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Maternal Encouragement to Approach Novelty: A Curvilinear Relation to Change in Anxiety for Inhibited Toddlers

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Abstract Various parenting behaviors (e.g., protection, intrusiveness, sensitivity) have been shown to impact young children's anxiety development, particularly for temperamentally inhibited children. These behaviors have sometimes predicted both increases and decreases in anxiety in inhibited children, suggesting that linear relations may not adequately model their influence. In the current study, we proposed the dimension of *encouragement to approach novelty* to characterize parenting behavior ranging from very little encouragement (i.e., protective behavior) to very strong encouragement (i.e., intrusiveness), with gentle encouragement residing in the middle. In a sample of 110 toddlers (48 female, 62 male) and their mothers, the linear and curvilinear effects of this parenting dimension were investigated in relation to change in child separation anxiety and shyness from age 2 to age 3. Inhibited temperament was also investigated as a moderator. Encouragement to approach novelty displayed the hypothesized curvilinear relation to change in separation anxiety, but not shyness, at extreme levels of inhibited temperament. Toddlers increased in separation anxiety when mothers' encouragement resided at either extreme end of the continuum, with lower child anxiety occurring when mothers displayed behavior closer to the middle of the continuum. Implications for the study of parenting outcomes for inhibited toddlers are discussed.

Keywords Toddlers · Temperament · Parenting · Anxiety

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Current developmental models of anxiety recognize that environmental factors, such as parenting, strongly influence outcomes for children displaying dispositional risk for anxiety problems such as inhibited temperament (Degnan and Fox 2007; Hudson and Rapee 2001; Ollendick and Hirshfeld-Becker 2002). Specifically, maternal intrusiveness, protection and overprotection, and low sensitivity have all been related to anxiety outcomes in later childhood (Edwards et al. 2010; Lewis-Morrarty et al. 2012; Mount et al. 2010), with some of these behaviors also related, perhaps counterintuitively, to better outcomes for inhibited children (Mount et al. 2010; Park et al. 1997; van der Bruggen et al. 2010). We suggest that these behaviors lie on a dimension that has a curvilinear relation to anxiety-spectrum outcomes. We propose that *encouragement to approach novelty* (ETAN) may be suited to describing this dimension, with very low encouragement (protective, overly sensitive behaviors) and very high encouragement (intrusiveness) predicting risk for anxiety. There has been consistently less focus on the middle of this spectrum, or the maternal behaviors that predict less anxiety for children initially high in inhibited temperament, and because of this, the entire dimension of ETAN has yet to be examined in relation to anxiety outcomes for inhibited children. We suggest that gentle maternal encouragement and support (e.g., verbal encouragement, modeling of approach) may reside at the midpoint of the ETAN continuum. Therefore, the current study examined both linear and curvilinear relations between the dimension of ETAN and change in toddlers' separation distress and shyness between 24 and 36 months of age. Given that temperamentally inhibited toddlers are already at risk for, and may be more vulnerable to the effects of parenting, on anxiety (Biederman et al. 2001; Mount et al. 2010; Schwartz et al. 1999), we examined these predictive relations in the context of (i.e., moderated by) inhibited temperament. Because we hypothesized that the relation between the ETAN

dimension and anxiety will occur at high levels of inhibited temperament, we first introduce this construct and then review the relevant parenting literature.

Inhibited Temperament

Inhibited temperament (also, behavioral inhibition) is characterized by wariness, hesitance, and avoidance in the presence of novel situations, objects, and people (Kagan et al. 1994). Temperamental inhibition is partly heritable and biologically based, with infants and toddlers who are high in inhibited temperament displaying increased reactivity in a variety of biological systems resulting from having an amygdala with a low threshold for activation (Kagan et al. 1994; Schwartz et al. 2003).

Inhibited temperament in infancy and toddlerhood has been specifically linked to anxiety-spectrum outcomes later in life, particularly shyness in preschool and early school age children, as well as social anxiety in older children and adolescents, when social concerns become central (Biederman et al. 2001; Rubin et al. 2009; Schwartz et al. 1999). The prevalence of diagnosed social anxiety peaks in adolescence, although subclinical levels and impairment may occur earlier in development (Angold et al. 1999; Ollendick and Hirshfeld-Becker 2002). Precursors within the same spectrum of problems, such as shyness, may emerge in early childhood (Rubin et al. 2009). Inhibited temperament is also linked to separation anxiety in preschool and early school age children (Broeren et al. 2013; Paulus et al. 2015). Separation anxiety may be particularly relevant for young children because it is salient to the developmental task of maintaining security with parents while gaining independence and mastery over the environment. Moreover, separation anxiety may precede social anxiety (Otto et al. 2001) and tends to overlap with social anxiety in non-referred children (Ferdinand et al. 2006). Given that anxiety-spectrum problems, and internalizing problems more generally, in early development can be stable and predictive of more general distress throughout childhood and adolescence (Kearney et al. 2003; Rubin et al. 2009), and that early development may also be an opportune time for prevention and intervention (Hirshfeld-Becker and Biederman 2002), development of separation anxiety and shyness in this age range is important to understand. However, beyond predicting anxiety directly, inhibited temperament may also make some children more vulnerable to environmental risk factors for anxiety development.

It has been long hypothesized that the goodness of fit between temperament and environment influences children's emotional development (Rothbart 1989; Thomas and Chess 1977), and parenting is often considered the most influential aspect of the environment for young children. It is not surprising, therefore, that a large, growing body of research has examined parenting behaviors that determine the developmental outcomes of children exhibiting high levels of inhibited temperament. Unfortunately, this extant literature is rife with confusion and contradictions about the precise nature of the influence of specific parenting behaviors. In reviewing the literature on parenting behaviors that influence the outcomes of inhibited children, we aim, first, to identify how discrepancies in terminology have resulted in seemingly contradictory findings, and, second, to resolve these problems by using ETAN as a behaviorally-based dimension of parenting behavior to organize previous work. Of note, the vast majority of these studies have focused exclusively on mothers. Although research with fathers is important and much needed, to stay consistent with previous studies, we also focus on maternal behavior.

Maternal Parenting Behavior

A variety of maternal behaviors have been studied in relation to inhibited temperament and anxiety, including different types of overcontrol, such as protection (including excessive warmth) and intrusiveness, as well as broader constructs such as sensitivity and responsiveness. Protective parenting behavior removes or prevents children from interacting with a feared stimulus or situation, or prevents/takes over the management of stress associated with it through excessive warmth and comforting (Kiel and Buss 2010; Rubin et al. 1997, 2002). Maternal protective behavior has been linked to socioemotional maladjustment, increased social wariness, and increased or maintained inhibited temperament across childhood (Bayer et al. 2006; Kagan et al. 1994; Kiel and Buss 2011, 2014; Rubin and Burgess 2002; Rubin et al. 2002). Notably, more inhibited children may actively elicit protection, so temperament and protective behavior are likely not independent (Kiel and Buss 2012; van der Bruggen et al. 2010). These parenting behaviors do not encourage approach towards new people and situations and may even encourage children to remain withdrawn and on the periphery. In this way, children do not benefit from mild challenges that promote the development of independent regulation (Chorpita and Barlow 1998).

