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Media exposure in low-income preschool-aged children is associated with multiple measures of self-regulatory behavior

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Abstract

Background—Excessive screen media exposure in childhood is associated with parent-reported self-regulation difficulties. No studies have used laboratory-based or teacher-reported measures of child self-regulatory behaviors.

Objective—Examine cross-sectional associations between preschooler screen media exposure and multiple measures of self-regulatory behaviors.

Methods—Pre-intervention data were used from 541 preschoolers in the Growing Healthy study, an obesity prevention trial (2011–2015). Screen media exposure was measured by daily screen media exposure (hours/day), TV in bedroom, frequency of background TV, and TV with meals (1=rarely/never, 4=frequently). Child self-regulatory behaviors were measured by: child Ability to Delay Gratification (ATDG), a standardized waiting paradigm; teacher-reported Social Competence and Behavior Evaluation; and parent-reported difficult temperament on Child Behavior Questionnaire (CBQ). Multivariate regression analyses modeled screen media exposure predicting each self-regulatory measure, adjusting for: child age, sex, parent age, education,

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marital status, income-to-needs ratio, adults in household, parent depressive symptoms and sensitivity.

Results—Children were 4.1 y (SD=0.5), parents were 29.6 y (SD=6.8), 48% had high school education or less, and 67% married. Daily screen media exposure and background TV were associated with weaker observed self-regulation (β -10.30 sec for each h/d media, -12.63 sec for 1-point increase, respectively). Background TV and TV with meals were associated with greater parent-reported difficult temperament (β 0.04 and 0.05 CBQ, respectively for 1-point increase).

Conclusions—Greater screen media exposure had small but significant associations with weaker observed and parent-reported, but not teacher-reported, self-regulatory behaviors. Longitudinal studies are needed to determine directionality of associations.

Keywords

Screen media; preschoolers; self-regulation

INTRODUCTION

Children are growing up in an era of increasing exposure to digital screen media (e.g., television [TV], computers and mobile devices).¹ Indeed, preschool-aged children are estimated to watch an average of 1–4 hours of TV per day,^{2,3} the majority have their own TV and mobile devices,¹ and many are exposed to TV in early child care settings.² Currently, the American Academy of Pediatrics (AAP) recommends limiting preschool-aged children's screen media exposure to less than 1 hour per day of high-quality programming and co-viewing media with a caregiver.⁴ Exposure to digital screen media in early childhood has been associated with adverse health outcomes which may persist into adulthood, including obesity, diabetes risk, language delays, lower school readiness, deficits in attention, and externalizing behavior problems.^{5,6} It is proposed that screen media exposure, including exposure to background TV, displaces important activities such as outdoor play and caregiver-child interactions.^{7,8} Prior literature has hypothesized that this may contribute to later social-emotional difficulties (e.g.: externalizing behaviors, executive functioning deficits, and aggression).

Self-regulation generally refers to processes such as inhibitory control, emotional control, and attentional control that individuals use to manage their physiological, emotional, and behavioral responses to challenging experiences and engage in goal-directed activities.⁹ Self-regulation has been highlighted as an important aspect of early social-emotional development and school readiness.⁹ In children, difficulties with self-regulation can be indexed by parent or teacher reports of child behavior problems (e.g., externalizing behaviors) or aspects of reactive temperament (e.g., impulsivity and low effortful control).¹⁰ Objective measures of self-regulation include child behavioral responses to challenging laboratory tasks. One of the most commonly-used and well-studied laboratory-based paradigms is the ability to delay gratification task, which measures a child's capacity to postpone immediately available smaller rewards while waiting for larger rewards.¹¹ Assessed in this way, the ability to delay gratification predicts higher future academic

achievement, greater resilience, lower obesity risk, better stress tolerance, and higher social competence.¹¹

Prior literature has suggested that excessive screen media exposure is linked to later child self-regulatory difficulties.^{5,6} Infants who were exposed to increasing levels of background TV at 6 months and 18 months were found to have higher emotional reactivity, aggression, and externalizing behaviors.⁹ Furthermore, toddlers who had high levels of TV viewing at 24 and 36 months were found to have a greater incidence and persistence of externalizing problems.⁸

To our knowledge, no studies have examined the association between child screen media exposure (including background TV exposure) and observational measures of self-regulatory difficulties, such as the ability to delay gratification, or teacher report measures of child self-regulation. This is an important gap in current understanding, as previous studies have utilized caregiver reports for self-regulatory behaviors and screen media exposure,^{6,12} and the interpretation of these studies may be limited by single-reporter bias and social desirability bias. Because self-regulation consists of several processes (inhibitory, attentional, and emotional control), different indices of self-regulatory behaviors - such as parent reports of child temperament, teacher reports of social competence, or the ability to delay gratification task - may be associated with media use in different ways.

