

# Associations between parenting styles and excessive screen usage in preschool children

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## What is already known on this topic?

Excessive screen exposure in preschool age is related to a large variety of adverse health problems. Parents have a great impact on their children's screen usage habits. However, in Turkey, the association between parenting attitudes and children's screen time have not been studied enough.

## What this study adds on this topic?

This study focuses on the main relationship between parenting attitude and excessive screen exposure of preschoolers. Whereas higher scores of authoritative (democratic) parenting have a protective effect on preschoolers' excessive screen time, higher permissive and over-protective parenting style scores are associated with an increased risk of excessive screen time.

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## ABSTRACT

**Objective:** Young children and preschoolers are now growing up in settings filled with a variety of technological devices. Despite the recommendation that parents should limit screen time, many preschoolers are exposed to screens at very early ages and for a long time. This study aimed to investigate the associations between parenting styles and the excessive screen time of preschool-aged children.

**Material and Methods:** This cross-sectional descriptive study included preschool children with low screen exposure (<1 hour; n=176) and excessive screen exposure (>4 hours; n=74). A self-completion-structured survey form and Parent Attitude Scale were filled by the mothers.

**Results:** More than half (52.0%) of them were male children. Increased number of children, increased household sizes, mothers being unemployed, birth order  $\geq 2$ , and home-based care were found to be statistically significantly higher in the excessive screen exposure group than in the low screen exposure group. Mothers and fathers in the excessive screen exposure group had lower educational levels compared with their counterparts in the low screen exposure group ( $p < 0.001$ ). Multivariate logistic regression analyses showed that mothers' high authoritative (democratic) scores were associated with low screen exposure (adjusted odds ratio (AOR): 0.3; 95% confidence interval (CI): 0.1-0.9). High overprotective and permissive parenting subscale scores were related to excessive screen exposure after adjusting potential confounders (AOR: 2.8, 95% CI: 1.1-6.7; AOR: 4.5, 95% CI: 1.8-11.6).

**Conclusion:** Excessive screening time may indicate a problematic parent-child relationship. Establishing a positive parent-child relationship can be an effective way of managing screen time in preschool children.

**Keywords:** Child, parenting style, preschool age, screen time

## Introduction

Young children and preschoolers are now growing up in settings filled with conventionally fixed screens, such as televisions (TVs) and desktop computers, as well as new technologies, including laptops, tablets, smartphones, and gaming consoles (1, 2). Previous studies have shown that excessive screen exposure (ESE) in early childhood is related to a variety of problems such as obesity, sleep disorders, attention problems, developmental delays, and

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learning disabilities (3-6). For this reason, pediatric societies suggest that caregivers of preschool children aged between two and five years should minimize screen time to 1 hour per day with high-quality scheduling, and that parents should accompany their children and explain to them what they watch (1, 7). Despite the suggestions, many preschoolers are exposed to screens from very early ages and for a long time (8-11). A study including 724 children aged from six months to 15 years stated that preschool children watched TV for  $1.96 \pm 0.76$  hours a day. Whereas 32% of children watched TV for <1 hour, 58% of them watched for >2 hours (8). Akçay et al. (9) reported that daily TV viewing time among the children aged between 36 and 72 months was  $1.6 \pm 0.9$  hours on weekdays and  $3.4 \pm 1.8$  hours on weekend days. Yalçın et al. (10) found that preschool children watched TV for approximately an average of 2.2 hours a day, and 10.7% of them watched TV for >4 hours daily. A recent survey involving children aged between one and 60 months showed that 75.6% of parents could allow their children to be exposed to mobile devices from the age of six months, and the median age was shown to be 12 months for the first use of a mobile device (11).

Previous studies have shown that ESE was related to lower levels of maternal education and employment, single parenthood, maternal obesity, depression (12, 13), and parental attitudes (14-21). Parental attitudes and actions are likely to regulate children's screen use and parents could play leading roles in screen-viewing behavioral change (16, 17, 22). A study by Linebarger et al. (14) found that the consistency of parenting and suitability of media content had a cumulative effect on preschoolers' executive function, both positively and negatively. Examining how parenting attitudes influence screen time in preschool children would contribute to setting intervention goals to help parents manage their children's screening times (6). However, in Turkey, this issue has not been studied enough. This study aimed to explore the associations between parenting styles and the excessive screen time of preschool-aged children.