Given that protective behavior may involve high levels of warmth and comforting, it is possible that, at times, it has been labeled as sensitivity. Certainly, it would be expected that sensitive parenting should lead to adaptive outcomes for children, in general. But what is sensitive for a less inhibited child may not be adaptive for a more inhibited child. Support for this notion comes from studies finding that increased maternal sensitivity/responsiveness predicts continued inhibition. For example, reactive infants remained inhibited when mothers were selectively responsive to and affectionate with them during times of distress and used more gentle rather than firm

limit-setting (Arcus 2001). Less sensitive behavior in fathers has also been linked to lower inhibition over toddlerhood (Park et al. 1997). However, sensitivity that is excessively warm and responsive in a manner that prevents a healthy level of challenge for inhibited children should not be confused with parenting behavior that is actually sensitive. Sometimes sensitive parenting predicted adaptive outcomes as would typically be expected. For example, greater maternal sensitivity linearly predicted decreased risk for anxiety in toddlerhood (Mount et al. 2010) and at kindergarten entry (Early et al. 2002) for children who were high in inhibition/wariness. Clearly, sensitivity by itself does not describe adaptive parenting behavior, and the behavioral indicators that constitute sensitivity should be more precisely delineated.

On the opposite end of this spectrum is intrusive behavior, characterized by actions that more forcibly push children towards novelty. In this case, maternal encouragement to approach or interact with novelty is so high that it exceeds children's capabilities to independently cope. Much like protective behavior, intrusive parenting behavior prevents children from experiencing control of their environment and gaining social and emotional competence in novel, uncertain situations (Chorpita and Barlow 1998). As such, intrusive behavior has been linked to increased stress in inhibited children and anxiety in middle and late childhood (Chorpita et al. 1998; Hudson and Rapee 2001; Nachmias et al. 1996).

Counterintuitively, intrusiveness has also been linked to better outcomes for inhibited or anxiety-prone children. Park and colleagues (1997) found that maternal intrusiveness predicted lower levels of inhibition across the toddler period. Although their measure of intrusiveness was more global in nature, they provided examples (e.g., pushing a child towards a door to see who was there) consistent with the notion of encouraging approach towards novelty. It is possible that this level of intrusiveness was gentle in nature and, although challenging for the child, did not exceed children's abilities to cope. So, on the ETAN dimension, it may be represented on the higher-middle portion of the spectrum rather than extremely high.

Overall, inconsistencies in this literature, particularly in regards to the consequences of intrusiveness and sensitivity, warrant more complex modeling of the effects of parenting. Given that many effects appear to be relative (e.g., sensitivity is adaptive when high, but not too high, and intrusiveness may be beneficial when more gentle as opposed to more extreme), placing behaviors on a dimension and examining curvilinear effects may most accurately portray the influence of parenting. As an example, Mount et al. (2010) found evidence for both linear and curvilinear influences of maternal sensitivity on toddler anxiety. A negative linear relation suggested that greater maternal sensitivity related to less toddler anxiety. However, maternal sensitivity moderated the relation between inhibited temperament and later anxiety outcomes in a curvilinear fashion, such that both low and very high levels of maternal sensitivity predicted children's anxiety, but only for highly inhibited toddlers. We aimed to advance this direction of examination by more specifically examining encouragement to approach novelty (ETAN) as a dimension that encompasses maternal behavior from protective to intrusive.

Encouragement to Approach Novelty

The anchors of the ETAN continuum emerge from the previously reviewed literature, with protective behavior providing no encouragement to approach and intrusiveness representing extreme or excessive encouragement. Previous studies that use these terms do not solely examine parenting behaviors in relation to novelty (e.g., a mother might be deemed intrusive during a free-play/clean-up session), so it should be noted that the ETAN dimension is a more specific scope of behavior. Specifically, ETAN does not include maternal interruptions of ongoing behavior, but rather the extent to which mothers orchestrate the child's approach behavior.

The maternal behaviors in the middle of this spectrum that may buffer against anxiety outcomes for inhibited children have been studied less frequently than the extremes, but some evidence exists for suggesting what they may be. Autonomy-granting, a construct that has been found to relate to positive outcomes for anxiety-prone children, has been defined by its means of increasing child independence by supporting and encouraging children's choices, and acknowledging children's own attitudes, opinions, and perspectives (Whaley et al. 1999). Autonomy granting relates to positive social-emotional outcomes (Denham et al. 1990; MacDonald and Parke 1984), but this work has typically been done with older children, so aspects of this construct may not be relevant to toddlers.

With young children, mothers may promote mastery and autonomy by challenging them to a mild degree so they must, but can, cope (Arcus 2001; Park et al. 1997). In other words, rather than refraining from behaving at all, which may allow toddlers to avoid interaction in the same manner as protective behavior, behaviors characterized by gentle encouragement may promote the most optimal outcomes. It has also been suggested that these types of encouraging behaviors serve a communicative function to inhibited children that refraining from approach is not acceptable (Park et al. 1997). Perhaps, then, direct verbal statements indicating parents' desire for interaction and approach would also act as gentle encouragement. Further, it has been established that maternal modeling of negative reactions to both social and non-social novel stimuli, even when they are not specifically fear-relevant in nature, increases children's fear and avoidance of these stimuli (Dubi et al. 2008; Gerull and Rapee 2002; Murray et al. 2008). It would be expected that modeling would function similarly in

the opposite situation, such that modeling of interaction and approach would increase toddlers' interaction and thus decrease inhibition and subsequent risk for anxiety, even in mildly challenging situations. Further support for the focus on these behaviors is that reducing modeling of avoidance in favor of modeling of approach are incorporated into parent-focused intervention programs focused on reducing risk for anxiety in inhibited children (Rapee et al. 2005). Thus, although these behaviors have not necessary been studied specifically as predictors of later anxiety in the context of toddlers' high levels of inhibited temperament, enough evidence warrants including them in the middle of the ETAN dimension.

Current Study

Taken together, the existing literature suggests, but has not tested, an underlying dimension of maternal encouragement of their toddlers to approach novelty. The low and high ends of this dimension seem to predict anxiety development, with less anxiety expected to be predicted from more moderate maternal behavior. Previous literature also provides evidence that the parenting behaviors comprising the ETAN dimension are especially influential for inhibited children, suggesting that inhibited temperament should be considered as a moderator of the relation between ETAN and anxiety. To test this, the current study assessed this dimension and its interaction with inhibited temperament in relation to change in anxiety across toddlerhood, examining both linear and curvilinear trends for the ETAN dimension. Given previous work suggesting that separation anxiety and shyness might be particularly relevant for young children, these were the primary outcomes of interest, which were assessed for change between 2 and 3 years of age. Thus, within this framework, we hypothesized that an interaction would occur between the curvilinear term for the ETAN dimension and inhibited temperament in relation to change in separation anxiety, such that the highest increases in anxiety would be seen at the low and high ends of the continuum, but only for toddlers extreme in inhibited temperament.

