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Research has demonstrated a relation between the social fear aspect of temperament and the development of behavioral withdrawal. However, discontinuity in this pathway exists, indicating that different factors must influence the extent of the effect of this relationship. Maternal behaviors such as warmth and positivity may buffer against the risk of becoming socially withdrawn in middle childhood, and sex may affect the way a caregiver responds to a child when distressed, through differing processes of emotion socialization. The primary goal of the proposed study was to investigate the influence of social fear, maternal warmth, and the sex of the child on the development of childhood behavioral withdrawal. The proposed study examined the effects of social fear at age 2 on behavioral withdrawal at age 7, and specifically assessed the moderating effect of maternal warmth and positivity at age 4 and the sex of the child on this relation. Mother report of social fear, teacher report of withdrawal, and observed maternal warmth during mother-child interaction tasks were utilized in this study. A significant three-way interaction between sex, fear, and warmth was found, upon probing, the interaction was only significant for boys. Further, among boys, the interaction was not significant at low levels of maternal warmth, but achieved trend level significance at high levels of maternal warmth. The implications of these results for the understanding of how behavioral withdrawal develops are discussed.

THE EFFECTS OF SOCIAL FEAR, MATERNAL WARMTH, AND BIOLOGICAL
SEX ON THE DEVELOPMENT OF SOCIAL WITHDRAWAL IN
MIDDLE CHILDHOOD

by

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CHAPTER I

INTRODUCTION

Social Withdrawal

The principle of equifinality in developmental psychopathology suggests that there are multiple pathways that may predict to the same outcome, but these pathways differ by the presence and timing of varying risk and resilience factors (Gazelle & Rubin, 2010). Therefore, children who carry risk for a particular outcome may or may not develop the specified behavior, depending on the existence of other personal characteristics and environmental factors, and when these factors emerge (Gazelle & Rubin, 2010). The outcome considered in the current study is social withdrawal. Children who withdraw from peers are limited in their social opportunities for developing positive peer relationships and social skills, which consequently puts them at greater risk for experiencing anxiety later in childhood (Rubin, Burgess, Kennedy, & Stewart, 2003). Learning how to appropriately engage in social interactions with peers is a process that develops over time through reinforcement and punishment of behavior, but not all children successfully gain the capacity to effectively interact with others. This can result in less adaptive outcomes for the child over time, including the development of social withdrawal. Research has indicated that there are certain characteristics that may increase the risk of developing heightened levels of social withdrawal in middle childhood, including temperamental and parenting factors (Rubin & Burgess, 2001; Rubin, Burgess,

& Hastings, 2002; Rubin, Coplan, & Bowker, 2009), as well as possible protective factors, such as a warm and positive maternal caregiver (Derryberry & Rothbart, 1997; Gazelle & Spangler, 2007). Further, Eisenberg, Cumberland, and Spinrad (1998) have described the different emotion socialization process that occurs for boys versus girls, indicating that sex may affect the frequency and comfort experienced by the child during social interaction. The current project will attempt to demonstrate one possible route to the display of behavioral withdrawal in middle childhood by considering the relevance of dispositional, biological, and parental factors at different stages of development.

Definitions in the literature.

Most simply defined, the socially withdrawn child “interacts with peers at a less than normal rate” or, is “rated to spend more than an average amount of time alone” (Rubin et al., 2003). The solitary behavior of children has been defined in many different ways in the literature, and although some definitions have been linked to less desired outcomes, including peer victimization and the development of internalizing symptoms (Rubin, Coplan, & Bowker, 2009; Rubin & Burgess, 2001), not all have been shown to contribute to maladjustment. One example of this type of withdrawal is “solitary-passive” play, a behavior in which children demonstrate a limited interest in initiating social interaction with peers, also referred to as a low approach motive. “Solitary-passive” children possess a similarly low avoidance motive, which suggests that the child is not actively avoiding others as a result of anxiety or fear (Rubin et al., 2003; Asendorpf, 1993). Coplan, Prakash, O’Neil, & Armer (2004) showed that children categorized as “unsociable” lacked a preference to initiate play with others, and although they were

rated as more withdrawn by their teachers, they were not rated as more anxious, indicating that this behavior may be less associated with an increase in internalizing symptoms than other types of withdrawn behavior, which may lack this socially disinterested component.

