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# The kids are bored: Trait boredom in early childhood and links to self-regulation, coping strategies, and parent–child interactions

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ABSTRACT

Boredom is a negative emotion that most people experience on occasion. However, some people experience boredom more or are unable to tolerate it, which is called trait boredom. Trait boredom has been well-studied in adolescence and adulthood, but little is known about trait boredom in childhood. The main goal of this study was to measure trait boredom in 4- to 6-year-olds ($N$ = 130) and to test whether it relates to self-regulatory processes in a similar fashion that has been observed in adults and identify strategies children use to cope with boredom. We found boredom in childhood was related to self-regulatory processes in a similar fashion as it does in adults, and most children used social stimulation strategies (e.g., asking to play with a parent) or behavioral strategies (e.g., playing with toys) to cope with boredom. The findings are discussed within the context of prevention and the emotion regulation and boredom literature.



## Introduction

Momentary states of boredom are common in daily life, but some people experience boredom more than others or are unable to tolerate it, which is called trait boredom. In adolescence and

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adulthood, boredom is a risk factor for mental health problems, such as depression, and behavioral health problems, such as substance use (Doering et al., 2023; Mercer-Lynn et al., 2013; National Center on Addiction and Substance Abuse at Columbia University, 2003). The study of trait boredom in early childhood is important to support prevention of the negative outcomes associated with boredom later in development, which is especially pressing given evidence that trait boredom is increasing with each passing year (Weybright et al., 2020). Almost nothing is known about the developmental origins of trait boredom. The overarching goal of the current study was to examine whether trait boredom is present in early childhood and to test whether it relates to self-regulatory processes in the same fashion as has been observed with adults. We also investigated the strategies that children use to cope with boredom as well as the role of parent–child interactions in trait boredom.

### *Trait boredom*

Boredom is a negative emotion that has been described as wanting but being unable to engage in a satisfactory activity (Mercer-Lynn et al., 2014). Most theories of boredom posit that boredom arises under conditions that are understimulating or perceived as meaningless (Westgate & Wilson, 2018) or when more interesting alternative activities are available in the environment (Wojtowicz et al., 2019; see also Anderson et al., 2022; Struk et al., 2020). Trait boredom refers to the chronic experience of boredom. Two types of trait boredom have been studied in adolescents and adults: boredom proneness and boredom susceptibility. Boredom proneness refers to the frequent experience of boredom across contexts and is measured using a self-report instrument called the Boredom Proneness Scale (Farmer & Sundberg, 1986; Struk et al., 2017). Boredom susceptibility refers to an aversion to lack of novelty or inadequate stimulation and is measured using a self-report instrument called the Boredom Susceptibility Scale (Zuckerman, 1994). Almost nothing is known about trait boredom in childhood. One study by Larson and Richards (1991) used experience sampling with fifth- to ninth-grade youths over the course of the week and found that participants reported boredom across a variety of settings. Participants reported boredom most often while doing homework or schoolwork (∼40% of the time) but also during less constrained activities, such as creative activities (∼30%) and watching TV (∼28%). Reports of boredom in and out of school settings were highly correlated, which indicates individual differences in the degree to which youths experience boredom across contexts, a signature of trait boredom.

In the current study, we tested whether boredom proneness and boredom susceptibility are present in early childhood. Boredom proneness was measured using a version of the Short Boredom Proneness Scale (Struk et al., 2017) adapted for parent report. The Boredom Susceptibility Scale used to study boredom susceptibility in adults has consistently shown poor reliability (Zuckerman, 1994). The Boredom Susceptibility Scale was a subscale of Zuckerman's Sensation Seeking Scale. Sensation seeking refers to a willingness to engage in risky behaviors to satisfy a need for novelty (Maples-Keller et al., 2016). In the case of boredom, sensation seeking behaviors occur in response to lack of novelty. There is no existing measure of boredom susceptibility that has been validated with children. Thus, we chose to measure boredom susceptibility by coding behavioral signatures of boredom susceptibility from parent interviews. Signatures of boredom susceptibility included sensation seeking behaviors in response to a lack of novelty, such as disrespecting personal space, picking on a sibling, and destroying property. We were especially interested in testing whether individual differences in levels of trait boredom relate to regulatory biases in children in the same way as in adults. Specifically, in adults boredom proneness and boredom susceptibility are linked to different motivational processes and have distinct behavioral profiles that may already be present in early childhood. In adults, boredom proneness and boredom susceptibility are associated with biases toward the behavioral inhibition system (BIS) and the behavioral activation system (BAS), respectively. The BIS is sensitive to fear and punishment and drives avoidance motivational behaviors, and the BAS is sensitive to appetitive stimuli and drives approach motivational behaviors (Gray, 1981, 1982; Pickering & Corr, 2008). The BIS and BAS are commonly studied using a self-report instrument called the BIS/BAS scale. Mercer-Lynn et al. (2014) showed that high levels on the Boredom Proneness Scale and the Boredom Susceptibility Scale in adults were differentially associated with higher levels of the BIS and BAS, respectively.

