

**Original citation:**

Kesten, Joanna M., Sebire, Simon J., Turner, Katrina M., Stewart-Brown, Sarah L., Bentley, Georgina and Jago, Russell. (2015) Associations between rule-based parenting practices and child screen viewing : a cross-sectional study. Preventive Medicine Reports, Volume 2 . pp. 84-89. ISSN 2211-3355

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## Associations between rule-based parenting practices and child screen viewing: A cross-sectional study

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### ARTICLE INFO

Available online 24 January 2015

#### Keywords:

Screen viewing  
Limit setting  
Collaborative rule setting  
Parenting practices  
Multi-screen viewing  
Child

### ABSTRACT

**Background.** Child screen viewing (SV) is positively associated with poor health indicators. Interventions addressing rule-based parenting practices may offer an effective means of limiting SV. This study examined associations between rule-based parenting practices (limit and collaborative rule setting) and SV in 6–8-year old children. **Methods.** An online survey of 735 mothers in 2011 assessed: time that children spent engaged in SV activities; and the use of limit and collaborative rule setting. Logistic regression was used to examine the extent to which limit and collaborative rule setting were associated with SV behaviours. **Results.** ‘Always’ setting limits was associated with more TV viewing, computer, smartphone and game-console use and a positive association was found between ‘always’ setting limits for game-console use and multi-SV (in girls). Associations were stronger in mothers of girls compared to mothers of boys. ‘Sometimes’ setting limits was associated with more TV viewing. There was no association between ‘sometimes’ setting limits and computer, game-console or smartphone use. There was a negative association between collaborative rule setting and game-console use in boys. **Conclusions.** Limit setting is associated with greater SV. Collaborative rule setting may be effective for managing boys’ game-console use. More research is needed to understand rule-based parenting practices.

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### Introduction

Sedentary behaviours, defined as activities with low levels of energy expenditure (Pate et al., 2008), are highly prevalent in children and adolescents (Foley et al., 2011; Pate et al., 2011; Basterfield et al., 2011). A common form of sedentary behaviour among children is screen viewing (SV), (e.g. watching television (TV)) (Foley et al., 2011). Sedentary behaviours are established in infancy (Vandewater et al., 2007) and remain moderately stable during childhood (Francis et al., 2011; Janz et al., 2005; Biddle et al., 2010). Girls and boys (5–7-year-olds) in England spend on average 1.4 and 1.6 hours(h) respectively watching TV on a typical weekday (Scholes and Mindell, 2012). TV viewing for more than 2 h per day during childhood is associated with poor health indicators (Tremblay et al., 2011) and has been associated with adverse health outcomes in adulthood (Hancox et al., 2004). In addition to TV viewing, recent research has found that children

engage in a variety of SV modes and multi-SV (using more than one SV device simultaneously) (Jago et al., 2011a, 2013a; Rideout et al., 2010). Guidelines in the United Kingdom (UK) recommend that young people minimise sedentary time (Department of Health PA, Health Improvement and Protection, 2011), whilst the American Academy of Paediatrics (AAP) states that parents should limit non-educational SV to no more than 2 h per day (Strasburger, 2011). Developing effective strategies to reduce SV before it becomes established, requires research investigating the correlates of a range of SV behaviours in children (Jago et al., 2011a, 2013a,b; O’Connor et al., 2013a).

Parents influence child energy-balance behaviours (Pearson et al., 2009). There is evidence for a positive association between parent and child TV viewing (Jago et al., 2010, 2012, 2013a, 2014). Screen media parenting practices are defined as, “goal-directed parent behaviors or interactions with their child about media for the purpose of influencing some aspect of the youth’s screen media use behaviors” (pS113) (O’Connor et al., 2013a). Synthesised evidence of the association between parenting practices and child SV is inconsistent (Jago et al., 2013b). Previous research has shown that SV rule-based practices are associated with less TV viewing (Jago et al., 2011b; Veldhuis et al., 2014; Davison et al., 2005; Barradas et al., 2007; van Zutphen et al.,

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2007; de Jong et al., 2013). In contrast, children in families in the Be Active, Eat Right study, with rules for computer and video game use were more likely to spend greater than 30 minutes per day engaged in these activities (Veldhuis et al., 2014). There is a need for more research exploring the association between rule-based parenting practices and a range of SV modes beyond the TV.