The type of social withdrawal that has garnered significant attention from researchers is withdrawn behavior that appears to stem from overwhelming feelings of worry, anxiety, or fear, which prevent the initiation of social interaction as a result. For example, the term social reticence describes children who hover near social situations, but may feel too overwhelmed to engage with others in play, and “anxious-solitude” describes inhibited social behavior that takes place with familiar peers (Rubin, Coplan, & Bowker, 2009; Rubin & Burgess, 2001). Shyness is another commonly used term that is similar to social withdrawal, but shyness also assumes internalized feelings of worry or self-consciousness in the context of perceived evaluation during social interaction (Asendorpf, 1993). Children who want to engage with others but become overwhelmed are more likely to experience poor outcomes, as they may feel that they are missing out on experiences that they wish to have, as compared to unsociable children, who lack this interest (Coplan, Prakash, O’Neil, & Armer, 2004). Additionally, social withdrawal is different from rejection, which is the exclusion of the child by the peer group. Social withdrawal refers specifically to the process by which the child purposefully isolates himself or herself from the peer group (Rubin, Coplan, & Bowker, 2009; Rubin & Coplan, 2004; Rubin & Burgess, 2001). Overall, social withdrawal has been defined by Rubin and Coplan (2004) as an umbrella term for solitary behavior, which occurs for

different reasons among children. This study drew on literature that utilized the term social withdrawal as well as any terms that fall under the umbrella of social withdrawal which also include an underlying sense of anxiety, self-consciousness, or fear in the explanation of the behavior. This was done in order to place an emphasis on factors that may exacerbate or mitigate the risk for socially withdrawn behaviors, which are more likely to be associated with later risk for internalizing symptoms.

Risks associated with social withdrawal in childhood.

Social withdrawal has been shown to be a risk factor for the later development of internalizing symptoms, peer rejection, and loneliness (Ladd, 2006; Rubin, Coplan, & Bowker, 2009; Coplan & Weeks, 2010; Rubin, Root, & Bowker, 2010). Peer interaction is a necessary component in the development of social cognition, competent social behavior, and perspective taking. Social withdrawal interferes with this normative developmental process, and leads to deficits in social skills that ultimately reinforce withdrawn behavior, increase fear in social situations, and potentially lead to negative self-esteem (Rubin & Burgess, 2001). Socially withdrawn children are also more likely to be victimized, which has been shown to lead to anxiety both concurrently and over time (La Greca & Harrison, 2005; Vernberg, Abwender, Ewell, & Beery, 1992). In addition, peer and teacher reports of social withdrawal have been linked to low self-esteem, negative self-perceptions of social competence, and anxiety in middle and late childhood (Oh et al., 2008). Despite this evidence for poor socioemotional outcomes, Rubin, Wojslawowicz, Rose-Krasnor, Booth-LaForce, & Burgess (2006) have shown that even among shy/socially withdrawn children, 65% of ten year olds reported a mutual best

friendship that lasted over the academic year, indicating that many withdrawn children are socially skilled enough to create friendships. Unfortunately, although these children were just as likely as non-withdrawn children to have a mutual best friendship, the peer in these friendship dyads was more likely to have fewer social competencies than the friends of non-withdrawn children. Therefore, these relationships may not result in social training for the withdrawn child and consequently may not buffer against future withdrawn behavior from the peer group.

Developmental considerations.

The principle of equifinality in developmental psychopathology suggests that diverse pathways of differing risk factors which onset at different times may ultimately lead to the same outcome (Gazelle & Rubin, 2010). Specific child characteristics may interact with environmental factors at particular developmental stages, and this combination of variables may ultimately increase or decrease the likelihood of the emergence of a particular outcome. Additionally, developmental psychopathology indicates that certain behaviors may be developmentally appropriate at one age, but problematic at an earlier or later age. For example, social withdrawal on its own is not a psychological disorder, but it has been shown to reflect underlying emotional difficulties for some children (Rubin & Burgess, 2001), and the existence or type of difficulty may partially depend on the developmental stage of the child. The display of some social wariness is typical among young children, but social withdrawal becomes increasingly noticeable and viewed as non-normative as children move through middle and late childhood (Younger, Schwartzman, & Ledingham, 1985; Younger & Boyko, 1987). In

fact, social withdrawal is not necessarily noted by the peer group as unusual until around fourth grade (Younger, Schwartzman, & Ledingham, 1985), and therefore social wariness may not be associated with peer maladjustment until later elementary school. However, since socially withdrawn behavior has been linked to maladaptive social outcomes and develops over time, the elucidation of how children become socially withdrawn requires an evaluation of risk factors and protective factors that onset earlier in life.