In adults, boredom proneness and boredom susceptibility are also associated with distinct behavioral profiles consistent with biases toward the BIS and BAS, respectively. For example, boredom proneness in adults is associated with mental health problems, such as anxiety and depression (Mercer-Lynn et al., 2011), which is consistent with a bias toward avoidance. Boredom susceptibility in adults has been linked to risk behaviors, such as gambling (Blaszczynski et al., 1990), which is consistent with a bias toward approach. Both types of trait boredom are associated with substance use in adults (Biolcati et al., 2018; Doering et al., 2023; Mercer-Lynn et al., 2014). The BIS and BAS are often measured using a self-report instrument in adults (Carver & White, 1994) and can be measured via parent report in childhood (Vervoort et al., 2019). If biases toward the BIS and BAS drive levels of boredom proneness and boredom susceptibility, respectively, then we should expect high levels on measures of the BIS to relate to boredom proneness and high levels on measures of the BAS to relate to boredom susceptibility in childhood just as in adulthood.

Individual differences in temperament may also be involved in the early emergence of boredom proneness and boredom susceptibility. Temperament filters and influences how children experience and react to their environment (Degnan et al., 2011; Fox et al., 2001; Gartstein & Rothbart, 2003). Rothbart's (2011) psychobiological model of temperament views individual differences in children's reactivity and regulation as critical to shaping interactions and experiences with their environment. Negative affectivity, surgency, and effortful control are three temperament dimensions that have been studied via parent report (Rothbart et al., 2001) and may relate to trait boredom in specific ways. Children high in negative affectivity often display negative emotions, such as sadness, fear, and anger. These children are frequently unsettled or uncomfortable and are difficult to soothe. We hypothesize that children high in negative affectivity are more likely to get stuck in negative emotions (e.g., sadness, fear, boredom), leading them to be more likely to exhibit boredom proneness.

Surgency refers to the display of positive emotions. Children high in surgency are more approach-oriented are more impulsive, enjoy high intensity activities, and are less shy than children low in surgency (Rothbart et al., 2001). These qualities resemble approach and signatures of the BAS. We hypothesize that children high in surgency have a high baseline threshold of activity and stimulation, and thus we expect children high in surgency to exhibit high levels of boredom susceptibility.

Effortful control refers to the capacity to control behavior and attention in a goal-directed fashion. Children high in effortful control have strong attentional control and focus, are attentive to changes in the environment, and enjoy quiet activities, such as reading books. Attentional control processes are thought to underlie the ability to resolve boredom. The dual-self model (Wojtowicz et al., 2019) and the boredom feedback model (Tam et al., 2021) of boredom both posit that attentional or executive control processes are involved in recognizing feelings of boredom and reallocating attentional resources elsewhere to resolve boredom. Consistent with this possibility, Gerritsen et al. (2014) found that both higher levels of boredom proneness and higher levels of boredom susceptibility in adults were associated with lower levels of executive control. We hypothesize that children low in effortful control may be less able to shift their attention to a more satisfying activity or create and execute a plan to manage their free time (e.g., plan to do a craft and pull out required supplies). Thus, high levels of effortful control should relate to lower levels of trait boredom in childhood.

### *Coping strategies*

We sought to glean insight into the coping strategies children use to mitigate boredom. Regulating emotions, such as boredom, requires changes to the experience of, attention to, or response to an emotional stimulus (Gross, 1998), which may downregulate the emotional response. Children use social, behavioral, attentional, and cognitive strategies to regulate their emotions, such as anger and sadness (Sala et al., 2014). We used parent interviews to identify the strategies children use to cope with boredom and explored how the two types of trait boredom relate to the coping strategies used. Some strategies, such as attentional deployment (i.e., distraction), can be observed in infancy as turning attention away from a distressing stimulus and seeking comfort from a caregiver (Braungart & Stifter, 1991). Cognitive reappraisal can be observed as early as 3 years of age (e.g., reframing consumable charactaristics of a marshmallow; Mischel & Baker, 1975), which has been shown to be important in regulating boredom in adolescence (Nett et al., 2010, 2011). We also measured social and behavioral

strategies. Social strategies are those that rely on others to help regulate an emotion (e.g., asking a sibling to play), and behavioral strategies are actions in the service of resolving boredom (e.g., choosing to do a puzzle). The ability to tailor emotion regulation strategies to a specific emotion (e.g., anger vs. sadness) is present in childhood (Davis et al., 2010; Shipman et al., 2003). This raises the possibility that high levels of boredom proneness (which arises frequently and across contexts) and high levels of boredom susceptibility (which arises when situations are perceived as understimulating) are associated with different coping strategies.

### *Role of parent–child interactions*

Parent–child interactions play an important role in emotion regulation in children. Warm and responsive parents create an environment in which children can express an emotion and have their need for emotional support met. Parents who demonstrate more warmth (i.e., positive affect, physical affection) in early childhood have children who better regulate their emotions (Davidov & Grusec, 2006) and display more prosocial behavior (Xiao et al., 2018). Positive parenting behaviors, including warmth and responsiveness, are also associated with self-regulatory abilities in children (Valcan et al., 2018). Warm and responsive parents are more focused on their children's cues and are thought to have built a relationship in which emotions are adequately addressed when expressed (Morris et al., 2007). We hypothesize that warm and responsive parents are more likely to be attentive to their children's experience of boredom and, in turn, to help them learn to mitigate boredom more effectively than children with less warm and responsive parents. It is also possible that warm and responsive parents help children to identify more effective or appropriate strategies. However, we did not have specific expectations about how parental warmth and responsiveness would relate to the frequency of use for each type of strategy (e.g., behavioral, social stimulation).