This study aims to examine cross-sectional associations between child screen media exposure (daily screen media exposure, presence of TV in the bedroom, background TV exposure, and adults watching TV with meals) and several measures of child self-regulatory behaviors (standardized ability to delay gratification protocol, teacher-reported child adaptive behaviors, and parent-reported difficult temperament) in a sample of low-income preschool-aged children. It is hypothesized that preschool-aged children with greater levels of screen media exposure would have greater difficulties with self-regulatory behaviors. This study also aims to examine moderators of this association. We hypothesize that child screen media exposure will be associated with impairment in child self-regulatory behaviors to a greater degree when parents have greater depressive symptoms or lower parenting sensitivity.

METHODS

Study design

This was a secondary analysis of data collected from the Growing Healthy study,¹³ a cluster-randomized community-based obesity prevention intervention trial in urban and rural Michigan Head Start programs occurring during four academic years between fall 2011 and spring 2015. The randomized clinical trial results have been previously reported.¹³ Three Head Start agencies each had six classrooms participate during each academic year. All children in each class were invited to participate, regardless of weight status. Exclusion criteria were significant medical problems or developmental disabilities, foster care, or non-fluency in English. Families received \$150 for participating in data collection over the full year of data collection. Data used in the present study were collected prior to the Growing Healthy study interventions, in the fall (September-October) of each year, because it was

hypothesized that the intervention would alter child self-regulation and/or screen media exposure. All children in the classrooms ($n = 1150$) were invited to participate in the Growing Healthy intervention. Data was collected on 697 children, with 453 excluded because they declined to participate or were ineligible. CONSORT diagram is available from the original Growing Healthy study.¹³ Of the total 697 students enrolled in the Growing Healthy study, a subsample of 541 participants with all measures of child self-regulatory behaviors, child screen media exposure, and demographic information were included in the present study. Those without full data available included 69 children who were missing the ATDG task, 37 missing teacher reports, and 83 missing parent-reported data on child temperament, child screen media exposure, or covariates, with some participants missing more than one data element (total n excluded = 151). The sample of 541 included participants did not differ from excluded participants with regard to child age, sex, or race/ethnicity. This study was approved by the Institutional Review Boards of the University of Michigan and Michigan State University. Primary caregivers provided written informed consent and children provided verbal assent.

Measures

Predictors: Child screen media exposure—Caregivers completed survey measures in which they reported child screen media exposure.

Questions for mean daily screen media exposure were adapted from Gortmaker et al.¹⁴ The following questions were utilized in this study: “On an average weekday (Monday through Friday), how many hours a day does your preschool child watch TV or videos?” (*none, less than 1 hour/day, 1 hour/day, 3 hours/day, 4 hours/day, 5 or more hours/day*); “On an average weekend day (Saturday or Sunday), how many hours a day does your preschool child watch TV or videos?” (*none, less than 1 hour/day, 1 hour/day, 3 hours/day, 4 hours/day, 5 or more hours/day*); “On average, how many hours a day does your preschool child play video games or play on the computer?” (*none, 0–1 hours, 2–3 hours, 4 or more hours*).

To create a continuous variable, the categorical responses in the “watch TV or videos” question were converted: *none* = 0 hours, *less than 1 hour/day* = 0.5 hours, *1 hour/day* = 1 hour, *2 hours/day* = 2 hours, *3 hours per day* = 3 hours, *4 hours/day* = 4 hours, *5 hours or more hours/day* = 5 hours. Similarly, the categorical responses in the “play video games or on the computer” question were converted: *none* = 0 hours, *less than 1 hour/day* = 1 hour, *2–3 hours/day* = 3 hours, *4 or more hours/day* = 4 hours. The hours spent using TV, video games, and play on the computer were summed for the average weekday and for the average weekend, with a weighted average of these hours calculated to create the variable of mean daily screen media exposure. (i.e., sum of [weekday screen media exposure $\times$ 5] + [weekend screen media exposure $\times$ 2], divided by 7).