Parenting styles used to deliver practices may contribute to their effectiveness (Baumrind, 1971). Setting rules (time limits, rules around viewing during meal times etc.) in a collaborative style may be an effective method for managing children's SV, as it could minimise parent-child conflict and promote self-regulated behaviour. A similar construct of 'negotiated rules' has been proposed as a practice whereby "parents and child negotiate rules about screen media use" (pS-113) (O'Connor et al., 2013a). O'Connor and colleagues highlighted a need for research assessing whether collaboratively implemented rule-based practices influence child SV (O'Connor et al., 2013a) as such this study aimed to examine the association between two rule-based parenting practices (limit setting and collaborative rule setting) and SV in 6–8-year-olds.

## Methods

An advertisement posted onto the Netmums website ([www.netmums.com](http://www.netmums.com)), a UK-based parenting organisation (Barradas et al., 2007), invited parents of 6–8-year-old children to complete an anonymous survey in relation to their eldest child in that age group. Consent to participate in the research was taken prior to survey completion. Ethical approval for this study was granted from a University of Bristol ethics committee.

Participants were asked to report their current employment status (Options = Student, Housewife/Househusband, Full-time, Part-time, Unemployed), their education status (Options = Did not complete secondary school, GCSE or GNVQ level or equivalent (examinations completed at 16-years), A-levels/Advanced GNVQ (examinations completed at 18-years), University degree, Post-graduate degree or higher), the number, age and gender of all children living in the same household.

Parents reported the number of hours that their eldest 6–8-year-old child spent engaged in different SV behaviours on a weekday (TV viewing; computer use; smartphone use, game-console use and multi-SV. A definition of the latter was provided for participants. Response categories: *none; less than 1 h; up to 2 h; up to 3 h; up to 4 h and more than 4 h per day*). Parent-proxy reports are appropriate for this age group (Atkin et al., 2012) and the reliability coefficients of such measures are fair to high whilst the validity is variable (Lubans et al., 2011).

Parents reported the frequency with which they set limits on the amount of time their child engaged in each of the five SV behaviours separately (*How often do you set limits on the amount of time your child X? Response categories: never; rarely; sometimes; always; not applicable*). This item was adapted from an existing scale (Carlson et al., 2010) by including a broader range of SV behaviours (computer and smartphone use). We also removed the "very often" response category in line with the research of the developers of the scale (Carlson et al., 2010). Parents reported whether or not they used collaborative rule setting in general (*In setting SV rules (or if you were to set rules) do you: set rules for your child with their input? Response categories: yes or no*). This item was developed for this research.

## Data reduction

To reflect the AAP guidance (Strasburger, 2011), TV viewing responses were collapsed to produce a dichotomous variable: '2 h or less' (none; less than 1 h and up to 2 h) and 'more than 2 h' (up to 3, 4 h and more than 4 h per day). The distribution of non-TV SV was different to that of TV viewing, with fewer children reportedly engaging in high levels of these behaviours. Therefore, computer and multi-SV

time were coded into 'less than 1 h per day' and 'more than or equal to 1 h per day', whilst smartphone and game-console use were coded into 'none' and 'some' (less than 1 h, up to 2, 3, 4 h and more than 4 h per day). Due to the low proportion of responses for 'never' and 'rarely' limit setting, these items were collapsed to produce three categories ('never or rarely', 'sometimes' and 'always'). Participants responding 'not applicable' to any question were removed from the analyses. Owing to the low responses from fathers ( $n = 8$ , 2% of the sample), the analysis was limited to mothers.