### *The current study*

We had three goals for the current study. First, we aimed to test whether trait boredom is associated with self-regulatory processes in childhood in a fashion that is consistent with what is known about trait boredom in adults. If so, we should expect parent report of the BAS and surgency to positively relate to boredom susceptibility and should expect parent report of the BIS and negative affectivity to positively relate to boredom proneness. Effortful control should negatively relate to both types of trait boredom. Second, we sought to characterize the strategies children use to cope with boredom. We coded parent interviews in which parents described how their children cope with boredom for social, behavioral, attentional, and cognitive strategies. We expected children to use these strategies to cope with boredom but had no expectations for how strategies might differentially relate to boredom proneness and boredom susceptibility or levels of trait boredom more generally. Third, we aimed to test whether warm and responsive parenting, as measured during a free-play activity, relates to trait boredom. If warm and responsive parents are more sensitive to their children's emotional experience and help them to effectively regulate, higher warmth responsiveness should be associated with lower levels of trait boredom.

## Method

### *Participants*

A total of 130 4- to 6-year-old children ($M_{age}$ = 4.90 years, *SD* = 0.65; 72 girls) and their parents were recruited as part of a larger study on parent–child interactions, self-regulation, and brain development. Participants identified as White (79.60%), Hispanic/Latinx (8.85%), Asian (8.60%), Black/African American (2.0%) and Native American/Alaskan Native (2.00%). Most families (80.60%) reported an annual family income of more than $50,000. Most children (87%) participated with their mother, with the rest of the children participating with their father. One parent did not complete any

**Table 1**
Number of participants contributing to each measure

| Measure | Number of participants |
|---|---|
| Boredom proneness | 127 |
| Boredom susceptibility | 125 |
| Boredom regulation strategies | 125 |
| Behavioral inhibition/activation | 128 |
| Temperament | 128 |
| Parent–child interaction | 129 |

demographics. Table 1 shows the sample size for each measure. The reasons for the missing data are described when each measure is presented.

### *Design and procedure*

Data were collected from January 2021 to May 2022. Each family participated in three phases of data collection. In Phase 1, a brief parent interview was conducted on a recorded phone call. In Phase 2, parents completed surveys online. In Phase 3, a 5-min parent–child interaction task was recorded in a videoconferencing session. Parents received a $15 gift card for participation. Children kept the toys sent to them for the study and a small prize provided for their participation.

### *Data collection and measures*

#### *Parent interview*

Parents were asked to describe their children's experience of boredom through three questions: (1) How do you know your child is bored? (e.g., What do they say or do?); (2) Can you describe the last instance in which your child was bored?; and (3) Can you describe an additional instance in which your child was bored? The parents were probed further during the interview only to fill in the context of each instance of boredom to ensure that they provided a similar amount of information about the instance of boredom (e.g., Where were they? What were they doing when they become bored? Who else was there? How did your child deal with the boring experience? What was your role?). The interviewer stopped the interview or moved to the next question once the parents had supplied information asked in each probe. All interviews were completed by the first author. Interview protocols and coding schemes were reviewed and approved by the first author's dissertation committee whose members had expertise in the field of boredom and child emotion regulation. Interviews were transcribed and coded for descriptions of strategies that parents reported their children used when bored and were separately coded for our measure of boredom susceptibility. Four different types of strategies were coded; these were adapted from the categorization of emotion regulation strategies outlined in Sala et al. (2014): behavioral (e.g., engages in action in order to manage boredom), social support (e.g., another person helps overcome boredom), attentional deployment (e.g., thinks of something else in order to regulate boredom), and cognitive reappraisal (e.g., changes the meaning of the situation to make it less boring).

#### *Boredom coping strategies*

Boredom coping strategies were coded for each child using Qualitative Data Analysis (QDA) Miner Lite software (Provalis Research, Montreal, Quebec, Canada) when parents described a behavioral, social support, attentional deployment, or cognitive reappraisal strategy that children initiated on their own (not on the suggestion of parents). *Behavioral* strategies (e.g., reading a book, playing with toys) were coded when parents described a behavioral strategy for resolving boredom but not when described as a symptom of the boredom. For example, parents often described their children as "agitated" or "wandering around listlessly." These were not coded as a strategy unless parents indicated that their children's action was in service of resolving their boredom (i.e., wandering around looking for something to do).

*Social support* strategies were split into two codes. The first social support code was *instrumental social support* (e.g., asking for someone to play with them, seeking attention from a parent or sibling). The second social support code was *social stimulation* and involved asking someone for help carry out a plan for something to do (e.g., asking to go to the park, asking for the iPad) or asking for ideas for what to do (e.g., "Mom, what can I do?"). Codes without enough context to distinguish between the two social support codes were coded as *social stimulation* because both social codes involved social interaction resulting in social stimulation.