## Material and Methods

### Study Design

Our study was planned as a cross-sectional descriptive study. The study was carried out at Hacettepe University, Faculty of Medicine Hospital and Yıldırım Beyazıt University, Yenimahalle Training and Research Hospital between May 20<sup>th</sup> and September 20<sup>th</sup>, 2019. Mothers of children between the ages of two and five years who were admitted to the pediatric outpatient clinics were informed about the study.

Mother-child dyads with reported or any known mental retardation or psychiatric problems or those with chronic diseases were excluded from the study because of the possibility of disrupting the parent-child interaction. A written informed consent was taken from mothers who agreed to participate in the study. Then, a self-completion structured survey form was given to the participants. The structured survey form was used to collect data on the characteristics of the child (age, gender, birth order), parents (age, educational status, maternal occupation), family (the type of family, number of children, number of people living at home, type of child care), as well as the daily screen time of the child. In the questionnaire, mothers

were asked to state their child's daily average screen time per day, including nursery care and home-based care. Response choices were categorized as (1) <1 hour, (2) 1-4 hours, (3) >4 hours. Children with a daily screen time of <1 hour (compatible with American Academy of Pediatrics recommendations for children aged between two and five years) were categorized as having low screen exposure (LSE), and those with a daily average screen time of >4 hours were categorized as having ESE and were included in the study (1, 12). Children with a daily average screen time of 1-4 hours were defined as having moderate screen exposure (MSE). Because we only aimed to compare between LSE and ESE groups, the MSE group was excluded from the study.

### Parent Attitude Scale

The Parent Attitude Scale (PAS), which was developed to evaluate the childrearing attitudes of parents who have children aged between two and six years, was used to measure parenting attitudes (23). Mothers of children in both the LSE and ESE groups were asked to complete the PAS to determine the style of parenting. The PAS consists of 46 items with four subscales: an authoritative (democratic) subscale with 17 items, an authoritarian subscale with 11 items, an overprotective subscale with 9 items, and a permissive subscale with 11 items.

While several parenting attitude dimensions have been proposed to date, two main dimensions are accepted: control (also labeled demandingness) and support (also labeled warmth, responsiveness) (24-26). Whereas permissiveness and strictness constitute the control dimension, the support dimension indicates parents' acceptance of the child, parents meeting the child's needs, and parents behaving warmly (26). In authoritative parenting, parents combine high behavioral control and strong emotional support. Authoritative parents respect their child's self-determination and explain the rationale of rules. In authoritarian parenting, parents combine high behavioral control and low emotional support. Authoritarian control reflects the adult-oriented, strict discipline methods (26). Overprotective parents take over their child's responsibilities. These parents try to keep their children in an isolated and controlled environment while combining excessive control with indulgence and affection (23). Permissive parenting is characterized by low behavioral control and strong emotional support. Permissive parents apply inadequate control on their children and make few demands of them (24, 25).

Each item expresses the behavior of the parents and is answered on a five-stage Likert scale ranging from one point (never) to five points (always). In the original study, Cronbach alpha reliability coefficients of the authoritative, authoritarian, overprotective, and permissive subscales were 0.83, 0.76, 0.75, and 0.74, respectively. Subscale scores were calculated on the basis of the five-point Likert scale. Subscale score shows the sum of the scores from all the items of each subscale. A high score from a subscale showed that the parent had adopted behaviors that represented that dimension. In the original PAS study, the authors stated that parents express themselves in about four parenting styles unique to Turkish culture (23). Therefore, in this study, instead of determining a single parenting style for a parent, all subscale scores of each parent were included in the analysis.

Hacettepe University Faculty of Medicine Ethics Committee for Non-Interventional Clinical Studies approved the study (May 7, 2019; decision number: 2019/12-06).