Research has indicated that there are certain individual characteristics that may increase the risk of developing heightened levels of behavioral withdrawal in middle childhood, including temperamental factors (Rubin & Burgess, 2001; Rubin, Burgess, & Hastings, 2002; Rubin, Coplan, & Bowker, 2009). For example, children with a fearful temperamental style may attend to negative information more than neutral or positive information in different social situations, potentially leading to learned negative expectations for social interactions, and ultimately increasing the frequency of withdrawn behavior (Rothbart, 2011). Temperamentally fearful children may show failures in adaptation during important milestones in development, such as the transition to kindergarten, which could lead to later challenges as social interactions become more frightening and the chances for positive social interactions decrease (Sroufe and Rutter, 1984). However, early wariness does not necessarily indicate that the child will always display withdrawn behavior. Ladd (2006) found that the stability coefficients of withdrawn behavior were low to moderate when assessed annually in the early grades (kindergarten through second grade), but became stronger thereafter (third through sixth grade), suggesting that withdrawal may have greater malleability earlier in childhood,

and that buffering factors may exert greater influence during early childhood than later in childhood. In support of this hypothesis, it has been thought that inhibited children who are given opportunities for additional peer interactions early on in life, such as through day care experiences, may be better able to strengthen their social approach strategies, thus buffering against the potential for the later development of increased withdrawn behavior (Degnan, Almas, & Fox, 2010). In addition, one recent study showed that exclusion rates among solitary-anxious withdrawn children fell over the course of the school year in 3rd through 5th grade classrooms categorized as moderately or highly emotionally supportive (Avant, Gazelle, & Faldowski, 2011), indicating that changes in withdrawn behavior may rely on the timing of potential buffering factors. It is possible that in addition to a supportive academic environment in early elementary school, the timing of a supportive parent may also uniquely affect the risk for the development of withdrawn behavior. Eggum and colleagues (2009) have shown that sensitive parenting and the sex of the child moderated the relation between 18-month fear and 20-month shyness, and Hane, Cheah, Rubin, and Fox (2008) found that maternal negativity moderated the relation between 4 year social reticence and 7 year social withdrawal. Therefore, the timing of the onset of both risk and resilience factors may affect the course of an individual child towards the development of social withdrawal.

An additional characteristic specific to the child that should be considered when examining how social withdrawal develops is the child's identified sex. Eisenberg, Cumberland, and Spinrad (1998) have described the different emotion socialization processes that occur for boys versus girls, indicating that sex may influence how

comfortable and confident a child feels during social interaction. The process of emotion socialization differs for boys and girls as a function of differential parental reactions to emotion for sons as compared to daughters, in which parents are more likely to engage in conversations about feelings with their daughters, and are more likely to be dismissive or punitive with their sons when they express sadness or fear (Eisenberg, Cumberland, & Spinrad, 1998). Therefore, girls may have greater exposure to the practice of evaluating and coping with undesired emotions, as compared to boys, and this difference in opportunity may lead to a difference in ability to cope with stress, fear, or sadness, which could affect the quality of future interactions with peers. Although behavioral withdrawal has been reported in the literature to be approximately equally distributed across boys and girls, withdrawal may carry greater risks for boys than for girls, including increased loneliness, depression, and lower self-reported self esteem (Rubin, Coplan, & Bowker, 2009; Doey, Coplan, & Kingsbury, 2014; Coplan & Weeks, 2010; Rubin & Barstead, 2014). Investigating differences in the development of social withdrawal for boys and girls may help contribute to prevention efforts in limiting withdrawn behavior among children, particularly among boys, who may be at greater risk for detrimental internalizing outcomes later in childhood. Ultimately, this study will examine a possible way to social withdrawal that considers fearful temperament, sex, and warm parenting behaviors, in order to evaluate how these factors may buffer against or exacerbate the risk for becoming withdrawn.