*Attentional deployment* was coded when parents described their children distracting themselves with other thoughts to cope with boredom (e.g., making up stories or characters). *Cognitive reappraisal* was defined as changing the meaning of a situation to make it less boring (e.g., reframing a boring car ride as an important step to getting to a destination). Two coders coded all transcripts, and the absolute agreement was 66%. All disagreements were resolved via discussion to determine the final codes. Five children did not have boredom regulation strategies because their interviews were not recorded due to accident or technical error. One participant was deemed an outlier for the behavioral strategies measure, and that child's score was winsorized to the closest neighboring score (see the Analytic approach section).

*Boredom susceptibility*

Boredom susceptibility was coded for each child using QDA Miner Lite software. Independent coders coded each transcript. Boredom susceptibility was defined as an inability to tolerate a mundane or low-stimulation activity. Instances of boredom susceptibility were coded from parent interviews when parents described their children responding to a lack of stimulation/novelty by displaying anger or frustration and/or acting impulsively (e.g., throwing books or toys). Boredom susceptibility was also coded when children displayed a disregard for other people or property (e.g., destructive behavior, stimulation seeking social behavior, invasion of personal space) in response to boredom. The construct of boredom susceptibility holds considerable conceptual overlap with BAS, with the key distinction being that the behaviors are occurring in response to a lack of novelty, or boredom. The coding scheme was developed to reflect sensation seeking behaviors in response to boredom (Zuckerman, 1994), such as disrespecting personal space, picking on a sibling, and destroying property. The coding scheme was reviewed and approved by the first author's dissertation committee, whose members had expertise in boredom and emotion regulation in children, before being used. For each of the instances coded as boredom susceptibility, there was 70% agreement between coders. All disagreements were resolved via discussion to determine the final codes. The measure of boredom susceptibility was the number of boredom susceptibility instances identified from the interviews. Five children did not have boredom susceptibility scores because their interviews were not recorded. One participant was deemed an outlier and was winsorized to replace the outlying score with the nearest neighbor (see Analytic approach section).

*Boredom proneness*

Boredom proneness was measured with a version of the Short Boredom Proneness Scale (SBPS; Struk et al., 2017), which was adapted for parent report. The SBPS–Adapted (SBPS-A) includes 8 items with a 7-point response scale ranging from *strongly disagree* (1) to *strongly agree* (7). Items were adapted for parent report. One example item is "My child often finds themselves not knowing what to do." Internal consistency was good ($\alpha$ = .76). We used the mean of the 8-item scale as our measure. Three children did not contribute data to the boredom proneness measures because their parents did not complete the questionnaire. Two values were deemed outliers and winsorized to the nearest neighboring score (see the Analytic approach section).

*Behavioral inhibition/Behavioral activation*

Individual differences in the BIS/BAS were measured with the child behavioral inhibition/behavioral activation scale (Vervoort et al., 2019). This scale includes 20 parent-report items to capture behavioral activation and inhibition tendencies in children. Each item is rated on a 4-point scale ranging from *very true* (1) to *very false* (4). There are four subscales that result from this scale: BIS, BAS Reward Sensitivity (positive anticipation of rewards), BAS Drive (determined pursuit of goals), and

BAS Fun Seeking (spontaneous pursuit of new rewards). Additionally, the BAS Total score combined each of the BAS subscales into a composite measure. The BIS captures sensitivity to aversive, or novel stimuli. Internal consistency in prior research has generally been acceptable to good for each of the scales and subscales ($\alpha$s = .72–.85; Vervoort et al., 2019) apart from the BAS Fun Seeking scale, which had poor reliability ($\alpha$ = .57; Vervoort et al., 2019). For this sample, internal consistency was poor for the BIS ($\alpha$ = .60), with no improvement with item deletion, and good for BAS Total ($\alpha$ = .80). Internal consistencies for the BAS Reward Sensitivity and BAS Fun Seeking subscales were acceptable and poor ($\alpha$ = .79 and $\alpha$ = .64, respectively), with no substantial improvement when poorly performing items were deleted. Internal consistency for BAS Drive initially was poor ($\alpha$ = .66) but improved to acceptable ($\alpha$ = .72) after dropping an item. The item dropped was "Nobody can stop your child, when she or he wants something." The mean of each scale was used in anlyses. Two children did not have BAS/BIS scores because their parents did not complete the questionnaires.

*Temperament*

The Child Behavioral Questionnaire–Short Form (CBQ-SF) is a 94-item parent report that measures three overarching temperament dimensions in children aged 3 to 7 years (Putnam & Rothbart, 2006). Items are scored on a 7-point scale ranging from *extremely untrue* (1) to *extremely true* (7). The temperament dimensions include negative affectivity (a global display of negative emotions), effortful control (control of behaviors and attention), and surgency (positive anticipation and high activity). Internal consistency was good for negative affectivity ($\alpha$ = .82), effortful control ($\alpha$ = .83), and surgency ($\alpha$ = .86). Two children did not have CBQ-SF scores because their parents did not complete the questionnaires. One outlier for surgency was replaced by the nearest neighboring score.