Methods

Participants

One hundred seventeen mother-toddler dyads were recruited by mail based on local birth announcements as well as in-person at the Women, Infants, and Children (WIC) program, a federally funded program that provides resources to low-income women with young children. Seven of these mothers did not complete either questionnaire that yielded primary anxiety measures at the initial assessment, so 110 mothers and their 2-year-old toddlers (M_{age}=24.74 months, SD=0.70 month; 48 female) comprised the subsample on which analyses were conducted. The breakdown of the sample in terms of ethnic/racial identity was as follows, for mothers and toddlers, respectively: 97 (88.2 %) and 92 (83.6 %) European American, 2 (1.8 %) and 6 (5.5 %) African American, 7 (6.4 %) and 9 (8.2 %) Asian American, 1 (0.9 %) and 1 (0.9 %) American Indian, and 3 (2.8 %) and 2 (1.8 %) "other ethnic/racial identity." In addition, one (0.9 %) mother and six (5.5 %) toddlers were identified as Hispanic/Latino. According to the Hollingshead four-factor index (Hollingshead 1975), which can range in scores from 8 to 66, participants were, on average, middle class, although the sample represented a range of socioeconomic status (Table 1). Seventy-six mothers (69 %) participated in a follow-up questionnaire assessment when toddlers were approximately 3-year-old. Mothers were compensated for their time ($10) for each assessment, and children received a small gift at the laboratory.

Procedure

At Time 1, mothers and toddlers participated in a laboratory visit, before which mothers provided informed consent and completed a questionnaire battery, including a measure assessing their toddlers' anxiety behaviors. Prior to the completion of laboratory tasks, the primary experimenter explained them to the mother, indicating whether she should be involved in the task or limit her interaction. Instructions were repeated prior to each task's occurrence.

Toddlers first participated in a Risk Room paradigm, which is an established procedure for assessing inhibited temperament. The experimenter showed the mother and toddler into a large observation room that contained several activities that all required an element of risk-taking to interact with them (tunnel, exercise trampoline, low balance beam, black box with eyes and a cut-out mouth, gorilla mask on a pedestal). The toddler played for 3 min while the mother read a magazine in the room, limiting her spontaneous interaction, and then the experimenter returned to ask the toddler to complete each of the activities, always in the same order: crawl through the tunnel, jump on the trampoline, walk on the balance beam, put a hand inside the black box's mouth, and touch the gorilla mask. The experimenter provided up to three prompts for each activity before moving to the next one.

The toddler and mother also participated in Clown and Spider episodes (Buss 2011), in which mothers were instructed to behave naturally, "however you would like or however you typically would." In Clown, the toddler and mother waited in a large room, and then a female experimenter entered, dressed in a clown outfit, wig, and nose. According to a standardized script, she introduced herself in a friendly

Table 1 Descriptive statistics and bivariate relations

Variable	*n*	*Mean* (*SD*)	*Range*	2	3	4	5	6	7
1. SES	110	50.21 (11.55)	17.00–66.00	−0.06	−0.16	−0.30**	0.15	0.07	0.18
2. Inhibited temperament	110	0.00 (0.80)	−1.02–2.76	–	0.06	0.29**	0.22*	0.16	0.20†
3. ETAN	110	2.76 (0.73)	1.00–6.00		–	0.10	−0.02	−0.16	−0.13
4. Age 2 separation anxiety	109	0.87 (0.42)	0.00–2.00			–	0.17†	0.29**	0.05
5. Age 2 shyness	109	2.11 (0.74)	1.00–4.86				–	−0.07	0.50***
6. Age 3 separation anxiety	76	0.66 (0.41)	0.00–1.83					–	0.19
7. Age 3 shyness	74	2.05 (0.74)	1.00–4.14						–

ETAN Encouragement to approach novelty. Descriptive statistics were computed prior to imputation. Bivariate correlations were computed using a multiple imputation dataset and represent pooled estimates (weighted by standard errors) across 20 imputations. For bivariate correlations, $n=110$ for SES, inhibited temperament, and ETAN; $n=109$ for separation anxiety and shyness, and $n=108$ for correlations between separation anxiety and shyness (one participant did not have age 2 separation anxiety and a different participant did not have age 2 shyness)

$^{\dagger}p<0.10$, $*p<0.05$, $**p<0.01$, $***p<0.001$

manner and invited the toddler to play three games (blowing bubbles, playing catch with beach balls, playing musical instruments) that lasted approximately 1 min each. Then, the female clown asked the toddler to help put her toys in her bag, said goodbye, and exited the room. In Spider, the mother sat in a chair with her toddler seated in her lap, across the room from a large plush spider mounted to a remote-controlled truck that was hidden by a box. The spider, controlled by remote from behind a one-way mirror, approached half-way towards the pair, paused 10 s, and retreated to its original place. After another 10 s pause, it approached the entire way to the mother and toddler, paused 10 s, and then retreated to its starting place. The primary experimenter then returned and gave the toddler up to three prompts to touch the spider.

Episodes were video-recorded for scoring of toddler and mother behaviors. Coders received 15–20 h of training with a master coder and were required to achieve a minimum level of reliability (kappa or ICC=0.80) before coding independently. The master coder double-scored approximately 20 % of cases and met with coders throughout coding to prevent coder drift. Coders' original scores were used in estimating final values of inter-rater reliability, which are listed with behaviors in descriptions of the measures.

At Time 2, mothers were contacted to assess their interest in completing a follow-up battery of questionnaires, which included a measure providing information on children's anxiety. If mothers expressed interest in participating, laboratory staff mailed them a consent form and the questionnaires with a pre-addressed, pre-stamped envelope. Mothers returned the signed consent form and packet through the mail.

Measures

Encouragement to Approach Maternal encouragement to approach novelty (ETAN) was scored in the Clown and Spider (but not Risk Room) episodes on a seven point scale based on a previously established observational coding scheme for intrusive and protective behavior (Kiel and Buss 2010), such that low scores indicated more protective and lack of encouraging behaviors (1=*holding the child back*, *turning him/her away from the stimulus*, *verbally reinforcing avoidance*, *excessive comforting*; 2=*mild engagement of such behaviors*; 3=*doing nothing*), the middle score indicated gentle encouragement to approach (4=*positive verbal encouragement to approach*, *warm and low intensity physical coaxing towards the stimulus*, *modeling approach/interaction*, *reinforcing existing play/interaction*), and higher scores indicating increasingly intrusive and pushy behaviors (5=*one instance or a few low intensity demonstrations of intrusiveness*; 6=*physically pushing or verbally demanding approach*, *or low-intensity intrusive behaviors that last for longer durations*, 7=*several instances of physically pushing or verbally demanding approach when clearly against the child's will* [*child is clinging or crying*], *or intrusive for a large proportion of the episode*, *or very negative/critical while being intrusive*). Trained coders provided mothers one score for each episode (coders scored only one episode to prevent carry-over bias in coding) to capture the overall level of behavior for that episode. Inter-rater reliability between coders (distinct for each episode) and a master coder was determined to be adequate (ICCs=0.91 for Clown, .93 for Spider).