Questions regarding the media environment were adapted from Spurrier et al.¹⁵ The following questions were utilized in this study: Presence of TV in bedroom was assessed with the question: “Is there a television in your preschool child’s bedroom?” (*yes or no*). Frequency of background TV was assessed with: “How often is your television left on, whether or not it is being watched?” (Likert scale from *1= rarely/never* to *4= frequently*). Frequency of adults watching TV with meals, as an estimate of child exposure to TV during

mealtimes, was assessed with: “How often do adults in your family watch the television during the evening meal?” (Likert scale from *1= rarely/never to 4= frequently*).

Outcomes: Child self-regulatory behaviors

Ability to Delay Gratification—Children completed the standardized Ability to Delay Gratification (ATDG) task, which is a validated, laboratory-based waiting paradigm.¹⁶ In this protocol, the child was asked whether he or she would prefer a large candy reward or a small candy reward. The experimenter would verify that the children preferred the larger reward. An experimenter gave the child verbal instructions stating that they would receive the reward they chose for waiting until the experimenter returned after 7 minutes or the small candy reward for requesting the experimenter to return sooner or end the waiting period early by ringing a bell. The large candy reward, the small candy reward, and a bell were placed within arm’s reach of the child. The experimenter would then leave the room. If they requested the experimenter to come back early by: 1) ringing a bell, 2) going to the door, or 3) calling for the experimenter, the task ended and they received the smaller reward. Children were videorecorded, observing for total time waited before task completion. Two research assistants were trained to reliability to code for ATDG wait time, with Kappa of at least 0.80.

Social Competence and Behavior Evaluation—The Social Competence and Behavior Evaluation (SCBE) is a validated measure of affective expression, social competence, and adjustment difficulties in preschool-aged children.¹⁷ Six subscales from the SCBE were used to create a standardized supraordinate scale representing child adaptive behavior (60 items total). Teachers rated the frequency of each behavior (e.g., “Gets into conflict with other children”; “Works easily in groups”) on a 6-point Likert scale, (*0= never to 5= always*; with reverse scoring as appropriate). T-scores were calculated and adjusted for age and sex (mean of 50 and a SD of 10), with higher scores reflecting more adaptive behavior (Cronbach alpha = 0.90).

Child Behavior Questionnaire—Four subscales from the Child Behavior Questionnaire (CBQ) - Short Form, a validated measure of child temperament¹⁸ were used to create a Difficult Temperament scale. The four subscales (Anger/Frustration, Soothability, Impulsivity, and Inhibitory Control) were averaged such that higher scores indicated more difficult temperament, specifically difficulties with self-regulation of emotions and behavior (Cronbach alpha = 0.78). Parents completed 24 items and rated presence of their child’s behaviors (e.g., “Usually rushes into an activity without thinking about it;” “Has temper tantrums when s/he doesn’t get what s/he wants”) on a 7-point Likert scale (*1= extremely untrue of your child to 7= extremely true of your child*, with reverse scoring as appropriate).

Covariates—By survey, parents reported child age, child sex, parent age, education (high school diploma or less versus more than high school), marital status (married versus not married), income-to-needs ratio (calculated by dividing median total family income by the poverty threshold for family size), number of adults in the household, parent depressive symptoms, and parenting sensitivity. These covariates were considered in the model as they have previously been shown to be associated with measures of self-regulation. Parent

depressive symptoms were measured using the 20-item Center for Epidemiologic Studies Depression Scale (CES-D). Items are answered on a 4-point Likert scale (0 = rarely or none of the time, 3 = most or almost all the time), which were summed for a final CES-D score, with scores greater than or equal to 16 indicating concern for clinical depression ($\alpha = 0.90$).¹⁹ Parenting sensitivity was measured using the 12-item subscale of the Alabama Parenting Questionnaire ($\alpha = 0.83$).²⁰ Items were answered on a 5-point Likert scale (1 = never, 5 = always), with final parenting sensitivity scale calculated by averaging the responses of all 12 items, such that higher scores indicated greater parenting sensitivity. Parent depressive symptoms, and parenting sensitivity were also considered independently as moderators to the models.