*Parent–child interaction*

The parent–child interaction task involved dyads playing naturally with stacking blocks for 5 min. Parents were instructed to play with the blocks as they normally would with their children. Each family was sent the same set of blocks for this part of the study. Parental warmth and responsiveness were coded from the video-recording of the task using the coding schemes published in Spinrad et al. (2012) and Linkiewich et al. (2021), respectively. Warmth and responsiveness were coded on a 5-point scale. Warmth is defined as displays of closeness, positive affect, physical affection, and encouragement to the children. See Table 2 for coding anchors. Responsiveness is defined as parents' level of responsiveness to the their children's questions, comments, and behaviors. See Table 3 for coding anchors for parental responsiveness.

Ratings were coded for each minute of parent–child interaction and were averaged together. A second person coded a random 25% of the final sample to assess interrater reliability. The intraclass correlation (ICC) was .82 for both measures, demonstrating good interrater reliability. One family did not contribute to either warmth or responsiveness because it did not complete the virtual session. One score was deemed an outlier for warmth and was winsorized to the score of the nearest neighbor (see Analytic approach section).

**Table 2**
Parental warmth descriptions and coding anchors

| | Code description | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Warmth[a] | No evidence of warmth—The parent passively observes the child or is not friendly or positive. | Minimal warmth—The parent displays little positive affect, does not initiate contact, and is not friendly or close to the child. | Moderate warmth—A little positive affect and slight display of friendliness. | Positively engaged with the child for much of the time. May also touch the child in a positive way. | Very engaged with the child. Positive affect was predominant, and the mother was physically affectionate. |

[a] See Spinrad et al. (2012).

**Table 3**
Parental responsiveness coding anchors

| | Code description | | |
|---|---|---|---|
| | 1 | 3 | 5 |
| Responsiveness[a] | The parent never responds to the child or ignores the child's questions, comments, and behaviors. | The parent shows moderate amounts of responsiveness and responds to half of the child's questions, comments, and behaviors, although some responses may be delayed. | The parent always responds immediately to child's questions, comments, and behaviors and often expands on remarks made by the child. |

[a] See Linkiewich et al. (2021).

*Analytic approach*

The main analyses used Pearson correlations. Spearman correlations were used for variables with non-normal distributions based on skew (±1) and kurtosis (±2). Boredom susceptibility, BAS reward responsiveness, and instrumental support strategies all had non-normal distributions and were analyzed using Spearman correlations. Values were deemed outliers if they were more than 1.5 × interquartile range (IQR) and 3 standard deviations away from the mean and were confirmed via visual inspection. If a value was determined to be an outlier, it was winsorized to the nearest neighboring score. We controlled for the influence of age and sex for all analyses. The threshold for statistical significance includes $p$ values less than .05. Given the novelty of this work, we report trends at $p$ values up to .10. Due to the scope of this study, many associations were tested, which can increase the risk of Type I error. However, we reduced this risk by conducting the majority of our analyses only for hypothesized relations with directional expectations, such as for relations among trait boredom, BAS/BIS, temperament, and parent–child interactions. Other analyses were more exploratory, such as those involving coping strategies, and should be interpreted more cautiously.

## Results

The results are presented in three sections. The first section reports tests of whether boredom proneness and boredom susceptibility relate to self-regulatory processes in children in a way that is consistent with what has been observed in adults. The second section reports analyses examining whether children with high levels of boredom proneness and boredom susceptibility rely on distinct boredom coping strategies. The third section reports tests of whether parental warmth and responsiveness are associated with lower levels of trait boredom and the boredom coping strategies children use.

*Interrelations between trait boredom, temperament, and self-regulation*

Correlations were conducted to determine whether trait boredom relates to self-regulatory processes in a manner similar to what has been observed in adults. Table 4 shows the results. The significant or marginally significant correlations are also provided in-text with $p$ values. Boredom proneness and boredom susceptibility were marginally positively associated with one another ($pr$ = .16, $p$ = . 08). High levels of boredom proneness were significantly correlated with lower effortful control ($pr$ = −.27, $p$ = .003) and higher negative affectivity ($pr$ = .26, $p$ = .005). Boredom susceptibility was significantly associated with greater Total BAS ($pr$ = .20, $p$ = .03), BAS Fun Seeking ($pr$ = .25, $p$ = .006), and BAS Drive ($pr$ = .30, $p$ < .001). This pattern of results indicates that trait boredom in early childhood is associated with self-regulatory processes much like in adulthood.

*Association between strategy use and boredom proneness and susceptibility*

The mean number of strategies described by parents was 12.60 ($SD$ = 5.97, range = 0–32). Fig. 1 shows the total number of each type of strategy used across children and the proportion of children

**Table 4**
Partial correlations between trait boredom, BAS/BIS, and temperament measures controlling for influence of age and sex

| Measure | Boredom proneness | Boredom susceptibility |
|---|---|---|
| Boredom susceptibility | .16∼ | – |
| BIS | .14 | −.02 |
| BAS Total | −.04 | .20* |
| BAS Reward Responsiveness | −.14 | −.02 |
| BAS Drive | .02 | .30*** |
| BAS Fun Seeking | .004 | .25** |
| Effortful control | −.27** | −.10 |
| Negative affect | .26** | .02 |
| Surgency/Extroversion | −.06 | .10 |

*Note.* BAS, Behavioral Activation System; BIS, Behavioral Inhibition System. Correlations with boredom susceptibility and BAS Reward Responsiveness are Spearman correlations to account for a non-normal distribution.
∼Trending at a .10 level.
*Significant at .05 level.
**Significant at .01 level.
***Significant at .001 level.