Scores were moderately related across the two episodes, $r(104)=0.28$, $p=0.004$, and a principal components analysis suggested they loaded on one component that accounted for 64 % of the variance. The average difference between scores was 0.51, and the majority of mothers (77 %) had either the same score or only differed by 1 point across the episodes. Given that we were interested in mothers' general pattern of behavior with their toddlers (as opposed to behavior in one particular situation), we formed a composite by creating a mean of the two scores. This method is appropriate when measures are not highly related (as opposed to creating a latent

variable; Bollen and Lennox 1991). Thus, for a mother to have a low or high score, she would need to have a generally low or high score, respectively, in both episodes. Mothers who were more inconsistent or more moderate across both episodes would have more moderate scores. The resulting composite covered the majority of the original scale, but it did suggest that no mothers were extremely intrusive across both episodes (*range*=1.00 to 6.00).

Toddler Inhibited Temperament Toddlers were scored on a number of behaviors from the Risk Room. Latency to touch first toy was scored as the number of seconds between the experimenter leaving the room and the toddler's first intentional physical contact with one of the activities. Tentativeness of play, approach towards parent, and attempt to be held were each scored on 0 (*no behavior*) to 3 (*extreme*) scales in each 10 s epoch of the free-play portion of the episode. An average across epochs was taken for each variable. In the second portion, compliance with the experimenter was scored as the number of activities (0 to 5) that the toddler completed after the experimenter's prompt. Reliability estimates ranged from ICCs of .78 to .98 for these behaviors. Compliance to experimenter was reverse-scored. Then, all five behaviors were standardized into Z-scores and averaged to yield the measure of *inhibited temperament*.

Toddler Anxiety Behaviors Mothers completed the Infant Toddler Social-Emotional Assessment - Revised (ITSEA; Carter and Briggs-Gowan 2000), which measures both typical and problem behaviors in 12- to 36-month-old toddlers. Mothers indicated the extent to which they observed various behaviors on a three-point scale (0=*not true or rarely true*; 1=*somewhat or sometimes true*; 2=*very true or often true*). The ITSEA has been shown to be a reliable and valid measure of problem behaviors in toddlers, with scales relating to independent observations (Carter et al. 2003). We used the separation distress subscale (6 items; e.g., "gets nervous or upset when left with a familiar babysitter or relative"). Mothers completed this scale at both age 2 (alpha=0.66) and age 3 (alpha=0.76) so that change could be assessed. At each age, a mean of items comprised the *separation anxiety* variable.

Mothers also completed the Shyness scale of the Child Social Preference Scale (CSPS; Coplan et al. 2004) at age 2 and age 3 to assess for change. Across seven items (age 2: α=0.85; age 3: α=0.89), mothers indicated on a 1 (*not at all*) to 5 (*a lot*) scale how typical shy behaviors (e.g., "My child 'hovers' near where other children are playing, without joining in") were for their children. The authors of the CSPS found it to be reliable and to relate to mothers' reports of related constructs (e.g., temperament, observed peer interactions; Coplan et al. 2004). For each age, a mean of items was created to form the final variable of *shyness*.

Results

Missing Data

Thirty-four mothers (31 %) did not complete the age 3 assessment, resulting in 10.91 % missing values across major constructs (inhibited temperament, ETAN, age 2 and age 3 separation anxiety and shyness). These participants did not differ from those who completed the follow-up in terms of inhibited temperament, age 2 separation anxiety or shyness, or maternal ETAN, ts<1.49, ps>0.13. They did, however, report lower SES, M=45.91, SD=14.42, compared to completers, M=52.13, SD=9.51; t[46.31]=−2.30, p=0.026; Cohen's d=0.51. Although toddler gender did not relate to missingness, χ^2[1]=1.73, p=0.188, gender differences did emerge in age 3 separation anxiety, such that girls, M=0.78, SD=0.45, scored higher than boys, M=0.59, SD=0.36; t(74)=−2.12; p=0.037, Cohen's d=0.47. Therefore, both SES and gender were included in subsequent missing data procedures. Missing value analysis suggested that the deviation in the missing data's pattern from that of Missing Completely at Random (MCAR) was not significant, Little's MCAR test: χ^2(23)=19.53, p=0.670. Multiple imputation was used to handle missing data. One participant each was missing age 2 separation anxiety and age 2 shyness. So that longitudinal analyses were based on the relevant age 2 measure (n=109 for each outcome), age 2 values were used as predictors only in the MI algorithm. Following contemporary guidelines (e.g., Graham 2009), the algorithm included age 2 and age 3 values of separation anxiety and shyness, inhibited temperament, gender, SES, linear and quadratic terms of ETAN, and interaction terms between linear and quadratic ETAN terms and inhibited temperament in performing 20 imputations. We report correlations and regression coefficients that were pooled across imputations in a manner that weighted each parameter's contribution by its standard error. Some statistics, including descriptive statistics and regression model statistics (e.g., R^2), are not given a pooled estimate. We report descriptive statistics from the original data. For model information, we followed the recommendation to do analyses with a single imputed data set (J. Graham, personal communication, March 15, 2013). We created an unweighted average (mean) of all imputations of a given variable to get a more accurate estimate.

Preliminary Analyses

Descriptive statistics were computed prior to imputation of missing values (Table 1). All variables demonstrated reasonable adherence to a normal distribution, skew<|2.00|. Bivariate correlations computed with the imputed data set are presented in Table 1. Separation anxiety and shyness were not significantly correlated to each other at either time point. Expectedly, inhibited temperament was associated with age 2

(concurrent) measures of separation anxiety, $r(107)=0.29$, $p=0.002$, and shyness, $r(106)=0.22$, $p=0.024$. Inhibited temperament was not related to age 3 measures. ETAN did not relate to either inhibited temperament or anxiety measures at either time point, but this was not surprising given our hypothesis about a curvilinear relation and does not preclude its potential to interact with temperament in relation to anxiety.

Primary Analyses

Multiple regression analyses using power polynomials were used to examine the interaction between inhibited temperament and the curvilinear effect of maternal ETAN in relation to toddler anxiety outcomes according to current guidelines in the literature (Cohen et al. 2003). In these analyses, ETAN served as the independent variable, inhibited temperament served as the moderator, and toddler anxiety outcomes served as the dependent variables. Inhibited temperament was centered at its mean to aid in interpretation of potential interactions. Given the recommendation that variables not be centered prior to creating quadratic terms and the recent assertion that centering of terms may not have an effect on multicollinearity with interaction terms (Hayes 2013), ETAN was not centered. It was squared to create the quadratic term. Interaction terms (cross-products) were then created between inhibited temperament and both the linear and quadratic terms of ETAN. Given the recommendation that variables related to missingness be included in analyses using imputed data sets (Graham 2009), SES was included as a covariate in the regression analyses. Given its relation to age 3 separation anxiety prior to imputation, gender was included as an additional covariate in the separation anxiety analyses. The age 2 anxiety scale appropriate to the specific outcome was also included as a predictor so that parameters indicated prediction in relation to change in anxiety. Thus, each multiple regression model included relevant covariate(s), the relevant age 2 measure, inhibited temperament, the linear and quadratic effects of ETAN, and the two interaction terms as predictors of the age 3 anxiety scale. Because it was hypothesized that the curvilinear effect of ETAN would be particularly relevant at more extreme levels of inhibited temperament, a significant interaction was probed by recentering inhibited temperament at standard values (−1 SD, mean, +1 SD) as well as +2 SD and examining and graphing the linear and quadratic coefficients. The coefficient attached to the linear term indicates the predominant direction of the trend, and the coefficient attached to the quadratic effect indicates concavity. Together, they represent the effect of ETAN on the relevant outcome at that particular value of inhibited temperament. Squared semi-partial correlations (sr^2) are provided as measures of effect size.