**Statistical Analysis**

The data were analyzed using the Statistical Package for the Social Sciences 22.0 package program (SPSS IBM Corp.; Armonk, NY, USA). The Kolmogorov-Smirnov test was used to determine the normal distribution of data. The analysis included the arithmetic mean and standard deviation (SD) for the continuous variables and frequency and percent distributions for the categorical variables. For group comparisons of the categorical variables and continuous variables, the Chi-square test and Student’s *t*-test were used, respectively. Statistical significance in the type of daytime child care was estimated by adjusted standards and Bonferroni correction. The type I error was preset at 0.05 for all analyses. The total subscale scores were divided into three categories as 1<sup>st</sup> tertile, 2<sup>nd</sup> tertile, and 3<sup>rd</sup> tertile.

Multivariate logistic regression analysis was used to determine the factors influencing the excessive screen time status. Screen time was taken as the dependent variable. Independent variables were the child’s age, child’s gender, maternal age, paternal age, maternal education, paternal education, maternal occupational status, birth order, family type, daytime caregiver of the child, and four parenting subscale scores. Adjusted odds ratios (AORs) were calculated at 95% confidence intervals (CIs).

**Results**

**Characteristics of Mother-Child Dyads and Family and Their Associations with Screen Exposure Time**

During the study period, 430 structured survey questionnaires were filled: 181 cases with LSE, 78 cases with ESE, and 171 cases with MSE. When incomplete forms were excluded, a total of 250 parent-child dyads (n=176 [97.2%] LSE cases, n=74 [94.9%] ESE cases) were enrolled to complete the PAS and for further analysis.

In this study, the Cronbach’s alpha reliability coefficients of the authoritative, authoritarian, overprotective, and permissive subscales of the PAS were 0.84, 0.78, 0.80, and 0.73, respectively.

Table 1 shows the characteristics of mother-child dyads and family and their association with screen exposure time. Slightly more than half (52.0%) of the children were male. The mean ages of children were 46.9±13.7 months in LSE and 44.0±11.1 months in the ESE group (p=0.112).

Maternal and paternal age, gender, and family type were similar in the LSE and ESE groups. The number of children, household size, mothers being unemployed, birth order ≥2, and home-based care were found to be statistically significantly higher in the ESE group than in the LSE group. Mothers and fathers in the ESE group had a lower educational level than their counterparts in the LSE group (p<0.001) (Table 1).

**Comparison of the Parental Attitude Scores in LSE and ESE Groups**

There were statistically significant associations between authoritative, authoritarian, overprotective, and permissive parenting style scores, and screen time of the children in the unadjusted analysis (Table 2). Whereas the authoritative subscale scores were statistically significantly higher in the LSE group than in the ESE group (p=0.001), the authoritarian, overprotective, and permissive subscale scores were higher in the ESE group than in the LSE group (p<0.001) (Table 2). However, in the multivariate logistic regression model, after controlling for possible confounding factors, the associations between authoritative, overprotective, and permissive parenting styles and excessive child screen exposure time remained statistically significant (Table 3). The multiple logistic regression analysis showed that having a high score (3<sup>rd</sup> tertile) from the authoritative (democratic) subscale compared with having a low score (1<sup>st</sup> tertile) reduced the risk of excessive screen time by three times (AOR: 0.3; 95% CI: 0.1-0.9). In contrast, a high score from the overprotective and permissive subscales increased the excessive screen time by 2.8-folds (95% CI: 1.1-6.7) and 4.5-folds (95% CI: 1.8-11.6), respectively, com-

**Table 1. Characteristics of mother-child dyads and family and their association with screen exposure time**

Characteristics	LSE*	ESE#	p
N	176	74	
Age, months, mean±SD	46.9±13.7	44.0±11.1	0.112
Maternal age, years, mean±SD	34.1±4.5	33.1±5.6	0.174
Paternal age, years, mean±SD	36.7±5.2	36.9±6.0	0.819
Number of children, mean±SD	1.7±0.6	2.0±0.9	<0.001
Household size, mean±SD	3.7±0.7	4.1±1.0	0.001
Gender, male, %	48.9	59.5	0.126
Maternal occupation, working, %	72.7	44.6	<0.001
Maternal education >12 years, %	79.6	33.8	<0.001
Paternal education >12 years, %	77.3	43.2	<0.001
Birth order ≥2 children, %	46.6	66.2	0.005
Family type, nuclear %	92.6	89.2	0.373
<b>Type of daytime child care, %</b>			
Mother	17.6	59.5 <sup>a</sup>	<0.001
Nursery	57.4	16.2 <sup>b</sup>	
Grandparents or childminder	25.0	24.3 <sup>a</sup>	