Behavioral Inhibition

Characteristics specific to the child that are demonstrated early in life may set the stage for the development of withdrawal, and a fearful temperament is one characteristic that has been associated with later withdrawn behavior. According to Rothbart's (2011) model, temperament is comprised of individual constitutional differences in reactivity and self-regulation styles. Reactivity refers to the speed, intensity, and duration with which emotions, motor activity, and attention are activated and endured upon introduction to an arousing event (Rothbart, 2011). The process of regulating emotions involves engaging in any strategy or behavior that inhibits, manages, or enhances an emotional event (Calkins & Marcovitch, 2010). As an individual moves from infancy to childhood, the ability to regulate behavior changes from being primarily driven by the caregiver to a self-initiated process of effortful control (Calkins & Fox, 2002). Therefore, the regulation of emotions may play an increasingly important role as a child gains more independence and must manage stimulating events without parental assistance. One temperamental categorization that is defined by the presence of heightened fearfulness is behavioral inhibition (BI). Although BI is reported to be displayed by 15-20% of children, it is considered to be a significant predictor of childhood anxiety (Fox et al., 2005). In addition, Garcia-Cole, Kagan, and Reznick (1984) note that toddlers described as behaviorally inhibited exhibit consistent apprehension, negative affect, and withdrawal in response to unfamiliar situations, people, and objects, and that these responses remain moderately stable over time. BI toddlers may cling to their mothers in the face of novel situations, show decreased smiling and vocalization, and act reluctant to approach new

objects. Toddlers who are classified as behaviorally inhibited also exhibit heightened heart rate and low vagal tone, which marks both general reactivity and the inability to self-regulate arousal (Garcia-Coll, Kagan, and Reznick, 1984; Rubin, 2003). Behaviorally inhibited children avoid frightening stimuli as a coping strategy in order to decrease the fearful response, thereby reinforcing avoidance behavior and strengthening the relationship between the stimuli and the aversive physiological responses, ultimately maintaining the child's inhibited behavior and wariness to novel social situations (Fox, Henderson, Marshall, Nichols, & Ghera, 2005). Over time, this conditioned behavior may lead to impairment in functioning with peers and at school, as fearful children may control their approach behavior to such a degree that social interactions could become very challenging, limiting the opportunities to develop coping skills as well as social skills (Derryberry, & Rothbart, 1997). Degnan and colleagues (2014) demonstrated that behavioral inhibition at 24 and 36 months significantly predicted membership to the high stable social reticence trajectory as well as to the high decreasing social reticence trajectory among children assessed at 24, 36, 48, and 60 months. This indicates that temperament is malleable and that an individual's temperamental style may evolve over time in reaction to personal experience or maturation (Nigg, 2006).

The literature on social withdrawal indicates that withdrawn behavior is a relatively common outcome of behavioral inhibition. The traditional paradigm used to assess behavioral inhibition, described originally by Kagan, Reznick, and Snidman (1987), involves a series of laboratory tasks in which a toddler is confronted with unfamiliar toys and people, both in the presence and absence of the primary caregiver.

However, only a small portion of the literature has examined the specific contributions of early object fear as compared to social fear in the prediction of social withdrawal.

Research using behavioral inhibition as a unified temperamental construct of fear of novel objects, situations, and people may not adequately reflect social fear, which could play a specific role in the development of social withdrawal.

Social Fear

Although BI was originally defined as wariness towards both novel objects and social situations, Rubin, Hastings, Stewart, Henderson, and Chen (1997) have shown that fear towards novel objects and fear towards unfamiliar individuals are not significantly correlated in toddlers. Specifically, of the 39 children who showed high levels of BI in this study, only 12 children displayed high BI during both the traditional paradigm assessment and during the assessment of inhibition with peers. Inhibited behaviors displayed with unfamiliar objects and with unfamiliar adults were both significantly, although only moderately, correlated with inhibition displayed with peers. It is possible that behavioral inhibition exhibited specifically with peers may be the better predictor of later social withdrawal, as compared to inhibition towards objects or unfamiliar adults (Rubin et al., 1997). Further, Kochanska and Radke-Yarrow (1992) found that inhibition with unfamiliar peers among toddlers predicted higher score on the Shyness pattern at age 5, but inhibition with novel objects was not associated with later shyness. Inhibition with peers may also vary depending on the child's comfort with familiar children as compared to unfamiliar peers. Gazelle and Faldowski (2014) demonstrated that only 3% of 82 toddlers were inhibited with both familiar and unfamiliar peers, 18% were fearful

with familiar peers only, and 10% displayed fear only with unfamiliar peers, indicating that these may be distinct types of children who are at risk for different social outcomes.