Results of the multiple regression models are reported in Table 2. First, we examined the dependent variable of age 3 separation anxiety. In this model, the interaction between inhibited temperament and the quadratic term of ETAN was significant. Probing revealed that the association between ETAN and change in separation anxiety increasingly conformed to hypotheses as inhibited temperament increased. Specifically, at low (−1 SD) inhibited temperament, ETAN exhibited positive linear, $b=1.72$, $SE=0.67$, $t(100)=2.57$, $p=0.011$, $sr^2=0.063$, and negative (inverted u-shaped) quadratic, $b=-0.37$, $SE=0.13$, $t(100)=-2.97$, $p=0.004$, $sr^2=0.095$, relations to change in separation anxiety. We did not probe at values of inhibited temperament lower than this because we were primarily interested in extremely high levels of inhibited temperament and because the value occurring at 2 SD below the mean was not represented in our data. At mean inhibited temperament, the positive linear effect fell to marginal significance, and the negative (inverted u-shaped) quadratic effect remained significant (Table 1). At moderate-high (+1 SD) inhibited temperament, the linear and quadratic terms were not significant, but they shifted directions from the lower levels of inhibited temperament, with a negative linear term, $b=-0.41$, $SE=0.39$, $t(100)=-1.07$, $p=0.290$, $sr^2=0.020$, and positive quadratic term, $b=0.05$, $SE=0.06$, $t(100)=0.90$, $p=0.373$, $sr^2=0.014$. Finally, at a more extreme high value (+2 SD, represented in the sample) of inhibited temperament, ETAN showed the hypothesized relation to separation anxiety, with a significant negative linear effect, $b=-1.48$, $SE=0.70$, $t(100)=-2.12$, $p=0.038$, $sr^2=0.066$, and, most importantly, a significant and positive (u-shaped) quadratic effect, $b=0.26$, $SE=0.11$, $t(100)=2.50$, $p=0.015$, $sr^2=0.089$. This pattern of simple slopes suggests that the curvilinear relation between maternal encouragement to approach shifts from a negative (inverted U-shape) relation at lower levels of inhibited temperament to the hypothesized positive (U-shape) relation at higher, more extreme, levels of inhibited temperament (Fig. 1). Examination of Fig. 1 suggests that the highest levels of anxiety occurred towards the intrusive end of ETAN. Of note, results for the interaction terms and the quadratic effect of ETAN when inhibited temperament was centered at +2 SD were nearly identical if either the most extreme cases of inhibited temperament or one multivariate outlier identified as having an extreme standardized residual were excluded from analyses.

The regression equation examining age 3 shyness yielded non-significant interactions between inhibited temperament and both the linear and quadratic effects for ETAN (Table 2). After dropping interaction terms, no main effects beyond age 2 shyness emerged as significant.

Discussion

The current study examined maternal encouragement to approach novelty as a dimension ranging from protective to intrusive behaviors, with gentle encouragement in the middle.

Table 2 Summary of multiple regression analyses predicting change in anxiety from age 2 to age 3

	Separation Anxiety R^2=.45; F(8,108)=10.28***				Shyness R^2=.46; F(7,108)=12.42***			
Variable	*b* (*SE*)	*t*-test	*p*-value	sr^2	*b* (*SE*)	*t*-test	*p*-value	sr^2
Intercept	−0.71 (0.56)	−1.28	0.203	–	0.94 (1.24)	0.76	0.448	–
Age 2	0.39 (0.10)	3.81	<0.001	0.112	0.51 (0.11)	4.57	<0.001	0.211
SES	0.01 (0.00)	1.86	0.065	0.038	0.01 (0.01)	1.16	0.252	0.019
Gender	0.13 (0.09)	1.50	0.135	0.022	–	–	–	–
Inhibited temperament	1.57 (0.73)	2.14	0.035	0.051	0.47 (1.59)	0.30	0.768	0.002
ETAN	0.65 (0.37)	1.77	0.080	0.032	−0.06 (0.89)	−0.07	0.943	0.000
ETAN squared	−0.16 (0.07)	−2.28	0.025	0.062	−0.04 (0.18)	−0.20	0.846	0.001
ETAN X temperament	−1.32 (0.50)	−2.65	0.010	0.078	−0.54 (1.09)	−0.50	0.620	0.004
ETAN squared X temperament	0.26 (0.09)	3.11	0.003	0.110	0.14 (0.19)	0.74	0.464	0.010

ETAN Encouragement to approach novelty. Squared terms indicate quadratic effects. sr^2 indicates the squared semi-partial correlation as a measure of effect size. All parameter estimates were pooled estimates from a multiple imputation data file in which each imputation's parameter is weighted by its standard error in contributing to the pooled estimate. Model information comes from a file in which the 20 imputations were averaged

***p<0.001

Examining the interaction between encouragement to approach and inhibited temperament suggested that, for the most inhibited toddlers, this continuum of behavior demonstrated a curvilinear relation to change in toddlers' separation anxiety.

As mothers demonstrated behavior toward either extreme end of this continuum, thus engaging in either more protective or more intrusive behavior, they reported that their toddlers' separation anxiety increased over the following year. This result is consistent with theory and empirical work demonstrating that both protective behaviors and intrusive behaviors maintain and exacerbate children's anxiety over time (Bayer et al. 2006; Chorpita and Barlow 1998; Rubin et al. 2002). Although previous research has suggested this quadratic relation, this is one of the first studies to show this to be the case. Mount and colleagues (2010) demonstrated a similar quadratic relation with their measure of maternal sensitivity. Specifically, toddlers demonstrated the most anxiety when mothers showed either very low or very high levels of sensitivity. Our results help clarify the maternal behaviors occurring specifically while toddlers interact with novelty that relate to anxious outcomes. This may map onto these previous results if encouragement to approach is considered to be the inverse of sensitivity. Specifically, when mothers are low on sensitivity (presently, extremely high on encouragement to approach, or high on intrusiveness) or too high on sensitivity (here, extremely low on encouragement to approach, or protective), their anxiety-prone toddlers display more anxiety over time than if they demonstrate more moderate behaviors. In Mount et al. (2010), the middle of the continuum, which predicted lower anxiety, was average sensitivity. It is also possible that sensitivity and