Statistical analysis

Univariate statistics were used to describe the sample. Twelve multiple linear regression models were created. These models examined individually the main effect of each of the 4 screen media variables (daily screen media exposure, presence of TV in the bedroom, background TV, and adults watching TV with meals) on each self-regulation outcome: ATDG wait time (seconds), teacher-reported child adaptive behavior (SCBE T-score), and parent-reported child difficult temperament (CBQ score). All models initially included all covariates simultaneously: child age, child sex, parent age, education, marital status, income-to-needs ratio, number of adults in household, parent depressive symptoms, and parenting sensitivity. We then sequentially removed covariates from each model if their p-value was $> .25$ and tested whether removal from the model resulted in a $>10\%$ change in the effect estimate for the child screen media exposure predictor. We retained covariates in the model whose removal changed the child screen media exposure predictor effect estimate by $>10\%$. All analyses were conducted in SASTM software, version 9.4.

In addition, prior studies suggest that parenting characteristics act as moderators of child screen media effects.^{21,22} Therefore, for main effects models that showed significant associations between screen media exposure and self-regulatory behaviors, we tested interaction terms for each child screen media exposure variable with parent depressive symptoms (CES-D score ≥ 16 versus < 16), and parenting sensitivity (low versus high, split at the median value). Stratified analyses were conducted on models with statistically significant interaction terms.

RESULTS

As shown in Table 1, of the 541 participants, 50% were male. The sample was 48% non-Hispanic white, 29% non-Hispanic black, and 23% Hispanic or other race/ethnicity. Of the caregivers, 90% were biological mothers, 4% were biological fathers, 3% were grandmothers, and 0.2% were grandfathers. Of the caregivers, 58% were married and 52% had at least some education beyond high school. Mean caregiver age was 29.6 years ($SD = 6.9$) and mean child age was 49.4 months ($SD = 6.2$). Mean daily screen media exposure was 2.6 hours/day ($SD = 1.6$), 57% of children had presence of TV in the bedroom. For the question: “How often is your television left on, whether or not it is being watched?” (background TV), 59% answered either frequently or sometimes. For the question “How

often do adults in your family watch the television during the evening meal?” (adults watching TV with meals), 28% answered either frequently or sometimes.

As shown in Table 2, after adjusting for covariates, each additional hour/day screen media exposure was associated with lower ATDG wait time ($\beta = -10.30$ seconds, 95% CI $[-19.35, -1.25]$). Higher frequency of background TV exposure was also associated with lower ATDG wait time ($\beta = -12.63$ seconds for a 1-point change, 95% CI $[-24.34, -0.93]$). Presence of TV in the bedroom and adults watching TV with meals were not significantly associated with ATDG wait time.

No child screen media exposure variables (mean daily screen media exposure, presence of TV in the bedroom, background TV, watching TV with meals) were associated with teacher-reported child adaptive behavior (Table 2).

As shown in Table 2, daily screen media exposure and presence of TV in the bedroom were not associated with parent-reported difficult temperament. The frequency of background TV (1-point change) was associated with greater parent-reported difficult temperament ($\beta = 0.04$ points, 95% CI $[0.01, 0.08]$), as was the frequency of watching TV with meals ($\beta = 0.05$ points, 95% CI $[0.01, 0.09]$).

Parent depressive symptoms showed statistically significant moderation of the association between presence of TV in the bedroom and parent-reported difficult temperament ($p = .003$). In stratified models, presence of TV in the bedroom was associated with greater parent-reported difficult temperament, if the parent had greater depressive symptoms, with CES-D score ≥ 16 ($\beta = 0.23$ points, 95% CI $[0.03, 0.42]$, $p = .03$). Conversely, presence of TV in the bedroom was associated with less parent-reported difficult temperament if the parent had fewer depressive symptoms, with CES-D score < 16 ($\beta = -0.14$ points, 95% CI $[-0.26, -0.01]$, $p = .04$). There were no statistically significant interactions between parenting factors of parenting sensitivity, screen media exposure, and child self-regulatory behaviors (data not shown).

DISCUSSION

The objective of this study was to examine associations between screen media exposure and different measures of preschool-aged children's self-regulatory behaviors. Longer duration of daily screen media exposure was associated with poorer self-regulation as measured by a child's observed inability to delay gratification in a laboratory-based paradigm. Higher background TV exposure was associated with greater self-regulation difficulties as measured by observed inability to delay gratification and parent-reported difficult temperament. Higher frequency of adults watching TV with meals, an estimate for child exposure to TV during meals, was associated with lower child self-regulatory behaviors as measured by parent-reported difficult temperament. The association between presence of TV in the bedroom and parent-reported difficult temperament was moderated by parent depressive symptoms.