In light of the work by Rubin and colleagues (1997), it would be beneficial to specifically consider social fearfulness when attempting to understand a route from fear to later social withdrawal, as a fearful reaction to novel social experiences may be more likely to lead to increased withdrawn behavior, as compared to a fearful reaction tendency towards novel objects. Recently, assessment of social fearfulness with unfamiliar adults and peers via maternal report has been used in addition to the traditional lab paradigm to create a BI composite (Lewis-Moriarty et al., 2012; Walker, Henderson, Degnan, Penela, & Fox, 2014; Lahat et al., 2014), indicating an acknowledgement of the relevance of social fear in the overall BI construct. Ultimately, social fear is a component of BI that describes a pattern of fearful reactivity towards people, leading to a tendency to hide or avoid others as a result of difficulty regulating this fear. Socially fearful children especially may have challenges initiating and engaging in play with others, and as the child learns to avoid frightening situations in order to decrease feelings of fear and worry, there may be increasingly fewer opportunities to develop effective coping skills during social situations, thus increasing the risk for the development of withdrawal. Therefore, it is this individual affective tendency to be inhibited around others that places children at greater risk for becoming social withdrawn than non-socially fearful children. This study will examine social fear toward both adults and children as a predictor for later social withdrawal.

The Role of Sex Differences

Another characteristic specific to the child that affects the development of social withdrawal is the child's assigned sex, as it has been shown that adults treat young boys and girls in different ways. Literature on emotion socialization has shown that mothers are more likely to respond with encouragement to girls when they express fear, shyness, or sadness, whereas boys are more likely to be discouraged or punished by parents for expressing these feelings (see reviews by Doey, Coplan & Kingsbury, 2014; Eisenberg, Cumberland, & Spinrad, 1998). Therefore, the protective role of maternal warmth in predicting social withdrawal may operate differently for boys as compared to girls. Both mothers and fathers have been shown to have more frequent conversations about negative emotions and use more emotion words when discussing negative events with daughters than with sons (Garner, Robertson, Smith, 1997; Fivush, Brotman, Buckner, & Goodman, 2000; Zahn-Waxler, Rideway, Denham, Usher, & Cole, 1993), and both parents have been shown to respond more negatively to shy behavior and negative emotions displayed by boys than by girls (Eggum, et al., 2009; Garside & Klimes-Dougan, 2002). Teachers of toddlers and preschoolers have also been shown to respond with greater indifference to negative emotions in young boys as compared to girls, and provide more physical comfort and distraction with girls (Ahn & Stifter, 2010). However, teachers also responded with constructive ways to express negative emotion more often for boys than for girls (Ahn & Stifter, 2010). Since boys were more likely to express anger than girls, and girls were more likely to express sadness (Ahn & Stifter, 2010), teachers of young children may feel a more urgent need to resolve anger in the classroom by providing an

alternative way to respond, rather than encouraging the child to elaborate on those feelings. Overall, the literature indicates that parents are more likely to respond supportively to negative emotion reactions from girls than from boys, by encouraging discussion of the emotion or not minimizing or chastising the child for the emotional display. As a result, girls may have a greater number of opportunities to develop the ability to cope with distress through warm and sensitive responding from adults. Additionally, since both mothers and fathers use a greater number of emotion words when speaking with daughters about sad events, as compared to sons (Fivush, et al., 2000), it is possible that both the frequency and quality of conversations about feelings are greater for girls than for boys. Therefore, girls may develop strategies to cope with distressing emotions more quickly than boys, and boys may especially benefit from higher levels of warmth from mother, as other adult figures may not react to boys with warmth when sad or afraid as they do with girls.

Patterns of behavior indicate that ways to manage distress differ among girls and boys early in childhood. 24-month-old girls have been shown to maintain more proximal closeness with their mother than same-aged boys during distressing situations. However, a moderation effect was found in which only boys sought increased contact with their mother at heightened levels of distress during both social and nonsocial tasks (Buss, Booker, and Leuty, 2008). The association between shyness at 18 and 30 months was most stable for boys with insensitive mothers, but was most stable for girls who had sensitive mothers, which supports previous research that has shown that mothers are less likely to challenge shyness in girls (Eggum et al., 2009). It is possible that greater levels

of fear in boys are more salient to mothers than fear displayed in girls, and therefore mothers may not be as attentive to fear responses in daughters, who may behave similarly and seek comfort at varying levels of distress. This indicates that a beneficial parenting behavior may not mitigate the likelihood of maintaining shy behavior over time for girls, but it may buffer against the maintenance of shyness or withdrawal for boys.