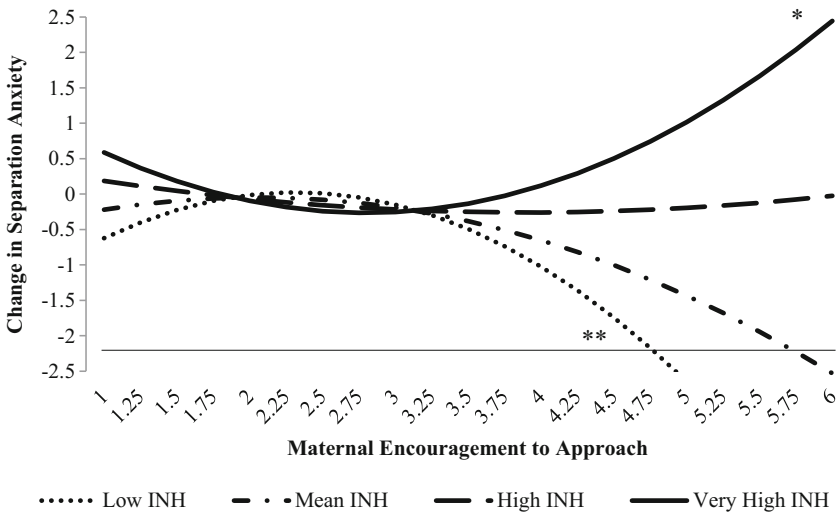

Fig. 1 Interaction between linear and quadratic terms of Maternal Encouragement to Approach Novelty (ETAN) and inhibited temperament (INH). *Asterisks* indicate where quadratic effects reached statistical significance. The coefficient attached to the quadratic effect of ETAN was statistically significant and negative in direction at low (−1 SD) inhibited temperament and statistically significant and positive in direction at very high (+2 SD) inhibited temperament. *p<0.05, **p<0.01

encouragement to approach novelty are orthogonal constructs, both of which demonstrate a curvilinear relation to anxiety development. Perhaps in support of this, for toddlers at the extreme-high end of inhibited temperament, the lowest values of anxiety occurred when mothers showed little behavior at all or gentle encouragement to approach, suggesting that temperamentally inhibited toddlers may show the least increase in risk when mothers refrain from interfering with the situation or very mildly encourage interaction.

An important aspect of the interaction between inhibited temperament and the quadratic effect of encouragement to approach is that this curvilinear relation was only significant for extremely inhibited toddlers. Consistent with other research showing that a smaller group of toddlers designated as inhibited are at most risk for anxiety outcomes (Buss 2011), this may represent a subsample that differs qualitatively in susceptibility to influence from the parenting environment. Given our methodology for assessing inhibited temperament (Risk Room as opposed to patterns of behavior across multiple episodes), extreme-high values were required to evince an effect. For toddlers who were more moderate in inhibition, this dimension of parenting behavior had no effect on change in anxiety, as levels appeared to remain the same. On the other end of the continuum of inhibited temperament (i.e., uninhibited or disinhibited), maternal encouragement to approach had the opposite effect, such that for these toddlers, mothers reported the lowest anxiety for their toddlers when the mothers engaged in more protective or intrusive behavior, and relatively more anxiety (although still low levels) when they engaged in more moderate behaviors. Perhaps uninhibited toddlers derive benefits from mothers taking more control of novel situations. These mothers' protective behaviors may have been characterized by high levels of warmth, which may have augmented the positive nature of the interaction when novelty or uncertainty was not concerning to the child. Intrusive behavior may have been consistent with the child's approach-orientation and so may not deplete her or his ability to cope. Although it is outside the scope of the current study to understand whether these uninhibited toddlers may be demonstrating problematically low levels of anxiety, this would be an interesting future direction with the ETAN dimension.

This demonstrates the well-established concept of goodness of fit (Thomas and Chess 1977) and is consistent with transactional/dual-risk models of development (Belsky and Pluess 2009), although we acknowledge we did not test reciprocal relations over time. Perhaps a future area of research with the ETAN dimension will be to test whether they function in a manner consistent with more complex theories of development, such as differential susceptibility (Belsky and Pluess 2009) and biological sensitivity to context (Boyce and Ellis 2005). Although our current results are consistent with the notion that inhibited children are vulnerable to experiencing the most negative effects of adverse parenting, we did not test whether they would experience the greatest benefit from optimal parenting. Examining positive outcomes, such as prosocial behavior and engagement with the environment would be essential to test this explicitly.

If the term, maternal sensitivity, really denotes that positive outcomes would be expected to result for the child, our results show that what is sensitive for a non-inhibited toddler is not the same as what is sensitive for an inhibited toddler. Therefore, we would suggest that the literature more precisely define the specific parental behaviors under examination, rather than using the blanket term of sensitivity, particularly when examining the outcomes of traits such as fearfulness and inhibition. In fact, for uninhibited or disinhibited children, the graphical representation of this interaction suggests that they experience the least anxiety when mothers are more intrusive.

Variance in change in anxiety was seen across levels of inhibited temperament at very low and very high levels of encouragement to approach, with similar scores occurring at the middle of the continuum. Although the significant quadratic effect suggests that both extreme ends are important to consider, it may be meaningful that variance was more pronounced at the intrusive than the protective end. No studies to our knowledge have explicitly tested the difference in the strength of effects between intrusive and protective behavior in relation to anxiety-spectrum outcomes. For the development of the most effective parent-focused prevention and intervention strategies, it would be useful for further research to determine whether either of these parenting behaviors emerges as the stronger predictor of future anxiety.

It was surprising that our hypothesized interaction did not also occur for shyness, as this type of social withdrawal and its frequent clinical consequence, social anxiety, are specifically linked to inhibited temperament (Biederman et al. 2001; Schwartz et al. 1999; Rubin et al. 2009). Notably, inhibited temperament related to shyness at a bivariate level, and most effects in the polynomial regressions did appear to be in the same direction as for separation anxiety, although of lower magnitude. Some of the work linking inhibited temperament to shyness/social inhibition and Social Anxiety Disorder has employed an extreme groups approach, oversampling more extremely inhibited infants and toddlers to compare to their uninhibited counterparts (Biederman et al. 2001; Schwartz et al. 1999). Oversampling the extremes may provide more statistical power for detecting interactions (Cohen et al. 2003), so perhaps this played a role in our inability to find a significant result. In that case, it would be useful to attempt to replicate these analyses with a selected sample. This did not impair our ability to find this interaction for separation anxiety, however, so other factors likely played a role as well. Another possibility is that the current sample was not old enough to see the fullest effects on shyness. Given that social anxiety tends to be stronger in older children and adolescence, there may not have been enough variance in change in shyness in this age group to detect an effect.

These results have implications for anxiety prevention and intervention efforts that involve parents. Specifically, efforts to change parenting behavior should be tailored to the specific end of the ETAN dimension that parents exhibit. More intrusive parents may need to limit their interactions when their inhibited or anxious children face novelty, while more protective parents may need to increase their encouragement. Efforts to increase encouragement to approach an anxiety-provoking situation in the latter group of parents have already been shown to be successful in the context of cognitive-behavioral therapy for anxious youth (Silk et al. 2013), suggesting this is a promising area of focus for parent involvement. Investigating individual differences in the ETAN dimension and how they can be used to individualize parent-involvement is an important future step for prevention and intervention research.