ESE, excessive screen exposure; LSE, low screen exposure. \*LSE is defined as daily screen time <1 hour. #ESE is defined as daily screen time >4 hours. <sup>a,b</sup>Different letters are significant in the same column.

**Table 2. Parenting style subscale scores according to screen times of the children**

Parenting style subscale	Score range	LSE* n=176	ESE# n=74	p
Authoritative	17-85	75.9±6.9	72.5±7.7	0.001
Authoritarian	11-55	19.2±4.9	21.9±5.9	<0.001
Overprotective	9-45	32.2±5.7	36.2±5.9	<0.001
Permissive	11-55	20.5±5.1	23.3±5.6	<0.001

ESE, excessive screen exposure; LSE, low screen exposure; SD, standard deviation. Data on parenting style subscale scores are provided in mean±SD. \*LSE is defined as daily screen time <1 hour. #ESE is defined as daily screen time >4 hours.

**Table 3. Associations between excessive screen time and tertile groups of parenting styles**

Variables	Subscale tertiles	OR (95% CI)	AOR (95% CI)*
Authoritative	1 <sup>st</sup> (<73)	Ref	Ref
	2 <sup>nd</sup> (73-79.7)	0.6 (0.3-1.1)	0.7 (0.3-1.6)
	3 <sup>rd</sup> (>79.7)	0.8 (0.4-1.4)	0.3 (0.1-0.9)
Authoritarian	1 <sup>st</sup> (<16.3)	Ref	Ref
	2 <sup>nd</sup> (16.3-21.0)	1.38 (0.7-2.8)	0.9 (0.3-2.4)
	3 <sup>rd</sup> (>21.0)	2.4 (1.3-4.6)	1.1 (0.4-2.8)
Overprotective	1 <sup>st</sup> (<31)	Ref	Ref
	2 <sup>nd</sup> (31-35)	0.9 (0.5-1.9)	0.7 (0.3-2.0)
	3 <sup>rd</sup> (>35)	2.6 (1.4-4.8)	2.8 (1.1-6.7)
Permissive	1 <sup>st</sup> (<19)	Ref	Ref
	2 <sup>nd</sup> (19-23)	1.4 (0.7-2.6)	1.6 (0.6-4.4)
	3 <sup>rd</sup> (>23)	2.1 (1.1-3.8)	4.5 (1.8-11.6)

AOR, adjusted odds ratio; CI, confidence interval; OR, odds ratio; Ref: reference. \*Multivariate logistic regression analysis included child's age, child's gender, maternal age, paternal age, maternal education, paternal education, maternal occupational status, birth order, family type, daytime caregiver of the child, and four parenting subscale scores.

pared with the low scores. The authoritarian parenting score did no influence excessive screen time in the adjusted model (AOR: 1.1; 95% CI: 0.4-2.8) (Table 3).

## Discussion

In this study, we intended to explore the relations between parenting attitude and excessive screen time in preschool children. Our study revealed that mothers whose children were exposed to screen for <1 hour daily had higher maternal authoritative subscale scores than those whose children were exposed for >4 hours in a day. In contrast, high scores on the overprotective and permissive maternal parenting style are associated with an increased risk of >4-hour daily screen time. However, authoritarian parenting was not related to excessive screen time in the multivariate analysis. Although the degree of parental control on children is similarly high in the authoritative and overprotective parenting styles, our study results showed that both parenting styles have different child screen time relationships. In general, authoritative control is known to have positive effects on child behavior (24-26). Parents with an authoritative attitude are more likely to choose to mediate with their children to limit screen time. On the contrary, because overprotective parents prefer to rear their children in an isolated environment, these parents possibly use the screen as a way of controlling and close supervision of the child (23).