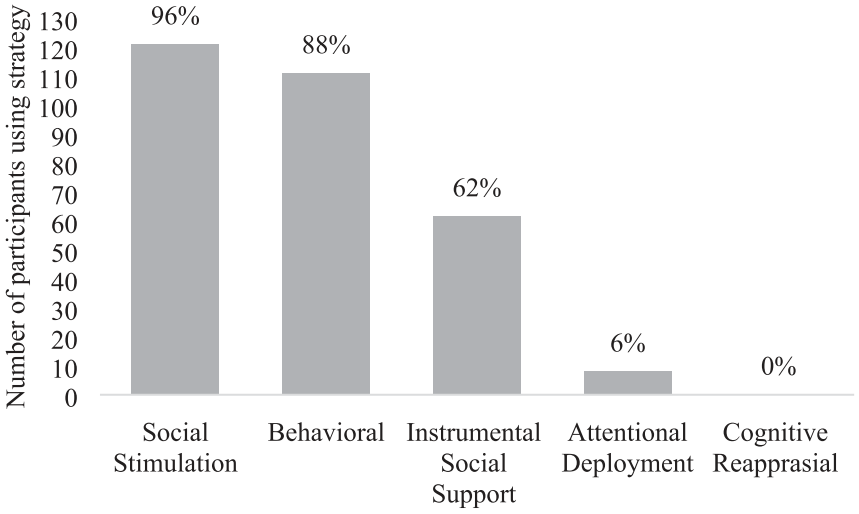


**Fig. 1.** Number and percentage of participants who used each strategy.

who were reported to use at least one instance of each strategy. Social stimulation strategies ($M$ = 5.46, $SD$ = 3.63) and behavioral strategies ($M$ = 5.27, $SD$ = 3.50) were used by most children, and instrumental support ($M$ = 1.74, $SD$ = 1.98) was used by more than half the children. Attentional deployment strategies were reported to be used very little. Cognitive reappraisal strategies were not reported by any parent.

The main goal of this analysis was to test whether different types of trait boredom are associated with the use of distinct types of boredom coping strategies. This analysis was limited to behavioral strategies, social stimulation strategies, and instrumental social support strategies because attentional deployment and cognitive reappraisal did not appear in enough, or any interviews.

Results for all correlations are shown in Table 5. Significant and marginally significant correlations are also presented in-text with $p$ values. Higher levels of boredom susceptibility related to the use of more social stimulation strategies ($pr$ = .19, $p$ = .04), a higher number of total strategies used ($pr$ = .21,

**Table 5**
Partial correlations between trait boredom and boredom strategy measures controlling for the influence of age and sex

| Measure | Behavioral strategies | Social stimulation strategies | Instrumental social support strategies | Total number of strategies |
|---|---|---|---|---|
| Boredom susceptibility | .18∼ | .19* | −.09 | .21* |
| Boredom proneness | −.21* | .24** | .07 | .04 |

*Note.* Correlations with boredom susceptibility and instrumental social support are Spearman correlations to account for a non-normal distribution.
∼Trending at a .10 level.
*Significant at .05 level.
**Significant at .01 level.

$p$ = .02), and marginally more behavioral strategies ($pr$ = .18, $p$ = .05). Higher levels of boredom proneness related to more use of social stimulation strategies ($pr$ = .23, $p$ = .009) and fewer behavioral strategies ($pr$ = −.21, $p$ = .02). The results indicate that children high in boredom susceptibility use more social strategies and more total strategies overall, whereas children high in boredom proneness rely primarily on social stimulation strategies.

*Parental warmth and responsiveness and trait boredom and boredom coping strategies*

Partial correlations for parental warmth and responsiveness with trait boredom and boredom coping strategies were conducted. Contrary to our expectations, no significant correlations were observed. We discuss these null findings further in the Discussion.

## Discussion

Nearly everyone occasionally experiences boredom (Chin et al., 2017), but some struggle with the emotion more than others, which is called trait boredom. Previous research on trait boredom has focused on adolescents and adults. To our knowledge, this is the first study to examine trait boredom in early childhood. We were able to measure boredom proneness via parent report and measure boredom susceptibility via parent interview. We found that higher levels of boredom proneness were associated with higher levels of negative affectivity and lower levels of effortful control and that higher levels of boredom susceptibility were related to higher levels of BAS (Total, Fun Seeking, and Drive). This pattern of results is strikingly similar to what has been observed in adults (Gerritsen et al., 2014; Mercer-Lynn et al., 2011, 2013). Thus, our findings not only indicate that trait boredom is present by early childhood but also indicate that the early regulatory biases that are thought to underlie trait boredom in adults may also underlie trait boredom in early development.

Relatively little is known about how people cope with boredom in daily life. We found that nearly all children use social stimulation and behavioral strategies to cope with boredom. We found that only a few children used attentional deployment strategies and that no children used cognitive reappraisal strategies. Children have been shown to use both attentional deployment and cognitive reappraisal strategies when regulating other emotions. For example, Davis et al. (2010) showed that 5- and 6-year-olds who were asked to recall an emotional memory and how they coped with it described using attentional deployment and cognitive reappraisal to cope with sadness, fear, and anger. It is possible that children in the current study were using attentional deployment and cognitive reappraisal strategies to cope with boredom, but those were unobservable or were not viewed as boredom coping strategies by parents. Future research should use additional methods, such as interviews with children, to examine the presence of these boredom coping strategies in children.