The results of the current study should be interpreted within the context of several limitations. For example, although we consider it a strength that maternal encouragement to approach was observed across two contexts, these were still brief interactions that occurred in a laboratory setting, which may limit generalizability to parenting observed in typical day-to-day interactions. Relatedly, we were specifically interested in examples of maternal intrusiveness that fit in the continuum of encouragement to approach novelty. Intrusiveness may be demonstrated in other ways, such as taking over tasks that do not involve novelty (see Gaertner et al. 2008; Rubin et al. 2002), and the current results may not generalize to these behaviors. We relied on maternal report for anxiety outcome measures. No other constructs relied on maternal report, so shared method variance should not be a concern, but mothers' behaviors may be linked to their perceptions of their children's anxious behaviors (Rubin et al. 1999). Therefore, assessing children's anxiety from another source may be beneficial to bolster the current findings. Also, given that we focused on a community sample, it would also be beneficial to examine the ETAN dimension and its relation to child anxiety in clinically anxious mothers to determine if any differences exist.

Although we intentionally focused on mothers, it will also be important to understand how ETAN functions with fathers. Fathers may emphasize independence and challenge their children more than mothers (B gels and Phares 2008), and they have been shown to display more overcontrol (completing a task, directing child actions) than mothers during more neutral parent–child interactions (Teetsel et al. 2014). Finally, this initial work on understanding the ETAN dimension focused on establishing it as a meaningful way to conceptualize certain parenting behaviors with inhibited toddlers. It will be an important next step to more thoroughly examine a broader range of its psychometric properties in larger samples. Examination in a larger sample will also help establish the stability and robustness of the curvilinear relation.

In conclusion, results from the current study suggest that more inhibited toddlers may be less prone to separation anxiety outcomes when mothers allow them autonomy and provide gentle encouragement in novel situations. The interplay between inhibited toddlers and their parents is complex; curvilinear effects of parenting capture one aspect of this complexity, and future research should continue to delineate a nuanced understanding of these processes.

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Conflict of interest None

References

Angold, A., Costello, E. J., Farmer, E. M. Z., Burns, B. J., & Erkanli, A. (1999). Impaired but undiagnosed. *Journal of the American Academy of Child and Adolescent Psychiatry, 38*, 129–137.

Arcus, D. (2001). Inhibited and uninhibited children: Biology in the social context. In T. D. Wachs & G. A. Kohnstamm (Eds.), *Temperament in context* (pp. 43–60). Mahweh: Lawrence Erlbaum Associates.

Bayer, J. K., Sanson, A. V., & Hemphill, S. A. (2006). Parent influences on early childhood internalizing difficulties. *Journal of Applied Developmental Psychology, 27*, 542–559.

Belsky, J., & Pluess, M. (2009). Beyond diathesis stress: differential susceptibility to environmental influences. *Psychological Bulletin, 135*, 885–908.

Biederman, J., Hirshfeld-Becker, D. R., Rosenbaum, J. F., Hérot, C., Friedman, D., Snidman, N., & Faraone, S. V. (2001). Further evidence of association between behavioral inhibition and social anxiety in children. *American Journal of Psychiatry, 158*, 1673–1679.

B gels, S., & Phares, V. (2008). Fathers' role in the etiology, prevention and treatment of child anxiety: a review and new model. *Clinical Psychology Review, 28*, 539–558.

Bollen, K., & Lennox, R. (1991). Conventional wisdom on measurement: a structural equation perspective. *Psychological Bulletin, 110*, 305–314.

Boyce, W. T., & Ellis, B. J. (2005). Biological sensitivity to context I: an evolutionary-developmental theory of the origins and functions of stress reactivity. *Development and Psychopathology, 17*, 271–301.

Broeren, S., Muris, P., Diamantopoulou, S., & Baker, J. R. (2013). The course of childhood anxiety symptoms: developmental trajectories and child-related factors in normal children. *Journal of Abnormal Child Psychology, 41*, 81–95.

Buss, K. A. (2011). Which fearful toddlers should we worry about? Context, fear regulation, and anxiety risk. *Developmental Psychology, 47*, 804.

Carter, A. S., & Briggs-Gowan, M. (2000). *The infant-toddler social and emotional assessment (ITSEA)*. Unpublished manual. University of Massachusetts Boston Department of Psychology, Boston, MA. Yale University, New Haven, CT.

Carter, A. S., Briggs-Gowan, M. J., Jones, S. M., & Little, T. D. (2003). The infant-toddler social and emotional assessment (ITSEA): factor structure, reliability, and validity. *Journal of Abnormal Child Psychology, 31*, 495–514.

Chorpita, B. F., & Barlow, D. H. (1998). The development of anxiety: the role of control in the early environment. *Psychological Bulletin, 124*, 3.

Chorpita, B. F., Brown, T. A., & Barlow, D. H. (1998). Perceived control as a mediator of family environment in etiological models of childhood anxiety. *Behavior Therapy, 29*, 457–476.

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). New York: Routledge.

Coplan, R. J., Prakash, K., O'Neil, K., & Armer, M. (2004). Do you" want" to play? Distinguishing between conflicted shyness and social disinterest in early childhood. *Developmental Psychology, 40*, 244.

Degnan, K. A., & Fox, N. A. (2007). Behavioral inhibition and anxiety disorders: multiple levels of a resilience process. *Development and Psychopathology, 19*, 729–746.

Denham, S. A., McKinley, M., Couchoud, E. A., & Holt, R. (1990). Emotional and behavioral predictors of preschool peer ratings. *Child Development, 61*, 1145–1152.

Dubi, K., Rapee, R. M., Emerton, J. L., & Schniering, C. A. (2008). Maternal modeling and the acquisition of fear and avoidance in toddlers: influence of stimulus preparedness and child temperament. *Journal of Abnormal Child Psychology, 36*, 499–512.

Early, D. M., Rimm-Kaufman, S. E., Cox, M. J., Saluja, G., Pianta, R. C., Bradley, R. H., & Payne, C. C. (2002). Maternal sensitivity and child wariness in the transition to kindergarten. *Parenting Science and Practice, 2*, 355–377.

Edwards, S. L., Rapee, R. M., & Kennedy, S. (2010). Prediction of anxiety symptoms in preschool-aged children: examination of maternal and paternal perspectives. *Journal of Child Psychology and Psychiatry, 51*, 313–321.

Ferdinand, R., Bongers, I. L., van der Ende, J., van Gastel, W., Tick, N., Utens, E., & Verhulst, F. C. (2006). Distinctions between separation anxiety and social anxiety in children and adolescents. *Behaviour Research and Therapy, 44*, 1523–1535.

Gaertner, B. M., Spinrad, T. L., & Eisenberg, N. (2008). Focused attention in toddlers: Measurement, stability, and relations to negative emotion and parenting. *Infant and Child Development, 17*, 339–363.

Gerull, F. C., & Rapee, R. M. (2002). Mother knows best: effects of maternal modeling on the acquisition of fear and avoidance behavior in toddlers. *Behaviour Research and Therapy, 40*, 279–287.