In previous studies, the relationship between screening time and parenting style was evaluated (14-21). A study including the parents of children aged eight to 11 years demonstrated that

the authoritative parenting attitude reduced sedentary screen time in boys, whereas a neglectful parenting attitude was a risk factor for high sedentary screen time in both boys and girls (17). In a study by Schary et al. (18) assessing the parenting attitude and sedentary behavior association in preschool children, similar to our results, the lowest screen time was associated with the authoritative parenting attitude. However, in that research, in adjusted analysis, permissive or neglectful parenting styles were not associated with sedentary behaviors of children (18). In our study, in the multivariate analysis, the strongest relationship between screening time and parenting attitude was determined in the permissive parenting style. Permissive parents apply little control and give their children more independence to do what they want, so it is not surprising that their children are exposed to excessive screens (15, 19). A study from the United Kingdom including the parents of children aged 10-11 years showed that an enormous majority of permissive mothers' children watched TV for >4 hours in a day compared with authoritarian or authoritative mothers' children (15). A recent study by Howe et al. (19) assessed parenting attitude, infant temperament, and family characteristics and their association with watching TV in two-year-old children. The mother having an authoritarian or permissive attitude and the partner having an authoritarian attitude were reported as statistically significantly related to increased TV viewing time (19).

In this study, ESE was related to lower maternal and paternal educational levels, unemployment of the mothers, increased number of children, increased household size, ≥2 birth order, and home-based care. Mothers with low educational levels, who were unemployed, and who had >1 child may not be able to spend quality time with their children because they have to both manage chores and take care of their children. Thus, they probably choose to make their children watch the screen to keep them busy. In our study, similar to previous studies, maternal and paternal educational levels were inversely associated with preschoolers' screen time (8, 11, 27-29). As higher education is often associated with skills that lead to a healthy lifestyle, it can be assumed that parents with a higher educational background can understand the necessity of screen time limitation and can introduce different choices for their children to enjoy leisure time at home (27). A study by Veldhuis et al. (28) showed that children aged five years who had mothers with low educational levels were more likely to watch TV >2 hours per day and spend >30 minutes per day on computers or game consoles. In another cohort study that analyzed the data of 2,786 preschool children, the lowest-educated mothers' children had the highest increased risk of TV viewing for ≥2 hours a day (OR: 11.32; 95% CI: 6.58-19.46) compared with those with higher educated mothers (29).

One of the important results of this study is that home-based care was associated with excessive screen time. Several stud-

ies investigated the differences in screen exposure of children on the basis of daily childcare preference (30–32). A study by Tandon et al. (30) assessed the contributions of the home-based care and the other child care setting to preschool children's cumulative daily screen time. In that study, children in center-based care had the lowest mean total daily screen time compared with those in other child care settings, including parental care only, home-based child care, and Head Start. For each child care category, the home-based care had a larger contribution to cumulative daily screen time of children than the child care had (30). In another study by Christakis et al. (31), which examined the TV viewing time of children in day-care settings, it was inferred that children in home-based child care programs were exposed to significantly more TV than those in center-based programs (for preschool-aged children: 2.4 versus 0.4 hours). A systematic review of 17 studies published in the past decade highlighted that in spite of some variability, preschool-aged children were exposed to screen for longer than the recommended levels, especially in home-based child care (approximately 0.1–1.3 hours/day in center-based care and 1.8–2.4 hours/day in home-based childcare) (32).

One limitation is that the study used a hospital-based sample from two tertiary care hospitals, which restricts the generalizability of the results to the community. As another limitation of the study, we did not differentiate the screen time between weekdays and weekends. In this study, we only assessed the maternal parenting style. Therefore, we have no information on how the paternal parenting style or the effect of both parents' attitudes together might affect preschool children's screen time. In this study, maternal reports were used to detect preschool children's total screen times. Parent reports are susceptible to recall bias; the screen time of children based on parental statements might also have biased the results to underreport the screen time. Moreover, mothers having a high level of education who probably know the harmful effects of excessive screen exposure may have reported less screen time than the actual time. However, previous studies in the literature have stated that children's TV viewing time identified by parental reports has been found to be correlated with screen use time on the basis of video recording in home environments (33).