We also observed profiles of strategy use that were associated with boredom proneness and boredom susceptibility. Children high in boredom proneness use fewer behavioral strategies and more social stimulation strategies; children high in boredom susceptibility use more social stimulation strategies to cope with boredom but also use more total strategies overall. These differences in strategy use for children high in boredom proneness and boredom susceptibility might lead to support

different developmental pathways based on the availability and efficiency of emotion regulation strategy use. For example, lower effortful control in children high in boredom proneness may make it difficult for them to identify and select behavioral strategies and rely more on externally driven social stimulation strategies to cope with boredom. The use of more total strategies overall by children high in boredom susceptibility indicates that these children are good at initiating strategies but might not choose an appropriate strategy to regulate boredom effectively.

There are at least two reasons why studying trait boredom in early childhood is important and timely. First, adults and adolescents high in trait boredom use more substances and have higher rates of risk taking and mental health problems (Biolcati et al., 2018; Mercer-Lynn et al., 2014). Thus, identifying the presence of trait boredom and associated regulatory processes in early childhood could inform efforts to help children learn to select healthy boredom coping skills, which in turn prevents high levels of trait boredom and negative outcomes later. This need is especially important now because recent evidence indicates trait boredom is increasing in adolescence with each passing year (Weybright et al., 2020). Second, global events and aspects of the current environment influence boredom. For example, the search term "bored" was higher at the onset of the COVID-19 pandemic in late March 2020 than at any other time during the years 2019 to 2022 (Google Trends Explore, n.d.), and across 116 countries people reported a slight increase in boredom at the onset of the pandemic (Westgate et al., 2023). The increases in boredom was presumably due to restrictions that kept people at home and away from their typical daily activities. Boredom is also closely tied to technology use, which is ever-present in modern society. Boredom can lead to unhealthy technology use (Orsolini et al., 2023), which may also lead to temporary relief of boredom and prevent prolonged boredom that may spur creativity (Murphy et al., 2023). Understanding boredom in early childhood is a first step in helping children to navigate boredom in their environment as they develop.

Our study points to the need for tailored interventions for different types of trait boredom. Children high in boredom proneness have a smaller repertoire of strategies and struggle to regulate boredom on their own. Helping them to identify and use more strategies may help them to reduce boredom in a context-specific fashion that, in turn, reduces the frequency that they experience boredom. Children high in boredom susceptibility use more strategies overall, but these strategies might not always be appropriate for the context (e.g., destroying furniture) or may be unsafe (e.g., leaving home without telling anyone). Boredom susceptibility is thought to reflect a lack of tolerance for mundane or tedious tasks. Rather than providing these children with more strategies, they may need to learn how to tolerate the feeling of boredom and acquire strategies that help to resolve boredom in a safe, effective, and context-specific manner.

Parents may play a role in helping children to acquire boredom coping skills. We hypothesized that warm and responsive parents would be sensitive to their children's experience of boredom and help them to identify strategies to cope, but we did not find any evidence that parental warmth or responsiveness was associated with trait boredom or strategy use. The null results may be due to the context in which warmth and responsiveness were observed, a typical parent–child interaction task in which children and parents played together with toys. Several other measures of parenting may better capture parental influence on boredom. First, evaluating warmth and responsiveness from parents *while* children are experiencing boredom may better align with the context-specific needs of the children and provide a more sensitive measure for how parents respond when children express boredom. Second, measures of autonomy supportive parenting, such as providing choices, scaffolding, and allowing children to correct mistakes on their own, may be indicators of helping children to initiate independent problem solving (Whipple et al., 2011; Wood, 1980). Autonomy supportive parenting behaviors are associated with better executive function abilities in early childhood (Castelo et al., 2022; Meuwissen & Carlson, 2019), which in turn may support the resolution of boredom by enabling children to select their own coping strategies or structure their time to reduce the incidence of boredom. Third, measures of parental openness, encouragement, and problem-focused resolution of negative emotions (Gentzler et al., 2005) may be sensitive to children's comfort in expressing boredom and the ways in which parents help their children to resolve boredom.

Boredom is often viewed through a negative lens, but it may be a helpful emotion for children to experience. An emerging literature indicates that boredom can spur creative thought that may lead to constructive and healthy behaviors. For example, Mann and Cadman (2014) found that people who

completed a task in which boredom was induced generated more ideas following the task than a control group. Boredom may loosen constraints on thinking and open people up to new experiences (Gasper & Middlewood, 2014). Boredom may also be important to learn to tolerate in childhood. For example, some tasks or activities might be perceived as boring (e.g., practicing scales on a piano, running on a treadmill) but help to develop skills to pursue interests that may be enjoyable. It is possible that children who gain these skills will be protected against some of the increased risks that arise with boredom in adolescence (e.g., risk taking, substance use; Biolcati et al., 2018; Doering et al., 2023).