To our knowledge, this study was the first to examine associations between screen media exposure and multiple measures of self-regulatory behaviors, including standardized and

observational assessments. For every additional hour per day of screen media exposure, a child's observed ATDG time decreased by 10.30 seconds in a laboratory-based paradigm. Though the magnitude of this association is small, these differences in observed self-regulation were statistically significant and over time, may have meaningful implications. Preschool-aged children with better ability to delay gratification have been shown to have lower risk of substance abuse, lower obesity risk, greater social competency, and higher cognitive abilities.¹¹ This finding supports prior literature suggesting that excessive screen media exposure may contribute to self-regulation difficulties.^{5,12,23,24} Decreasing the quantity of screen media exposure could be one strategy to improve self-regulation difficulties in children.

Background TV exposure and watching TV with meals were associated with small but significant associations with parent-reported difficult temperament. This is important to consider, as the average US child is estimated to be exposed to just under 4 hours of background TV each day.²⁵ It is possible that greater background TV exposure could contribute to more child impulsivity and emotional reactivity,²³ as background TV exposure disrupts child play²⁶ and supplants important caregiver-child interactions,^{7,8} which are critical for the development of these adaptive self-regulation skills.²⁷ Although we cannot establish causation between background TV exposure and self-regulation, decreasing background TV exposure, including during mealtime, could represent a relatively simple point of intervention for parents of preschool-aged children to improve self-regulation.

This study examined screen media exposure as a predictor for child self-regulatory behaviors. Given the cross-sectional nature of this study, directionality cannot be determined. Prior literature has suggested that the directionality of association may be in the opposite direction, e.g.: child self-regulatory behaviors may predict child screen media exposure. Children with difficult temperament may be more challenging to soothe, and may receive more screen media exposure as a calming strategy.²¹ Indeed, in one study, infants with difficult temperament persisting into their toddler years were at greater risk of using more screen media as toddlers.¹² Lastly, it is also possible that this association could be bidirectional. Though to our knowledge no studies have examined bidirectional associations between child screen media exposure and child development over time, transactional theories suggest that parents and children mutually shape one another's behavior in a bidirectional manner.²⁸ Future studies could utilize a longitudinal design with observational measures of both child screen media exposure and child self-regulatory behaviors to elucidate this relationship.

We found no associations between any measure of child screen media exposure and teacher-reported child adaptive behavior. One explanation for this finding is that children behave differently in school versus home environments; for example, children with mild behavior problems may be able to modify their behaviors to adjust to the demands in school.²⁹ Children with behavioral challenges may also respond well to the structured, consistent environment that is provided in school, and therefore exhibit fewer self-regulation difficulties by teacher report compared to parent report. Furthermore, the scale utilized for teacher report was the SCBE, which may be a better measure of social-emotional

competence (emotion regulation with regard to social interactions and classroom behavior) than of child self-regulation difficulties.

The association between TV in the bedroom and parent-reported difficult temperament was moderated by parental depressive symptoms. TV in the bedroom predicted greater parent-reported difficult temperament when parents had greater depressive symptoms, with CES-D score 16. Symptoms of depression such as low affect, energy, and anhedonia interfere with a parent's ability to sensitively respond to and monitor their children's behavior, including their screen media habits. This may lead to child consumption of screen media content that is inappropriate or violent in nature, which has been associated with externalizing symptoms in prior literature.³⁰ Conversely, TV in the bedroom predicted less parent-reported difficult temperament when parents had fewer depressive symptoms, with CES-D scores in the non-clinical range. Parents with fewer depressive symptoms may be more likely to co-view and engage in screen media positively with their children, which buffers children from negative effects of screen media.³¹ These findings raise questions for future work. Pediatricians may wish to emphasize the AAP recommendation to avoid screen media in children's bedrooms, particularly if parents exhibit depressive symptoms.

Strengths of the current study included the large sample size and use of multiple measures of self-regulatory behavior. This study also had several limitations. As noted above, the cross-sectional design precludes directional interpretation, but post-intervention variables were not included because the intervention was designed to improve child self-regulation.