One strength of our study is that we were able to include total screen exposure time as our outcome variable, including in all childcare settings. The sample size of the study was also sufficient to demonstrate the relationship between parenting style and screen exposure time.

Our study findings suggest that screen time may be substantially associated with the degree of parental control and that parents who have low control over their children are likely to be indifferent toward their children's overuse of the screens. Our study results also showed that even if the degree of parental control is high, the manner of control is also important to manage the screen time of preschool-aged children. Establishing a positive child-parent relationship, explaining the rationale for the rules, and using reasonable coping strategies can be effective ways of managing screen exposure time in preschool children.

As an opportunity, during healthy child follow-up visits, pediatricians and family practitioners should inform and encourage

parents to limit the screen time using positive mediation strategies, to choose high-quality educational media content, and to spend media-free time with their children.

**Ethical Committee Approval:** Ethics committee approval was received for this study from the ethics committee of Hacettepe University Faculty of Medicine Ethics Committee for Non-Interventional Clinical Studies approved the study (May 7, 2019; decision number: 2019/12-06).

**Informed Consent:** Written informed consent was received from mothers who agreed to participate in the study

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## References

1. Council on communications and media. Media and Young Minds. *Pediatrics* 2016; 138 pii: e20162591. [Crossref]
2. Connell SL, Lauricella AR, Wartella E. Parental co-use of media technology with their young children in the USA. *J Child Media* 2015; 9: 5–21. [Crossref]
3. Reilly JJ. Physical activity, sedentary behaviour and energy balance in the preschool child: opportunities for early obesity prevention. *Proc Nutr Soc* 2008; 67: 317–25. [Crossref]
4. Thompson DA, Christakis DA. The association between television viewing and irregular sleep schedules among children less than 3 years of age. *Pediatrics* 2005; 116: 851–6. [Crossref]
5. Christakis DA, Zimmerman FJ, DiGiuseppe DL, McCarty CA. Early television exposure and subsequent attentional problems in children. *Pediatrics* 2004; 113: 708–13. [Crossref]
6. Coyne SM, Radesky J, Collier KM, et al. Parenting and Digital Media. *Pediatrics* 2017; 140: S112–6. [Crossref]
7. Canadian Paediatric Society, Digital Health Task Force, Ottawa, Ontario. Screen time and young children: Promoting health and development in a digital world. *Paediatr Child Health*. 2017; 22: 461–77. [Crossref]
8. Kayıran SM, Soyak G, Gürakan B. Electronic media use by children in families of high socioeconomic level and familial factors. *Turk J Pediatr* 2010; 52: 491–9.
9. Akçay A, Özcebe H. The effect of television on the aggression behavior of preschool children *Çocuk Sağlığı ve Hastalıkları Dergisi* 2012; 55: 82–7.
10. Yalçın SS, Tuğrul B, Naçar N, Tuncer M, Yurdakök K. Factors that affect television viewing time in preschool and primary schoolchildren. *Pediatr Int* 2002; 44: 622–7. [Crossref]
11. Kılıç AO, Sari E, Yuçel H, et al. Exposure to and use of mobile devices in children aged 1–60 months. *Eur J Pediatr* 2019; 178: 221–7. [Crossref]

