001).

**Conclusions:** Child involvement in making rules about screen use may be an opportunity to strengthen developmentally important competencies, as part of a broader autonomy-supportive approach to parenting.

## 1. Introduction

Use of screen-based digital media (screens) is increasingly normative across childhood and adolescence, and it can have many positive functions for individuals and families (Hogan et al., 2013). However, time spent on screens may also interfere with other developmentally important activities, such as sleeping, physical activity, or in-person social interaction (Hogan et al., 2013). For some youth, screen use can reach clinically problematic levels of dependence, worsening pre-existing psychosocial vulnerabilities (Ra et al., 2018; Twenge et al., 2018). On average, adolescents in the United States use screens for more than 8 hours per day (The Common Sense Census: Media Use by Tweens and Teens, 2021), with potential impacts on psychosocial and physical health outcomes (Mireku et al., 2019; Tang et al., 2021; Twenge and Farley, 2021). Consequently, managing screen time is an important

pediatric public health challenge.

The Interactional Theory of Childhood Problematic Media Use proposes that families play a central role in shaping child media practices (Domoff et al., 2020). Proximal risk factors for problematic use, including child dysregulation, parent and family stress and media-related parenting are influenced by contextual factors, including socioeconomic status and family functioning (Domoff et al., 2020; Li et al., 2020). Reinforcement, including dyadic parent-child interactions about screen use, helps maintain or modify screen use behavior (Domoff et al., 2020). The American Academy of Pediatrics (AAP) recommends that families limit and monitor their screen use, proposing a series of rules for families to consider, such as setting limits on hours per day of use, and designating screen-free times (Hill et al., 2016). Viewed through the lens of the Interactional Theory of Childhood Problematic Media Use, rules are a parenting strategy that communicate parent beliefs about screen

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use, and establish a framework for reinforcement related to screen use (Domoff et al., 2020).

Among younger (e.g., elementary school-aged) children, a rule-based approach is associated with less time spent on screens (Jago et al., 2013; Bjelland et al., 2015). Among adolescents, evidence on the effectiveness of rules is mixed (Ramirez et al., 2011; Nielsen et al., 2019; Geurts et al., 2022; Smith et al., 2015). Whereas at younger ages parents can more readily control their child's access to screen-based digital media, this is more difficult for parents of adolescents (Jago et al., 2013). This age group has a developmentally important need for autonomy (Petegem et al., 2015) which often translates to increased independence and time away from direct parent oversight. When parents do try to enact restrictive control over adolescent screen use, there is a risk of media use concealment (Weinstein and Przybylski, 2019), and family conflict (Beyens and Beullens, 2017; Francis et al., 2021). Even if parents were able to make and enforce rules that worked in limiting adolescent screen time, it is not clear that would be developmentally beneficial. Important tasks of parenting children—and adolescents in particular—include preparing them to become adults who can regulate their own behavior and function as a prosocial member of society (Eisenberg et al., 2006; Morris et al., 2007). Across domains, high levels of parental control can impede the development of competencies that contribute to self-regulation (Deci and Ryan, 1987), positive social functioning (Eisenberg et al., 2001), and ultimately life satisfaction (Hwang and Jung, 2022). In a sample of early adolescents, more restrictive parenting in relation to media use was prospectively associated with less prosociality (Padilla-Walker et al., 2016).

An alternative to parent control is parent provision of autonomy-support, where children are empowered to articulate their needs and preferences, to take increasingly greater ownership for decision making, and to learn from their mistakes (Hwang and Jung, 2022). Autonomy-support is a core component of authoritative parenting, a parenting style that also emphasizes parent involvement and supervision (Gray and Steinberg, 1999). Authoritative, autonomy-supportive parenting can help strengthen intrinsic motivation (Soenens and Vansteenkiste, 2010), and build skills in integrative emotion regulation (Gao et al., 2021), which can support more expansive and flexible cognitions (Kashdan and Rottenberg, 2010). Through these cognitive pathways, and through parental modeling and the strengthened parent-child relationship (Yoo et al., 2013), autonomy supportive parenting is associated with greater child prosociality (Wong et al., 2021; Kalman-Halevia et al., 2023; Kang and Guo, 2022). Such strengthened assets may contribute positively to future self-regulatory capacity. Autonomy-supportive parent mediation of screen use has been associated with greater emotional and behavioral self-regulation among adolescents (Meeus et al., 2019). However, the impact of autonomy-supportive parenting on screen time is less clear, as is its impact on younger school aged children. A systematic literature review did not find consistent evidence of an association between specific parent screen use mediation practices and amount of screen use, or problematic use, among adolescents (Nielsen et al., 2019).