## Statistical analyses

Descriptive statistics (frequencies, percentages, means and standard deviations) were calculated for all variables. Logistic regression models were computed for each SV behaviour as the outcome variable, and limit setting (matched to the SV mode) and collaborative rule setting as the exposure variables. Parents were not asked to report limit setting of multi-SV, as it was anticipated that this would not be a utilised practice. We hypothesised that limit setting of individual SV behaviours may influence time spent multi-SV. Therefore, the multi-SV model used the limit setting practices of all the other SV behaviours as exposure variables. Tests exposed little evidence for multi-collinearity between limit setting variables and between limit setting and collaborative rule setting variables (Variance Inflation Factor < 10 Bowerman and O'Connell, 1990) and therefore they were used as exposure variables in the same model. Models were adjusted for parental age, parental education and the number of children in the family. All available data for mothers were used in each analysis.

## Results

Seven-hundred and fifty parents completed the survey. Mothers ( $n = 735$ ) included in the analysis had a mean age of 35.51-years ( $SD = 5.93$ ) and a mean number of children per family of 2.24 ( $SD = 0.92$ ) (Table 1). Most mothers had achieved at least secondary education (97.1%). Approximately half (53.3%) of the children were girls, and 47.8% of the girls and 41.8% of boys were 6-years-old.

Most children spent '2 h or less' watching TV per weekday, 'less than one hour' using computers and 'less than one hour' engaging in multi-SV (Table 2). There was strong evidence for gender differences in the time spent using game-consoles (64.4% of boys compared to 32.4% of girls spent 'some' time) and smartphones (56.9% of boys

**Table 1**  
Characteristics of participants and their children.

	N	%	Mean	SD
Mothers	735	98		
Missing	7	0.9		
Age (years)	718		35.51	5.93
Missing	17			
N of children	735		2.24	0.92
Parental education				
Did not complete secondary school	19	2.9		
GCSE or GNVQ level or equivalent (e.g. O levels/CSE's)	174	23.7		
A Levels/Advanced GNVQ or equivalent	210	28.6		
University degree	205	27.9		
Post-graduate degree or higher	127	17.3		
Boys	343	46.7		
Age (years)				
6	134	39.1		
7	120	35.0		
8	89	25.9		
Girls	392	53.3		
Age (years)				
6	164	41.8		
7	134	34.2		
8	94	24.0		

**Table 2**  
Descriptive statistics for parent and child SV behaviours.

Weekday SV behaviour	Boys				Girls				p value (Pearson Chi <sup>2</sup> )
	≤2 h		>2 h		≤2 h		>2 h		
	n	%	n	%	n	%	n	%	
Child TV	298	86.9	45	13.1	336	85.7	56	14.3	0.65
	None		Some <sup>a</sup>		None		Some		
	n	%	n	%	n	%	n	%	
Child game-console	122	35.6	221	64.4	265	67.6	127	32.4	<0.01
Child smartphone	148	43.1	195	56.9	221	56.4	171	43.6	<0.01
	<1 h		≥1 h		<1 h		≥1 h		
	n	%	n	%	n	%	n	%	
Child computer	300	87.5	43	12.5	350	89.3	42	10.7	0.44
Child multi-screen-viewing	289	84.3	54	15.7	346	88.3	46	11.7	0.11
Collaborative rule setting	Boys				Girls				p value (Pearson Chi <sup>2</sup> )
	Yes		No		Yes		No		
	n	%	n	%	n	%	n	%	
Set rules for your child with their input?	207	60.3	136	39.7	232	59.2	160	40.8	0.75
Limit setting	Boys				Girls				p value <sup>a</sup> (Pearson Chi <sup>2</sup> )
	Never and rarely		Sometimes		Always		Not applicable		
	n	%	n	%	n	%	n	%	
TV	54	15.74	121	35.28	164	47.81	4	1.17	0.21
Smartphone	35	10.20	59	17.2	172	50.15	77	22.45	0.02
Game-console	26	7.58	66	19.24	222	64.72	29	8.45	<0.01
Computer	34	9.91	78	22.74	201	58.60	30	8.75	0.05
Limit setting	Girls				Girls				p value <sup>a</sup> (Pearson Chi <sup>2</sup> )
	Never and rarely		Sometimes		Always		Not applicable		
	n	%	n	%	n	%	n	%	
TV	46	11.73	159	40.56	184	46.94	3	0.77	
Smartphone	43	10.97	64	16.33	159	40.56	126	32.14	
Game-console	39	9.95	69	17.6	206	52.55	78	19.9	
Computer	52	13.27	75	19.13	211	53.83	54	13.78	

<sup>a</sup> Chi<sup>2</sup> assessing difference between parent limit setting of boys compared to girls.

compared to 43.6% of girls spent 'some' time) ( $p < 0.01$ ), and therefore all subsequent analyses are presented by gender.