### *Limitations and future directions*

The current study does have limitations that need to be addressed by future research. One limitation of the study was the diversity of the sample. Most children in this study came from White families with above median income for the area, and our results might not generalize to non-White families or families with fewer economic resources. Future research not only should examine the trait boredom in more diverse samples but also should intentionally investigate the ways in which different cultures express and cope with boredom. Culture has been shown to influence how children express emotions, such as shyness, fear, and exuberance (Enrique Varela et al., 2004; Gartstein et al., 2016; Gudiño & Lau, 2010; Zhou et al., 2009) as well as the development of self-regulation (Lecuyer & Zhang, 2015). These differences are thought to be developed through interactions with caregivers who reinforce the normative emotional expressions of the culture (see Chen, 2018, for a review). This may also be true for how boredom is shaped through development. Parents may influence their children's expression of and responses to boredom, which might result in different levels of or types of trait boredom.

Another limitation of the current study is that we measured trait boredom in children using parent report and with new measures adapted or developed for this study. Our measure of boredom proneness was adapted for parent report from the existing self-report measure used in adults (SBPS; Struk et al., 2017). Our measure of boredom susceptibility was coded from interviews with parents when they described an impulsive, angry, or frustrated response to boredom from their children. One potential concern in using parent-report measures is that parents might not accurately record or describe their children's boredom if the parents are not attuned to their children's feelings. Although our measure of boredom susceptibility was new, it did capture a glimpse into how children experience and cope with boredom in their daily life and positively related to the BAS in a way that was expected based on the adult boredom literature. However, future research should further validate these and other measures appropriate for capturing trait boredom across the lifespan. For example, future research should observe children while they are bored (e.g., in a room with little stimulation) to observe how they respond and acquire physiological indicators of boredom to understand the processes at work while they are bored (see Perone et al., 2019, 2021, 2023) or should use experience sampling methods to gain access to levels of boredom across contexts to tailor interventions to contexts in which children are most likely to be bored.

Similarly, we used parent-report measures of temperament and self-regulation. Parent-report and observational measures often modestly converge but can also diverge (Gartstein & Marmion, 2008; Kochanska et al., 1997; Stifter et al., 2008). Parents' reports may reflect a more general disposition toward their children (Kagan, 1998) but also provide insight into how children behave in their natural environment, whereas lab-based measures are more objective but often require children to complete artificial tasks. Ideally, future research would acquire parent-report and lab-based measures of temperament and self-regulation. Relatedly, we considered only a subset of self-regulatory processes. Measures of other processes, such as delay of gratification, response inhibition, and cognitive flexibility, could shed light on how performance on tasks designed to measure specific self-regulatory processes might influence the development of trait boredom.

The current study was limited to a single age group and was not longitudinal. Our results show that boredom in early childhood is tied to self-regulatory processes, such as approach and avoidance and effortful control. Research has established that biases toward approach and avoidance are present as early as infancy (Chronis-Tuscano et al., 2009; Degnan et al., 2011; Fox et al., 2001; Hane et al., 2008; Rothbart et al., 2000). A bias toward approach (behavioral activation) or avoidance (behavioral

inhibition) and levels of attentional control (effortful control) in infancy may set children on a path to developing different levels and types of trait boredom by childhood because of the strong influence of these processes in shaping how infants respond to and experience their environment. Thus, longitudinal study of temperament and self-regulatory processes beginning in infancy can help us to understand the developmental origins of trait boredom. Similarly, longitudinal study into middle childhood and adolescence would help us to understand the developmental pathways that reinforce trait boredom and associated outcomes over development as well as to identify opportunities (e.g., parenting, recreation, use of leisure time) to curtail unhealthy trajectories.

A final consideration is that the current study was conducted at the height of the COVID-19 pandemic and during a period from January 2021 to May 2022 in which local restrictions on social distancing fluctuated. Most parents (85.7%) reported changes in their children's emotional states and behaviors during the pandemic restrictions, including 52% reporting increases in boredom (Orgilés et al., 2020). Thus, it is possible the more frequent experience and heightened awareness of boredom affected the results of the current study. Replication and extension of the current study are needed to inform this possibility.

### *Conclusion*

By adolescence and adulthood, high levels of trait boredom are linked to poor behavioral and mental health. Thus, identifying the developmental origins of trait boredom may aid in efforts to help children learn to cope with boredom before it becomes problematic later in development. This study showed that trait boredom is present by early childhood, and it uncovered the different strategies children use to cope with boredom, which are somewhat distinct for those high in boredom proneness relative to those high in boredom susceptibility. This suggests that interventions may need to be tailored to each type of trait boredom. The self-regulatory processes related to trait boredom in children have developmental origins in infancy. Thus, longitudinal study of trait boredom beginning in infancy can elucidate the developmental origins and beginnings of developmental pathways toward boredom proneness and boredom susceptibility. This study sets the foundation for further research to advance our understanding of the emergence and development of boredom and contextual influences on it, such as parenting and culture.

## CRediT authorship contribution statement

**Alana J. Anderson:** Writing – review & editing, Writing – original draft, Visualization, Supervision, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Sammy Perone:** Writing – review & editing, Writing – original draft, Supervision, Resources, Project administration, Funding acquisition, Conceptualization.

## Data availability

Data will be made available on request.

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