The extent to which parents engage children in decision making about media use in an autonomy-supportive capacity (i.e., seeking child input, teaching children to articulate their needs and preferences, and making decisions where the child feels heard and respected) is likely influenced by factors at the child, parent, or family-level. There is some evidence to suggest that autonomy provision is greater for female children and when parents are more educated (Wray-Lake et al., 2010). Greater family cohesion and functioning might also influence the extent to which parents have the foundational communication skills and relationship to effectively engage their child in screen-related decision making. Parents might make other appraisals about a child's readiness to contribute to decision making, potentially related to their screen use practices, conduct and other self-regulatory behaviors (Männikkö et al., 2020); prior longitudinal research in a sample of 13 and 14 year old youth finds that more child externalizing problems lead to less

autonomy supportive parenting (Reitz et al., 2006). It is also likely that autonomy provision varies by age, with parents of younger children seeing engaging their child in decision making as less functional (as younger children tend to have less unsupervised access to screens) or developmentally important (as autonomy is a less salient child need at younger ages) (Wray-Lake et al., 2010). Thus, in a nationally representative sample of parents of school aged children in the United States, we tested the following hypotheses: (1) autonomy-supportive rule making would be more likely for adolescents as compared to younger school-aged youth, (2) autonomy-supportive rule making would be associated with greater prosocial functioning across age groups, and (3) autonomy-supportive rule making would be associated with less screen time among adolescents; we did not have a directional hypothesis about the association between autonomy supportive rules and screen time for younger school-aged children.

## 2. Methods

### 2.1. Sample and procedure

NORC's AmeriSpeak Panel was used to recruit a nationally representative sample of parents or guardians of school-aged children in the United States. Eligibility criteria were: age 18–64, parent or guardian of at least one child aged 4–17 in the household (sample for present analyses restricted to age 5–17 to ensure children were all in elementary school), read or speak English or Spanish. NORC's AmeriSpeak panel provides coverage of 97 % of the U.S. household population using area probability and address-based sampling. To generate a sample that was representative of the U.S population in terms of age, race and Hispanic ethnicity, and gender, thirty-six sampling strata were used. Stratum size reflected the population distribution of the respective combination of demographic characteristics and differential expected survey completion rates. Options were provided for language (English or Spanish) and mode of completion (in writing by web or verbally by telephone). Surveys were administered between December 2, 2020 and December 21, 2020. Consistent with NORC Amerispeak compensation for panel members, participants who completed a survey received the cash equivalent of US\$3. Of 2530 eligible panelists, 91.9 % (n = 2324) completed the survey, and 2084 were included in the present age-restricted (ages 5–17) sample. For questions about children, parents were asked to respond with reference the child with the closest upcoming birthday. Seattle Children's Research Institute's Institutional Review Board (ID: STUDY00002437) approved all research activities. Survey items are provided as a [Supplementary document](#).

### 2.2. Measures

#### 2.2.1. Amount of screen use

Parent-report of their child's amount of screen use was measured using a question from Washington State's Healthy Youth Survey (Healthy Youth Survey. Available at: <https://doh.wa.gov/data-statistical-reports/data-systems/healthy-youth-survey>. Accessed April 11, 2023). Parents were asked to think about a typical weekday during the past two weeks and to report how many hours their child "uses a computer, tablet, smartphone, or other mobile device for something that is not schoolwork." They were provided with additional guidance to "count time spent on things such as playing video games (i.e., Xbox, PlayStations), or using social media." Response options were: they did not use a mobile device for something other than schoolwork; less than 1 h; 1 h; 2 h; 3 h; 4 h; 5 or more hours. The response option of up to 1 h was coded for analytic purposes as the mid-point of the category (0.5 h).