In boys and girls, over half the parents reported 'sometimes or always' setting limits on all types of SV and the highest proportion of parents reporting 'not applicable' was for smartphone use (32.14% in girls and 22.45% in boys) (Table 2). There was evidence for child gender differences in limit setting for game-console ( $p < 0.01$ ), computer ( $p = 0.05$ ) and smartphone ( $p = 0.02$ ) use. For these behaviours, mothers of

boys reported 'always' and 'sometimes' setting limits more than mothers of girls and reported 'never and rarely' setting limits less than mothers of girls. Approximately 60% of parents reported collaboratively setting rules for SV. There was no evidence for differences between mothers of boys and mothers of girls in collaborative rule setting.

No meaningful differences between adjusted and unadjusted models were found. As such the following results relate to adjusted logistic regression models. There was a positive association between

**Table 3**  
Logistic regression analysis of the association between parent limit setting, collaborative rule setting and child TV viewing.

	Boys			Girls		
	Model 1		Model 2	Model 1		Model 2
	n	OR [95% CI]	OR [95% CI]	n	OR [95% CI]	OR [95% CI]
Parent limit setting for TV viewing (2 or less vs >2 h)	335			376		
Parent limit setting						
Never or rarely (ref)		1 [reference]	1 [reference]		1 [reference]	1 [reference]
Sometimes		3.32 [1.41 to 7.82]	2.85 [1.15 to 7.08]		6.10 [2.35 to 15.86]	5.75 [2.19 to 15.10]
Always		2.16 [1.02 to 4.58]	1.99 [0.91 to 4.37]		5.64 [2.61 to 12.19]	5.72 [2.63 to 12.46]
Collaborative rule setting						
Yes (ref)		1 [reference]	1 [reference]		1 [reference]	1 [reference]
No		1.21 [0.62 to 2.35]	0.90 [0.48 to 1.66]		0.98 [0.54 to 1.78]	1.30 [0.64 to 2.65]

Dependent variable in this analysis is TV viewing; reference category is <2 h (vs >2 h). Independent variables are limit setting and collaborative rule. Limit setting reference category is Never or rarely. Collaborative rule setting reference category is "yes". Model 1 is the unadjusted model. Model 2 is adjusted for parental age, parental education and the number of children in the family. There were no meaningful differences found when running the models with collaborative rule setting separate to limit setting.

**Table 4**

Logistic regression analysis of the association between parent limit setting, collaborative rule setting and child computer viewing.

	Boys			Girls		
	Model 1	Model 2	Model 1	Model 2		
Parent limit setting for computer use (<1 h vs ≥ 1 h)	n	OR [95% CI]	OR [95% CI]	n	OR [95% CI]	OR [95% CI]
Parent limit setting	309			327		
Never or rarely (ref)		1 [reference]	1 [reference]		1 [reference]	1 [reference]
Sometimes		1.48 [0.51 to 4.26]	1.29 [0.42 to 3.94]		1.84 [0.76 to 4.50]	1.88 [0.75 to 4.69]
Always		2.14 [1.05 to 4.34]	2.44 [1.12 to 5.29]		2.24 [1.05 to 4.75]	2.35 [1.08 to 5.15]
<i>Collaborative rule setting</i>						
Yes (ref)		1 [reference]	1 [reference]		1 [reference]	1 [reference]
No		1.15 [0.59 to 2.23]	1.12 [0.55 to 2.27]		1.42 [0.71 to 2.84]	1.24 [0.60 to 2.54]

Dependent variable in this analysis is Computer viewing and reference category is <1 h (vs ≥ 1 h). Independent variables are limit setting and collaborative rule setting. Limit setting reference category is Never or rarely. Collaborative rule setting reference category is “yes”. Model 1 is the unadjusted model. Model 2 is adjusted for parental age, parental education and the number of children in the family. There were no meaningful differences found when running the models with collaborative rule setting separate to limit setting.