12. Lumeng JC, Rahnama S, Appugliese D, Kaciroti N, Bradley RH. Television exposure and overweight risk in preschoolers. *Arch Pediatr Adolesc Med* 2006; 160: 417-22. [\[Crossref\]](#)
13. Burdette HL, Whitaker RC, Kahn RS, Harvey-Berino J. Association of maternal obesity and depressive symptoms with television-viewing time in low-income preschool children. *Arch Pediatr Adolesc Med* 2003; 157: 894-9. [\[Crossref\]](#)
14. Linebarger DL, Barr R, Lapierre MA, Piotrowski JT. Associations between parenting, media use, cumulative risk, and children's executive functioning. *J Dev Behav Pediatr* 2014; 35: 367-77. [\[Crossref\]](#)
15. Jago R, Davison KK, Thompson JL, Page AS, Brockman R, Fox KR. Parental sedentary restriction, maternal parenting style and television viewing among 10-11 year olds. *Pediatrics* 2011; 128: e572-8. [\[Crossref\]](#)
16. Birken CS, Maguire J, Mekky M, et al. Parental factors associated with screen time in pre-school children in primary-care practice: a TARGet Kids! study. *Public Health Nutr* 2011; 14: 2134-48. [\[Crossref\]](#)
17. Van der Geest KE, Mérelle SYM, Rodenburg G, Van de Mheen D, Renders CM. Cross-sectional associations between maternal parenting styles, physical activity and screen sedentary time in children. *BMC Public Health* 2017; 17: 753. [\[Crossref\]](#)
18. Schary DP, Cardinal BJ, Loprinzi PD. Parenting style associated with sedentary behavior in preschool children. *Early Child Dev Care* 2012; 182: 1015-26. [\[Crossref\]](#)
19. Howe AS, Heath AM, Lawrence J, et al. Parenting style and family type, but not child temperament, are associated with television viewing time in children at two years of age. *PLoS One* 2017; 12: e0188558. [\[Crossref\]](#)
20. Xu H, Wen LM, Rissel C. Associations of maternal influences with outdoor play and screen time of two-year-olds: Findings from the Healthy Beginnings Trial. *J Paediatr and Child Health* 2014; 50: 680-6. [\[Crossref\]](#)
21. Erat Nergiz M, Çaylan N, Yalçın SS, et al. Excessive screen time is associated with maternal rejection behaviours in pre-school children. *J Paediatr Child Health* 2020; 56: 1077-82. [\[Crossref\]](#)
22. Jones CH, Pollard TM, Summerbell CD, Ball H. Could parental rules play a role in the association between short sleep and obesity in young children? *J Biosoc Sci* 2014; 46: 405-18. [\[Crossref\]](#)
23. Karabulut Demir E, Sendil G. Parent Attitude Scale (PAS). *Turkish Psychology Bulletin*. 2008; 11: 15-25.
24. Baumrind D. Effects of authoritative parental control on child behavior. *Child Development* 1966; 37: 887-907. [\[Crossref\]](#)
25. Baumrind D. Current patterns of parental authority. *Developmental Psychology* 1971; 4: 1-103. [\[Crossref\]](#)
26. Maccoby E, Martin, JA. Socialization in the context of family: Parent-child interaction. In: EM Hetherington, PH Mussen, eds. *Handbook of child psychology: Socialization, personality, and social development*. 4th ed. New York: Wiley 1983; 1-101.
27. Määttä S, Kaukonen R, Vepsäläinen H, et al. The mediating role of the home environment in relation to parental educational level and preschool children's screen time: a cross-sectional study. *BMC Public Health* 2017; 17: 688. [\[Crossref\]](#)
28. Veldhuis L, van Grieken A, Renders CM, Hirasings RA, Raat H. Parenting Style, the home environment, and screen time of 5-year-old children; the 'be active, eat right' study. *PLoS One* 2014; 9: e88486. [\[Crossref\]](#)
29. Wijtzes AI, Jansen W, Kamphuis CBM, et al. Increased risk of exceeding entertainment media guidelines in preschool children from low socioeconomic background: the generation R study. *Prev Med* 2012; 55: 325-9. [\[Crossref\]](#)
30. Tandon PS, Zhou C, Lozano P, Christakis DA. Preschoolers' total daily screen time at home and by type of child care. *J Pediatr* 2011; 158: 297-300. [\[Crossref\]](#)
31. Christakis DA, Garrison MM. Preschool-aged children's television viewing in child care settings. *Pediatrics* 2009; 124: 1627-32. [\[Crossref\]](#)
32. Vanderloo LM. Screen-viewing among preschoolers in childcare: a systematic review. *BMC Pediatr* 2014; 14: 205. [\[Crossref\]](#)
33. Anderson DR, Field DE, Collins PA, Lorch EP, Nathan JG. Estimates of young children's time with television: a methodological comparison of parent reports with time-lapse video home observation. *Child Dev* 1985; 56: 1345-57. [\[Crossref\]](#)