#### 2.2.2. Rules about amount of screen use

We adapted Bjelland and colleagues' assessment of parental rules (Bjelland et al., 2015); to mirror the wording of the amount of screen use measure, with parents responding to the prompt "I have rules about how

much time my child is allowed to use video or computer games, or use a smartphone, tablet, computer, tablet, smartphone, or other mobile device for something that is not schoolwork.” Response options were yes, somewhat, no, which were collapsed into “any” (yes, somewhat), and “no” rules, following the model employed by Bjelland and colleagues (Bjelland et al., 2015).

### 2.2.3. Child involvement in making screen rules

Parents who answered “yes” or “somewhat” to the question about amount of screen use rules completed the 4-item “parent seek” subscale of the Decision Making Involvement Scale (Miller and Harris, 2012), which reflects autonomy-supportive child involvement in decision making. Scale scores have a possible range of 0 to 12, where higher scores indicate greater child involvement.

### 2.2.4. Child psychosocial functioning

Parents completed age-relevant versions of the Strengths and Difficulties Questionnaire (SDQ), a validated parent-report behavioral screening instrument that assesses dimensions of child psychosocial functioning (Goodman, 2001). In the present study, we used SDQ subscales of prosocial functioning, and hyperactivity and conduct (combined to generate a measure of externalizing symptomatology per measure guidance) (Goodman et al., 2010). Higher scores indicate indicating greater prosociality (possible range: 0 to 10) and greater externalizing symptoms (possible range: 0 to 20).

### 2.2.5. Family functioning

Parents completed the General Functioning subscale of the McMaster Family Assessment Device (Epstein et al., 1983). An example item is “We don’t get along well together.” This 3 item measure has a possible range of 3 to 12, and was reverse coded so that higher scores indicate better family functioning.

### 2.2.6. Demographic characteristics

Child age was converted into three categories reflecting normative ages for elementary school ( $\leq 10$ ), middle school (11–13), and high school (14–17) in the United States. Child and parent gender were recorded (male, female, other, and prefer not to answer) and parent education was classified into three categories: high school diploma or less; some college or 2 year degree, 4-year degree; graduate or professional degree.

## 2.3. Analysis

Descriptive characteristics for study variables were reported separately by age category (5–10, 11–13, 14–17). Due to cell sizes, for analytic purposes gender was restricted to two categories (male, female). Parents who reported not having rules about screen time were assigned a score of 0 on the autonomy supportive communication about making screen rules variable, corresponding to responses of “not at all” for each item.

To test the hypothesis that parents would be more likely to engage children in making rules about screens at older ages, we conducted linear regression with an outcome of autonomy supportive communication and a three-level age category predictor. In this and all other regression models, we adjusted for competing and confounding child and family variables as depicted in our directed acyclic graph (see Supplementary Figure 1). For this model, we adjusted for whether the family had rules related to screen time (any, none), child gender, child externalizing problems, parent education, and family functioning. We also assessed the association between child and family characteristics and the binary outcome of the family having rules about screen time. Because of the relatively large proportion of families that have some form of rules about screen time, we calculated prevalence rate ratios using a GLM model extension to the binomial family.

To test the hypothesis that greater child engagement in rule making

would be associated with greater child prosocial functioning, we stratified the sample by age category and conducted a linear regression with an outcome of the SDQ Prosocial subscale. Models adjusted for whether the family had rules related to amount of screen use (any, none), child gender, child externalizing problems, parent education, and family functioning.

To test the hypothesis that child engagement in rule making would be associated with less parent-reported screen time among adolescents, we stratified the sample by age category and conducted censored linear regression (tobit regression). Given the right skewed distribution of the amount of screen use outcome variable, the tobit regression model specified upper limit censoring at the highest response option (5 h or more of screen time). For each age-category, we adjusted for whether the family had rules related to amount of screen use (any, none), child gender, parent education, and family functioning.