‘always’ and ‘sometimes’ limit setting and the likelihood of TV viewing for more than 2 h in boys and girls (Table 3). The associations were stronger between mothers of girls compared to mothers of boys, particularly in the ‘always’ setting limits category (OR 5.72, 95% CI = 2.63 to 12.46 (girls) vs OR 1.99, 95% CI = 0.91 to 4.37 (boys)). ‘Always’ setting limits was positively associated with an increased likelihood of computer use for more than 1 h (Table 4) (OR 2.44, 95% CI = 1.12 to 5.29 (boys) and OR 2.35, 95% CI = 1.08 to 5.15 (girls)). In girls ‘always’ setting limits on game-console use (Table 5) was positively associated with an increased likelihood of engaging in this behaviour (OR 2.38, 95% CI = 1.34 to 4.22). Similarly, ‘always’ setting limits on smartphone use was positively associated with an increased likelihood of engaging in this behaviour in girls (OR = 2.20, 95% CI = 1.10 to 4.41) (Table 6). There was also a positive association between ‘always’ setting limits for game-console use and multi-SV in girls representing an increased likelihood of engaging in more than 1 h of this behaviour (OR = 5.78, 95% CI = 1.09 to 30.63) (Table 7). There was no evidence of an association between ‘sometimes’ setting limits and computer, game-console or smartphone use. Not collaboratively rule setting was positively associated with engaging in ‘some’ game-console use in boys (OR = 1.70, 95% CI = 1.02 to 2.73) (Table 5).

## Discussion

In this study, the association between limit setting and child SV varied depending on the SV behaviour and the frequency of limit setting. ‘Always’ setting limits was associated with an increased likelihood of TV viewing, computer, game-console and smartphone use compared to those without such rules. Parents may be employing limit setting out of concern for high levels of SV as has been suggested by others (Veldhuis et al., 2014). Setting SV limits may also promote

more time engaged in this behaviour because children may feel encouraged to utilise the time allocated.

Whilst ‘always’ and ‘sometimes’ limit setting were positively associated with TV viewing, there was no evidence of an association between ‘sometimes’ limit setting and smartphone, game-console and computer use. ‘Always’ setting limits could represent either consistency in parenting practices, or a blanket approach in which parents are not responsive to the situation and needs of the child. More research is needed to understand the influence of the consistency of parenting practices on SV. Compared to TV use, this sample of 6–8 year olds spent less time engaged in the other SV behaviours which may mean that the analysis was unable to detect associations with ‘sometimes’ limit setting, indeed in smartphone and game-console use the categories were ‘none’ vs ‘some’ which could have affected the sensitivity of the analysis. It is important to note, that the nature of the limits set in this study is unknown, for example parents could be setting a limit of 3 h per day and therefore parental limits may be encouraging high levels of SV.

Evidence for the association between parenting practices and child SV is mixed (Jago et al., 2013b), although conclusions are limited by the heterogeneity of measurements used. Variation between study outcomes could also reflect differences in the samples (e.g. child age). Another cross-sectional study found a positive association between restrictive TV parenting practices and sedentary behaviours in 9–12-year-old children (O’Connor et al., 2013b). In contrast, previous research has shown that parental rules around SV are associated with less TV viewing (Jago et al., 2011b; Veldhuis et al., 2014; Davison et al., 2005; Barradas et al., 2007; van Zutphen et al., 2007; de Jong et al., 2013).

This is the first study to assess the association between rule-based practices and multi-SV. We found that the associations between parent limit setting and multi-SV were weak. Mothers were not asked to report

**Table 5**

Logistic regression analysis of the association between parent limit setting, collaborative rule setting and child game-console use.