As discussed by Chaplin, Cole, and Zahn-Waxler (2005) and Fivush (1998), parents are unlikely to report treating their sons differently from their daughters. Differences in socialization processes for boys and girls could be the result of subtle differences in responding to emotion that go unnoticed by mothers and fathers, and may lead to the tendency for girls to be more likely to express sadness or worry than boys, who may be more likely to express anger (Chaplin, Cole, & Zahn-Waxler, 2005). The current study will contribute to the literature by utilizing observed and coded interactions between mothers and their children to assess how maternal warmth may differentially confer risk or buffer against behavioral withdrawal for boys and girls.

Protective Factors in Parenting

It is known that not all children who display BI in toddlerhood develop high levels of social withdrawal. For example, Eggum and Eisenberg (2009) found that observed fear at 18 months was not related to shyness at 30 months old. Thus, factors exist that may moderate this pathway, including parenting behaviors. When considering the development of emotion regulation, Calkins (1994) has discussed how caregivers can shape a child's initial interpretation of distressing situations, which result from their endogenous temperamental style, by providing cues that the child can use to modulate

their own emotional reaction and develop self-soothing skills over time. In this way, interactions between parents and infants can help children adapt their emotional reaction to different social situations within the range of their individual emotional disposition (Calkins, 1994). This is particularly apparent when parents are sensitive to their child's needs, and do not become overwhelmed if their child frequently displays higher levels of fear (Calkins, 1994). Supportive responding increases the child's ability to manage frightening events independently as she grows, and also increases the sense of security in themselves and others.

When considering the association between a fearful temperament and the development of socially withdrawn behavior, maternal sensitivity has been shown to moderate the effect of wariness in 15-month-old children during their transition to kindergarten, such that children whose mothers displayed greater sensitivity were less inhibited during the transition than children with mothers who displayed less sensitivity (Early, et al., 2002). However, parental overinvolvement or overcontrol, sometimes called oversolicitous behavior, has been shown to be positively associated with reticent behavior in children (Rubin, Cheah, & Fox, 2001), and parent perception of child shyness has been shown to predict less encouragement of independence in shy children (Rubin, Nelson, Hastings, & Asendorpf, 1999). Parents who perceive their children as shy may be less willing to allow their children the opportunities to independently engage in social interactions, as this may put them at risk to experience increased distress during independently-experienced social situations. Rubin and colleagues (2009) have further described how overprotective parents might over-manage situations for their children,

inhibiting the development of independence and problem-solving skills, which can affect later social development, particularly for children who displayed early fearfulness.

Alternatively, positive interactions with parents might diminish negative expectations for social interactions among fearful children over time (Derryberry & Rothbart, 1997).

It is also likely that a highly sensitive mother or an oversolicitous mother may have differential effects on child outcomes, depending on the child's temperament, such that the benefit or risk for certain outcomes may increase or decrease depending on the child's tendency to behave fearfully or with reticence. A goodness of fit model has been proposed by Chess and Thomas (1986) which states that if a child's temperament is valued and beneficial to their environment, then this is considered a "good fit", and consequently is adaptive for the child. A mismatch between a child's temperament and the environment in which they live is considered a "bad fit". The goodness-of-fit model does not imply that certain individual characteristics are good or bad; it merely indicates that certain temperamental styles are more adaptive in environments that support the displayed disposition. According to Rothbart (2011), a "good fit" can also be interpreted as the quality of the match specifically between a child's temperament and the parent's temperament and the expectations held for the child. This suggests that a good fit between parent and child will be protective against the development of maladaptive behaviors and emotions. Ultimately, Rubin, Root, and Bowker (2010) have described that a number of studies have indicated parenting behaviors that increase the chances of a child becoming withdrawn, including intrusive behavior, negativity, and insensitivity, but few have evaluated the behaviors that parents should engage in to prevent social

withdrawal. Behaviors that have been shown to confer risk for withdrawal or buffer against this behavior may be more or less effective depending on degree of fearfulness in the child. Research can specify the parenting behaviors that could be emphasized at certain developmental time points in order to combat possible risk indicated by a fearful temperament.

Maternal warmth.