## 3. Results

### 3.1. Sample demographic characteristics

A total of 2084 families were included in the sample. Most responding parents were female ( $n = 1501, 72\%$ ) and reference children (child with upcoming birthday) were evenly split between male (50%) and female (49%) gender identities, with a small number of parents reporting a child gender identity other than male or female or preferring to not answer this question. Across the full sample, 18% of responding parents had a high school diploma or less formal education, 38% had some college, such as a 2-year degree, and 44% had a bachelor’s, graduate, or professional degree.

### 3.2. Rules about amount of screen use

Across all age categories, most families had some form of rules about amount of screen- use (Table 1): 86% of elementary school-aged children (ages 5 to 10), 81% of middle school-aged children (ages 11–13), and 61% of high school aged children (ages 14–17). Logistic regression adjusting for competing and confounding family and child-level variables (Table 2) found that compared to elementary school-aged children, the prevalence rate ratio (RR) of having rules about amount of screen use were lower among middle school ( $RR = 0.93, 95\% CI = 0.88$  to  $0.98, p = 0.004$ ) and high school-aged children ( $RR = 0.69, 95\% CI = 0.65$  to  $0.74, p < 0.001$ ).

### 3.3. Child involvement in making rules about amount of screen use

In the subset of families that had some form of rules about amount of screen use, scores on the measure of child involvement in making rules about amount of screen use was significantly greater for high school students as compared to elementary school students ( $\beta = 0.12, p < 0.001$ ) (Table 2), adjusting for competing and confounding child and family characteristics. Child involvement was also greater among families with better functioning ( $\beta = 0.10, p < 0.001$ ), and lower when children had more externalizing symptoms ( $\beta = -0.08, p = 0.002$ ). Compared to parents with a high school diploma or less formal education, parents with some college ( $\beta = -0.11, p = 0.002$ ) and a bachelor’s, professional, or graduate degree ( $\beta = -0.19, p < 0.001$ ) had lower levels of engaging their child in decision making about screen rules.

### 3.4. Association between child involvement in making rules about amount of screen use and prosocial behavior

Across all age groups, higher scores on the measure of child involvement in making rules about amount of screen use was associated with higher scores on the SDQ measure of prosocial functioning (elementary school:  $\beta = 0.07, p < 0.001$ ; middle school:  $\beta = 0.19, p = 0.001$ ; high school:  $\beta = 0.21, p < 0.001$ ) (Table 3).

**Table 1**  
Sample characteristics, as reported by parents of school-aged children in the United States in December 2020.

Variable	Full sample (n = 2084)	Age 5–10 (n = 930)	Age 11–13 (n = 451)	Age 14–17 (n = 703)
Child gender, n (%)				
Male	1019 (48.94)	432 (46.50)	238 (52.89)	349 (49.64)
Female	1031 (49.52)	478 (51.45)	202 (44.89)	351 (49.93)
Other	4 (0.19)	2 (0.22)	1 (0.22)	1 (0.14)
Prefer not to answer	28 (1.34)	17 (1.83)	9 (2.00)	2 (0.28)
Missing	2	1	1	--
Responding parent gender, n (%)				
Male	583 (27.98)	251 (26.99)	131 (29.05)	201 (28.59)
Female	1501 (72.02)	679 (73.01)	320 (70.95)	502 (71.41)
Missing	--	--	--	--
Responding parent education, n (%)				
HS or less	368 (17.66)	160 (17.20)	80 (17.74)	53 (22.08)
Some college	801 (38.44)	353 (37.96)	181 (40.13)	83 (34.58)
4 year or graduate/ professional degree	915 (43.91)	417 (44.84)	190 (42.13)	104 (43.33)
Missing	--	--	--	--
Family functioning, (Mean, SD)	9.95 (1.72)	9.93 (1.74)	9.97 (1.76)	9.97 (1.68)
Missing	10	4	--	6
Child externalizing symptoms, (Mean, SD)	5.85 (4.01)	6.61 (3.93)	5.89 (4.10)	4.81 (3.82)
Missing	36	16	3	17
Child prosocial functioning, (Mean, SD)	7.30 (2.19)	7.44 (2.09)	7.28 (2.21)	7.13 (2.28)
Missing	18	10	2	6
Family has rules about screen time, n (%)				
No	482 (23.17)	129 (13.90)	85 (19.89)	268 (38.18)
Yes	1598 (76.83)	799 (86.10)	365 (81.11)	434 (61.82)
Missing	4	2	1	1
Child engagement in making rules, (Mean, SD)	7.10 (3.19)	6.75 (3.30)	7.18 (3.05)	7.69 (3.00)
Missing	--	--	--	--
Average daily amount of weekday screen time, n (%)				
None	166 (7.98)	111 (11.96)	21 (4.66)	34 (4.85)
Less than 1 h	185 (8.89)	124 (13.36)	30 (6.65)	31 (4.42)
1 h	231 (11.11)	138 (14.87)	40 (8.87)	53 (7.56)
2 h	389 (18.70)	178 (19.18)	82 (18.18)	129 (18.40)
3 h	297 (14.28)	128 (13.79)	69 (15.30)	100 (14.27)
4 h	207 (9.95)	71 (7.65)	55 (12.20)	81 (11.55)
5 or more hours	605 (29.09)	178 (19.18)	154 (34.15)	273 (38.94)
Missing	4	2	--	2