	Boys			Girls		
	Model 1	Model 2	Model 1	Model 2		
Parent limit setting for game-console use (None vs Some)	n	OR [95% CI]	OR [95% CI]	n	OR [95% CI]	OR [95% CI]
Parent limit setting	310			304		
Never or rarely (ref)		1 [reference]	1 [reference]		1 [reference]	1 [reference]
Sometimes		1.73 [0.66 to 4.51]	1.77 [0.66 to 4.79]		0.63 [0.29 to 1.38]	0.60 [0.27 to 1.33]
Always		1.68 [0.88 to 3.20]	1.83 [0.94 to 3.58]		2.43 [1.38 to 4.27]	2.38 [1.34 to 4.22]
<i>Collaborative rule setting</i>						
Yes (ref)		1 [reference]	1 [reference]		1 [reference]	1 [reference]
No		1.67 [1.02 to 2.73]	1.70 [1.02 to 2.84]		0.92 [0.57 to 1.49]	0.86 [0.52 to 1.41]

Dependent variable in this analysis is Game-console use and reference category is None (vs Some). Independent variables are limit setting and collaborative rule setting. Limit setting reference category is Never or rarely. Collaborative rule setting reference category is “yes”. Model 1 is the unadjusted model. Model 2 is adjusted for parental age, parental education and the number of children in the family. There were no meaningful differences found when running the models with collaborative rule setting separate to limit setting.

**Table 6**  
Logistic regression analysis of the association between parent limit setting, collaborative rule setting and child smartphone use.

	Boys			Girls		
	Model 1	Model 2		Model 1	Model 2	
Parent limit setting for smartphone (None vs Some)	n	OR [95% CI]	OR [95% CI]	n	OR [95% CI]	OR [95% CI]
Parent limit setting	263			258		
Never or rarely (ref)		1 [reference]	1 [reference]		1 [reference]	1 [reference]
Sometimes		0.60 [0.29 to 1.21]	0.79 [0.34 to 1.84]		0.64 [0.32 to 1.27]	0.60 [0.29 to 1.21]
Always		2.20 [1.10 to 4.41]	1.91 [0.89 to 4.08]		2.38 [1.21 to 4.68]	2.20 [1.10 to 4.41]
<i>Collaborative rule setting</i>						
Yes (ref)		1 [reference]	1 [reference]		1 [reference]	1 [reference]
No		1.51 [0.87 to 2.64]	1.58 [0.89 to 2.82]		1.10 [0.65 to 1.85]	1.00 [0.58 to 1.71]

Dependent variable in this analysis is Smartphone use and reference category is None vs Some. Independent variables are limit setting and collaborative rule setting. Limit setting reference category is Never or rarely. Collaborative rule setting reference category is "yes". Model 1 is the unadjusted model. Model 2 is adjusted for parental age, parental education and the number of children in the family. There were no meaningful differences found when running the models with collaborative rule setting separate to limit setting.

limit setting of multi-SV, as it was expected that parents would not set limits on the simultaneous use of more than one device. Given that parent and child multi-SVs are positively associated (Jago et al., 2013a), more work is needed to understand whether parents monitor multi-SV.

There was limited evidence for an association between collaborative rule setting and SV, although the findings suggest that this is a potentially effective strategy for managing boys' game-console use. Collaborative rule setting has been proposed as a parenting practice which warrants investigation (O'Connor et al., 2013a) because it is hypothesised to encourage more self-regulated behaviour. A child who is involved in negotiating a rule, may follow it more out of choice than a rule which is decided upon and externally regulated by a parent without the child's input. To the authors' knowledge, this is the first time that the association between collaborative rule setting and child SV has been assessed and therefore further study is needed to develop the evidence base.

### Study limitations and strengths

Limitations include the cross-sectional nature, which means that the direction of association cannot be inferred. The sample is limited to mothers recruited from a parenting website, thus the sample cannot be considered representative of mothers more broadly. Indeed, parent-proxy reports may be influenced by social desirability to under-report child SV. The findings are limited to weekday SV, which is a limitation given that SV levels and the association between parent and child SV differs on weekdays compared to weekend (Jago et al., 2014). We therefore could not assess whether setting limits (collaboratively or otherwise) on week and weekend days differ. This may be an interesting topic of future research. The use of dichotomous variables 'none' and 'some' means that we cannot comment on associations with different amounts of SV. The collaborative rule setting construct needs further exploration, potentially through qualitative research with parents, as it is likely that in-depth questions are needed to assess

**Table 7**  
Logistic regression analysis of the association between parent limit setting, collaborative rule setting and child multi-SV.