Additionally, this study did not examine the types of devices to which children were exposed (e.g., mobile devices versus TV sets), content of screen media (e.g., educational or non-educational), or whether screen media were co-viewed with a parent. These factors influence the way that children interact with screen media and may have implications for self-regulation.^{4,21,32} It is also important to acknowledge that participants included a sample of low-income preschool-aged children in Head Start, which limits the generalizability of findings. Therefore, another direction for future research could include replication of this study to include a more socioeconomically diverse population. Another limitation included the way in which screen media exposure was measured: adults watching TV with meals may not be a precise measure of a child's exposure to background TV during meals and conversion of a categorical variable into a continuous screen media variable may not accurately capture true daily screen media exposure.

Though the association between child screen media exposure and child self-regulatory behavior was small, the early childhood years are a critical time period for the development of future screen media habits and self-regulation skills. These findings raise the question of whether there may be utility in the development of an intervention to modify or decrease screen media exposure as a way of enhancing self-regulation skills in children.

CONCLUSION

These findings support current AAP recommendations to limit the duration of preschool-aged children's daily screen media exposure, limit background TV, and keep meals screen-free.⁵ When evaluating children with self-regulation difficulties, pediatricians may consider

discussing modifications to the home screen media environment (e.g., decreasing background TV or removing TV from the bedroom), as one potential strategy to promote child social-emotional development, particularly when parents also experience depressive symptoms.

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Table 1

Participant characteristics.

Study sample	n = 541, n (%)
Child age (months)	49.40 (SD = 6.22)
Parent age (years)	29.65 (SD = 6.86)
Child sex	
Male	270 (49.91%)
Female	271 (50.09%)
Child race/ethnicity	
White, non-Hispanic	256 (47.67%)
Black, non-Hispanic	158 (29.42%)
Hispanic or other	123 (22.89%)
Maternal education	
More than high school education	279 (52.05%)
High school education or less	257 (47.95%)
Parent marital status	
Single	176 (32.53%)
Married	365 (67.47%)
CES-D score	13.02 (SD = 10.03)
CES-D score ≥ 16	363 (68.11%)
CES-D score < 16	170 (31.90%)
Parenting sensitivity	4.54 (SD = 0.36)
Screen media exposure	
Daily screen media exposure (h/d)	2.60 (SD = 1.57)
Presence of TV in the bedroom	
Yes	305 (56.38%)
No	236 (43.62%)
Frequency of background TV	
Frequently	209 (39.29%)
Sometimes	108 (20.30%)
Occasionally	79 (14.85%)
Rarely/never	136 (25.56%)
Frequency of adults watching TV with meals	
Frequently	75 (14.12%)
Sometimes	74 (13.94%)
Occasionally	75 (14.12%)
Rarely/never	307 (57.82%)
Self-regulation measures	
ATDG wait time (seconds)	277.69 (SD = 178.98)
SCBE T-score	48.30 (SD = 8.49)
CBQ difficult temperament	4.01 (SD = 0.65)

Table 2

Multivariate associations between media exposure and self-regulatory behavior in low-income preschool children.

	ATDG wait time ^a	SCBE ^c	CBQ ^d
	β [95% CI]		
Daily screen media exposure (h/d)	-10.30 [-19.35, -1.25] [*]	0.26 [-0.20, 0.72]	0.01 [-0.03, 0.04]
Presence of TV in the bedroom (yes vs. no)	-10.40 [-38.93, 18.14] ^b	-0.01 [-1.43, 1.44]	-0.03 [-0.14, 0.07]
Background TV ^e	-12.63 [-24.34, -0.93] [*]	0.02 [-0.57, 0.61]	0.04 [0.01, 0.08] [*]
TV with meals ^e	-11.52 [-24.10, 1.07]	-0.21 [-0.84, 0.43]	0.05 [0.01, 0.09] [*]

^a ATDG wait time (seconds) models (with the exception of ATDG wait time and presence of TV) adjusted for: child sex, child age, parent education, marital status

^b ATDG wait time and presence of TV in the bedroom model adjusted for: child sex, child age, parent education, adults in household

^c SCBE (T-score) models adjusted for: child age, adults in household, and parent depressive symptoms

^d CBQ (difficult temperament score) models adjusted for: parent age, child sex, child age, parent depressive symptoms, and parenting sensitivity

^e Frequency measured on a Likert scale (1= rarely/never, 4 = frequently)

^{*} p <.05