**Table 2**  
Child and family characteristics associated with having rules about screen time, and engaging child in making these rules, as reported by parents of school-aged children in the United States in December 2020.

	Dependent variable: Family has rules about screen time RR (95 % CI) p	Dependent variable: Child engagement making rules B (SE), $\beta^1$ p
Child age category		
5 to 10 years	[ref]	[ref]
11 to 13 years	0.93 (0.88 to 0.98) 0.004	0.39 (0.20), 0.05 0.052
14 to 17 years	0.69 (0.65 to 0.74) <0.001	0.86 (0.19), 0.12 <0.001
Child gender		
Female	[ref]	[ref]
Male	1.03 (1.00 to 1.08) 0.076	0.14 (0.16), 0.02 0.376
Externalizing symptoms	0.99 (0.98 to 1.00) 0.015	-0.07 (0.02), -0.08 0.002
Parent education		
HS or less	[ref]	[ref]
Some college	0.97 (0.92 to 1.03) 0.278	-0.70 (0.23), -0.11 0.002
4 year or graduate/ professional degree	0.98 (0.93 to 1.04) 0.550	-1.22 (0.23), -0.19 <0.001
Family functioning	0.99 (0.98 to 1.00) <0.001	0.19 (0.05), 0.10 <0.001

<sup>1</sup>Standardized regression coefficient.

**Table 3**  
Child and family characteristics associated with child prosocial functioning, as reported by parents of school-aged children in the United States in December 2020.

	Child age 5–10 B (SE), $\beta^1$ p	Child age 11–13 B (SE), $\beta^1$ p	Child age 14–17 B (SE), $\beta^1$ p
Rules about screen use			
No	[ref]	[ref]	[ref]
Yes	-0.46 (0.23), -0.07 0.044	-0.16 (0.32), -0.03 0.604	-0.40 (0.27), -0.08 0.140
Child engagement in making rules	0.07 (0.02), 0.14 <0.001	0.11 (0.03), 0.19 0.001	0.11 (0.03), 0.21 <0.001
Child gender			
Female	[ref]	[ref]	[ref]
Male	-0.26 (0.13), -0.06 0.044	-0.12 (0.19), -0.03 0.515	-0.35 (0.15), -0.08 0.020
Externalizing symptoms	-0.19 (0.02), -0.35 <0.001	-0.23 (0.02), -0.43 <0.001	-0.25 (0.02), -0.41 <0.001
Responding parent education			
HS or less	[ref]	[ref]	[ref]
Some college	0.49 (0.19), 0.11 0.009	0.26 (0.26), 0.06 0.313	-0.05 (0.21), -0.01 0.832
4 year or graduate/ professional degree	0.28 (0.19), 0.07 0.126	0.28 (0.26), 0.06 0.283	0.11 (0.21), 0.02 0.590
Family functioning	0.14 (0.04), 0.11 <0.001	0.21 (0.05), 0.16 <0.001	0.22 (0.05), 0.16 <0.001

<sup>1</sup>Standardized regression coefficient.