	Boys			Girls		
	Model 1	Model 2		Model 1	Model 2	
Parent limit setting for multi-SV (<1 h vs ≥ 1 h)	n	OR [95% CI]	OR [95% CI]	n	OR [95% CI]	OR [95% CI]
Parent limit setting	247			234		
<i>TV viewing limit setting</i>						
Never or rarely (ref)		1 [reference]	1 [reference]		1 [reference]	1 [reference]
Sometimes		1.37 [0.39 to 4.76]	1.04 [0.25 to 4.35]		2.00 [0.30 to 13.29]	1.57 [0.23 to 10.60]
Always		1.53 [0.61 to 3.86]	1.49 [0.55 to 4.04]		1.38 [0.51 to 3.69]	1.15 [0.41 to 3.20]
<i>Computer viewing limit setting</i>						
Never or rarely (ref)		1 [reference]	1 [reference]		1 [reference]	1 [reference]
Sometimes		2.50 [0.36 to 17.48]	4.32 [0.47 to 39.84]		0.28 [0.03 to 2.41]	0.35 [0.04 to 3.40]
Always		1.26 [0.41 to 3.88]	1.42 [0.41 to 4.95]		0.55 [0.14 to 2.23]	0.70 [0.15 to 3.28]
<i>Game-console limit setting</i>						
Never or rarely (ref)		1 [reference]	1 [reference]		1 [reference]	1 [reference]
Sometimes		0.33 [0.04 to 2.48]	0.20 [0.02 to 2.05]		9.74 [0.67 to 142.24]	6.34 [0.41 to 97.84]
Always		1.42 [0.39 to 5.18]	1.96 [0.43 to 9.05]		6.44 [1.29 to 32.20]	5.78 [1.09 to 30.63]
<i>Smartphone limit setting</i>						
Never or rarely (ref)		1 [reference]	1 [reference]		1 [reference]	1 [reference]
Sometimes		3.71 [0.73 to 19.00]	4.40 [0.56 to 34.36]		0.21 [0.02 to 1.98]	0.28 [0.03 to 2.56]
Always		2.11 [0.56 to 7.93]	2.30 [0.50 to 10.57]		0.58 [0.13 to 2.56]	0.64 [0.14 to 2.88]
<i>Collaborative rule setting</i>						
Yes (ref)		1 [reference]	1 [reference]		1 [reference]	1 [reference]
No		0.56 [0.27 to 1.14]	0.51 [0.23 to 1.13]		0.99 [0.48 to 2.03]	0.88 [0.41 to 1.89]

Dependent variable in this analysis is Multi-SV use and reference category is <1 h (vs ≥ 1 h). Independent variables are limit setting and collaborative rule setting. Limit setting reference category is Never or rarely. Collaborative rule setting reference category is "yes". Model 1 is the unadjusted model. Model 2 is adjusted for parental age, parental education and the number of children in the family. There were no meaningful differences found when running the models with collaborative rule setting separate to limit setting.

this behaviour. Finally, the analysis controlled for only a limited number of familial confounders.

Strengths of the study are the moderately large sample of parents, investigation of an under-researched parenting practice, and the use of a broad range of SV behaviours, including multi-SV.

## Conclusions

Modest associations between rule-based parenting practices and SV in 6–8-year-old children were found. The results suggest that ‘always’ setting limits is associated with greater SV. This finding is important because it suggests a need for more research to understand these associations. Collaborative rule setting may be an effective strategy for managing boys’ game-console use.

## Conflict of interest

The authors declare that there is no conflict of interest.

## Author disclosure statement

No competing financial interests exist.

## Acknowledgments

This project was funded by the British Heart Foundation (PG/10/025/28302). The funder had no role in data analysis or interpretation.

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