Graham, J. W. (2009). Missing data analysis: making it work in the real world. *Annual Review of Psychology, 60*, 549–576.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis*. New York: The Guilford Press.

Hirshfeld-Becker, D. R., & Biederman, J. (2002). Rationale and principles for early intervention with young children at risk for anxiety disorders. *Clinical Child and Family Psychology Review, 5*, 161–172.

Hollingshead, A. B. (1975). *Four factor index of social status*. Unpublished manuscript, Department of Sociology, Yale University, New Haven, Connecticut.

Hudson, J. L., & Rapee, R. M. (2001). Parent–child interactions and anxiety disorders: an observational study. *Behaviour Research and Therapy, 39*, 1411–1427.

Kagan, J., Snidman, N., Arcus, D., & Reznick, J. S. (1994). *Galen's prophecy: Temperament in human nature*. Basic Books.

Kearney, C. A., Sims, K. E., Pursell, C. R., & Tillotson, C. A. (2003). Separation anxiety disorder in young children: a longitudinal and family analysis. *Journal of Clinical Child and Adolescent Psychology, 32*, 593–598.

Kiel, E. J., & Buss, K. A. (2010). Maternal accuracy and behavior in anticipating children's responses to novelty: relations to fearful temperament and implications for anxiety development. *Social Development, 19*, 304–325.

Kiel, E. J., & Buss, K. A. (2011). Prospective relations among fearful temperament, protective parenting, and social withdrawal: the role of maternal accuracy in a moderated mediation framework. *Journal of Abnormal Child Psychology, 39*, 953–966.

Kiel, E. J., & Buss, K. A. (2012). Associations among context-specific maternal protective behavior, toddlers' fearful temperament, and maternal accuracy and goals. *Social Development, 21*, 742–760.

Kiel, E. J., & Buss, K. A. (2014). Dysregulated fear in toddlerhood predicts kindergarten social withdrawal through protective parenting. *Infant and Child Development, 23*, 304–313.

Lewis-Morrarty, E., Degnan, K. A., Chronis-Tuscano, A., Rubin, K. H., Cheah, C. S. L., Pine, D. S., & Fox, N. A. (2012). Maternal over-control moderates the association between early childhood behavioral inhibition and adolescent social anxiety symptoms. *Journal of Abnormal Child Psychology, 40*, 1363–1373.

MacDonald, K., & Parke, R. D. (1984). Bridging the gap: parent-child play interaction and peer interactive competence. *Child Development, 55*, 1265–1277.

Mount, K. S., Crockenberg, S. C., Jó, P. S. B., & Wagar, J. L. (2010). Maternal and child correlates of anxiety in 2½-year-old children. *Infant Behavior and Development, 33*, 567–578.

Murray, L., de Rosnay, M., Pearson, J., Bergeron, C., Schofield, E., Royal-Lawson, M., & Cooper, P. J. (2008). Intergenerational transmission of maternal social anxiety: the role of social referencing processes. *Child Development, 79*, 1049–1064.

Nachmias, M., Gunnar, M., Mangelsdorf, S., Parritz, R. H., & Buss, K. (1996). Behavioral inhibition and stress reactivity: the moderating role of attachment security. *Child Development, 67*, 508–522.

Ollendick, T. H., & Hirshfeld-Becker, D. R. (2002). The developmental psychopathology of social anxiety disorder. *Biological Psychiatry, 51*, 44–58.

Otto, M. W., Pollack, M. H., Maki, K. M., Gould, R. A., Worthington, J. J., Smoller, J. W., & Rosenbaum, J. F. (2001). Childhood history of anxiety disorders among adults with social phobia: rates, correlates, and comparisons with panic disorder. *Depression and Anxiety, 14*, 209–213.

Park, S. Y., Belsky, J., Putnam, S., & Crnic, K. (1997). Infant emotionality, parenting, and 3-year inhibition: exploring stability and lawful discontinuity in a male sample. *Developmental Psychology, 33*, 218.

Paulus, F. W., Backes, A., Sander, C. S., Weber, M., & von Gontard, A. (2015). Anxiety disorders and behavioral inhibition in preschool children: a population-based study. *Child Psychiatry and Human Development, 46*, 150–157.

Rapee, R. M., Kennedy, S., Ingram, M., Edwards, S., & Sweeney, L. (2005). Prevention and early intervention of anxiety disorders in inhibited preschool children. *Journal of Counseling and Clinical Psychology, 73*, 488–497.

Rothbart, M. K. (1989). Temperament and development. In G. A. Kohnstamm & J. E. Bates (Eds.), *Temperament in childhood* (pp. 187–247). Oxford: Wiley.

Rubin, K. H., & Burgess, K. B. (2002). Parents of aggressive and withdrawn children. *Handbook of Parenting, 1*, 383–418.

Rubin, K. H., Hastings, P. D., Stewart, S. L., Henderson, H. A., & Chen, X. (1997). The consistency and concomitants of inhibition: some of the children, all of the time. *Child Development, 68*, 467–483.

Rubin, K. H., Nelson, L. J., Hastings, P., & Asendorpf, J. (1999). The transaction between parents' perceptions of their children's shyness and their parenting styles. *International Journal of Behavioral Development, 23*, 937–957.

Rubin, K. H., Burgess, K. B., & Hastings, P. D. (2002). Stability and social-behavioral consequences of toddlers' inhibited temperament and parenting behaviors. *Child Development, 73*, 483–495.

Rubin, K. H., Coplan, R. J., & Bowker, J. C. (2009). Social withdrawal in childhood. *Annual Review of Psychology, 60*, 141.

Schwartz, C. E., Snidman, N., & Kagan, J. (1999). Adolescent social anxiety as an outcome of inhibited temperament in childhood. *Journal of the American Academy of Child and Adolescent Psychiatry, 38*, 1008–1015.

Schwartz, C. E., Wright, C. I., Shin, L. M., Kagan, J., & Rauch, S. L. (2003). Inhibited and uninhibited infants "grown up": adult amygdalar response to novelty. *Science, 300*, 1952–1953.

Silk, J. S., Siegle, G. J., Lee, K. H., Nelson, E. E., Stroud, L. R., & Dahl, R. E. (2013). Increased neural response to peer rejection associated with adolescent depression and pubertal development. *Social Cognitive and Affective Neuroscience, 9*, 1798–1807.

Teetsel, R. N., Ginsburg, G. S., & Drake, K. L. (2014). Anxiety-promoting parenting behaviors: a comparison of anxious mothers and fathers. *Child Psychiatry and Human Development, 45*, 133–142.

Thomas, A., & Chess, S. (1977). *Temperament and development*. Brunner/Mazel.

van der Bruggen, C. O., Stams, G. J. J., Bögels, S. M., & Paulussen-Hoogeboom, M. C. (2010). Parenting behaviour as a mediator between young children's negative emotionality and their anxiety/depression. *Infant and Child Development, 19*, 354–365.

Whaley, S. E., Pinto, A., & Sigman, M. (1999). Characterizing interactions between anxious mothers and their children. *Journal of Consulting and Clinical Psychology, 67*, 826.