### 3.5. Association between child involvement in making rules and amount of screen use

Across all age groups, having rules about amount of screen use was associated with less screen use (elementary school:  $B = -1.31$ , 95 % CI =  $-1.80$  to  $-0.81$ ,  $p < 0.001$ ; middle school:  $B = -1.40$ , 95 % CI =  $-2.20$  to  $-0.59$ ,  $p < 0.001$ ; high school:  $B = -0.97$ , 95 % CI =  $-1.68$  to  $-0.27$ ,  $p = 0.007$ ). Among elementary-aged children only, greater child involvement in decision making rules was associated with slightly greater amounts of screen use ( $B = 0.06$ , 95 % CI =  $0.02$  to  $0.10$ ,  $p = 0.008$ ). Among high school-aged children only, males had more screen use than females ( $B = 0.60$ , 95 % CI =  $0.20$  to  $1.00$ ,  $p = 0.004$ ). Across age groups, there was no association between parent education or family functioning and amount of screen use (Table 4).

## 4. Discussion

In this nationally representative sample of families of school-aged children, most families had some form of rules about the allowable amount of screen use, and across all ages having such rules was associated with less child screen use. Whereas prior research has consistently found that a rule-based approach is associated with less screen use among younger children (Jago et al., 2013; Bjelland et al., 2015), data on the effectiveness of rules has been mixed for adolescents (Ramirez et al., 2011; Nielsen et al., 2019; Geurts et al., 2022; Smith et al., 2015). Parents were most likely to involve high school-aged children in decision making about the allowable amount of screen use. A reason that parents might choose to not involve their child in such rule making is a concern that it would lead to poor screen-related outcomes. However, among adolescents, we observed that decision making involvement was

**Table 4**  
Child and family characteristics associated with child screen time,<sup>1</sup> as reported by parents of school-aged children in the United States in December 2020.

	Child ages 5–10 B (95 % CI) p	Child ages 11–13 OR (95 % CI) p	Child ages 14–17 OR (95 % CI) p
Rules about screen use			
No	[ref]	[ref]	[ref]
Yes	-1.31 (-1.80 to -0.81) <0.001	-1.40 (-2.20 to -0.59) <0.001	-0.97 (-1.68 to -0.27) 0.007
Child engagement in making rules	0.06 (0.02 to 0.10) 0.008	0.13 (-0.07 to 0.09) 0.740	0.01 (-0.07 to 0.09) 0.765
Child gender			
Female	[ref]	[ref]	[ref]
Male	0.06 (-0.22 to 0.33) 0.672	0.00 (-0.46 to -0.47) 0.845	0.60 (0.20 to 1.00) 0.004
Externalizing symptoms	0.06 (0.02 to 0.10) 0.002	0.13 (0.07 to 0.19) <0.001	0.11 (0.05 to 0.16) <0.001
Parent education			
HS or less	[ref]	[ref]	[ref]
Some college	0.31 (-0.09 to 0.71) 0.130	0.47 (-0.18 to 1.12) 0.154	0.34 (-0.23 to 0.91) 0.245
4 year or graduate/professional degree	-0.20 (-0.60 to 0.19) 0.319	0.00 (-0.64 to 0.64) 0.994	0.12 (-0.44 to 0.69) 0.672
Family functioning	0.01 (-0.07 to 0.09) 0.851	-0.01 (-0.15 to 0.12) 0.832	-0.03 (-0.16 to 0.10) 0.630

<sup>1</sup>Screen time outcome variable is a 7-category ordered variable; analysis is censored linear regression with upper-limit censoring at the highest response option (5 or more hours of screen time).

unrelated to amount of screen use outcomes; among elementary school-aged children screen use was marginally higher with greater child involvement. It is possible that such involvement contributes to lower levels of use over time, through a theoretic pathway of greater autonomous self-regulation of screen use (Soenens and Vansteenkiste, 2010). However longitudinal research is needed to explore whether this occurs and if so the time frame over which it takes for such self-regulatory capacities to develop.

Decision making involvement was, however, associated with greater child prosociality, and the strength of this effect increased across age categories. These results should not be taken to mean that child involvement in decision making about amount of screen use is causally or solely related to child prosociality. Rather, the process of making screen use rules is one of many opportunities for parents to provide adolescents with agency and model and reinforce the types of collaborative behaviors that contribute to the development of prosociality (Crone and Achterberg, 2022). If parents are narrowly focused on restricting the amount of time their child spends on screens, it may be easier to just enact rules and skip potentially challenging rule-related conversations with their child. However, optimizing on issue-by-issue basis misses the opportunity for socializing other developmentally important skills. Socialization of developmental competencies is *meta*-parenting, occurring across domains and over time. Most parents are worried about the amount of time their teen spends on screens (Kroshus et al., 2019), and may be motivated to engage with parenting resources to help their child develop healthy screen use behaviors. There is a need for evidence-based, developmentally grounded guidance for parents that not only supports parents in managing the amount of time their child spends on screens, but that also more broadly helps them foster their child's autonomy through an authoritative approach to parenting, with screen use an opportunity to practice such parenting.

Parents with more formal education were the least likely to involve their children in decision making about time on screens—with no education-related differences in whether families had rules, or in their child's amount of screen time. This result could be interpreted through the lens of intensive, achievement-oriented parenting, which tends to be greatest among more educated and affluent families (Sirois et al., 2019; Luthar, 2003). In addition to predicting a more controlling parenting style, and a weakened parent-child relationship (Warikoo et al., 2020), such underlying pressures and priorities may be related to elevated parent anxiety and guilt for not meeting parenting expectations (Henderson et al., 2016). Further research is needed to explore this relationship, and may consider how parents whose own emotional needs are not being met are less likely to be unconditionally accepting of their children (Roth et al., 2016), and to actively support their autonomy (Mabbe et al., 2018). Such information is important for developing tailored or targeted autonomy-supportive parenting resources about screen use. The present results raise the possibility that autonomy-supportive parenting may be a source of strength and resilience for families who are otherwise disadvantaged due to structural conditions.

## 5. Limitations

A primary limitation of this study is that it is cross-sectional. Longitudinal research is needed to understand the extent to which child involvement in decision making influences screen-related outcomes over time. Another major limitation is that self-report assessments of the amount of time spent on screens have questionable validity, with this limitation exacerbated for parent report. Accuracy of parent report may have been worse among parents of adolescent children, given prior documentation of media use concealment in this age group. Problematic screen use, rather than amount of screen use, may be a more useful outcome to measure. Although analyses adjusted for family functioning, it is possible that there is differential measurement error related to child involvement in rule making. For example, it is possible that parents who engage in autonomy supportive communication about screen use rules

have a closer relationship with their child that allows them to report their child's amount of screen use more accurately. This measurement error would bias associations towards the null. Finally, we note that the data used in this study were collected during the COVID-19 pandemic; it is possible that parenting strategies and family stressors during that time period do not generalize to other time periods.

## 6. Conclusion

Adolescents who were more involved in making rules about screen use didn't use screens more or less than their less involved peers, but they did have better prosocial functioning. Screen use is one of many contexts for parents to employ an autonomy-supportive approach to involving their children in decision making, potentially helping strengthen important developmental competencies. The AAP's current guidance for family media use planning emphasizes parent-led rules; a revised approach that emphasizes adolescent engagement in the rule making process, potentially drawing on existing models such as shared decision making (Kroshus and Christakis, 2021), may be developmentally beneficial and warrants further investigation (Hill et al., 2016).

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## CRedit authorship contribution statement

**Emily Kroshus:** Writing – original draft, Supervision, Methodology, Investigation, Funding acquisition, Formal analysis, Conceptualization. **Mary Kathleen Steiner:** . **Dimitri Christakis:** Writing – review & editing, Supervision, Methodology, Funding acquisition, Conceptualization.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Data availability

Data will be made available on request.

## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.pmedr.2024.102717>.

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