A maternal supportive presence is a set of behaviors that includes warmth, encouragement, and engagement with the child and has been well documented as beneficial for children's adjustment, as warmth has been linked with fewer anxiety symptoms in children (Maccoby & Martin, 1983; McLeod et al., 2007; Ollendeck & Hirshfeld-Becker, 2002). Parental warmth at 12 months was associated with lower levels of shyness and peer rejection in the first grade, as reported by the teachers of these children (McFarlane et al., 2010). Coplan, Arbeau, and Armer (2008) showed that supportive parenting, defined as a mother who engages in warm and authoritative parenting behaviors, acted as a buffer against the development of internalizing symptoms in shy children. Rubin and colleagues (2004) found that 5th grade students displayed greater social competence, less withdrawal, and fewer internalizing symptoms, when mother was perceived as supportive. This research indicates that a warm and positive parent may be protective against the development of less desired socioemotional outcomes. Additionally, as discussed, Early and colleagues (2002) showed that wary 15-month-old children were less inhibited during their transition to kindergarten when their

mothers were more sensitive, but this effect was not maintained for children who did not display social wariness.

Socially withdrawn children have been shown to have negative self-perceptions about their social abilities and relationships (Rubin et al., 2009), and therefore it is possible that among these children, the risk for the development of behavioral withdrawal could be buffered by a warm and encouraging relationship with their mother. Early and colleagues (2002) discussed how behaviorally inhibited children with sensitive (warm, consistent, responsive) mothers may be more likely to become self-reliant and secure than behaviorally inhibited children without sensitive mothers. As part of a supportive parenting style, mothers might gently help the child to engage with others without being overly controlling or forcing the child into overwhelming social situations. Gazelle and Spangler (2007) demonstrated that anxious solitary children who had a highly sensitive mother, as assessed at 2, 3, and 4.5 years old, experienced less peer rejection in the first grade and were also reported to have more friends than children of mothers who demonstrated low sensitivity. In addition, anxious solitary children overall had friends who made fewer contributions to positive interactions with peers, but anxious solitary children with highly sensitive mothers were more likely to have friends who contributed more frequently to positive peer interactions, as compared to less sensitive mothers (Gazelle & Spangler, 2007). This indicates that maternal sensitivity, described as sensitive responding to non-distress (during challenging tasks), lack of intrusiveness, and lack of hostility, contribute to both the number of friends of their anxious solitary children, as well as to the social ability of those friends. Developing friendships with

more socially adept children may provide more opportunities for social development for a socially fearful child, potentially decreasing risk for later development of withdrawal, as the child feels less overwhelmed in social situations. As warmth is a component of beneficial parenting behaviors, including supportiveness and sensitivity, this study will examine the moderating role of maternal warmth in the association between social fear and social withdrawal, depending on the sex of the child.

However, evidence for the protective effect of a warm parent is mixed, as some research has shown that negativity and hostility are significant risk factors for the development of withdrawal, but positive or sensitive behaviors have not been shown significantly affect children's withdrawal outcomes. Hane and colleagues (2008) found that low maternal positivity moderated the relation between mother-reported shyness at age 4 and social withdrawal at age 7, such that the relation between shyness and withdrawal was positive and significant when maternal positivity was low. The effect was not significant for high positivity. Similarly, high negativity significantly and positively moderated the relation between reticence and withdrawal, but this association was not significant for mothers who displayed low negativity. Degnan, Henderson, Fox, and Rubin (2008) showed a moderating effect of high maternal negativity on the relation between child temperamental reactivity and social wariness, but this effect did not exist for low negativity. Therefore, further investigation of the role of potentially beneficial maternal behaviors in the developmental of behavioral withdrawal among socially fearful children is warranted.

Goals and Hypotheses

As indicated in the literature, social fear has been associated with the development of withdrawn behavior, but not all fearful children become withdrawn. Relevant factors to consider include environmental factors such as maternal warmth and positivity, and the individual factor of the sex of the child. The goal of this study was to contribute to the literature by exploring sex and maternal warmth as moderators of the relation between social fear at age 2 and social withdrawal at age 7. Based on the literature reviewed, a three-way interaction between social fear, sex and maternal warmth was expected. The interaction was postulated based on the emotion socialization literature, which has specifically led to the following hypotheses:

1. It is hypothesized that social fear at age 2 will be positively associated with social withdrawal for both boys and girls in the context of lower maternal warmth, such that the highest levels of withdrawal will be observed when children are highly socially fearful and maternal warmth is low. This hypothesis indicates that lower maternal warmth exacerbates the risk associated with social fearfulness in predicting social withdrawal for both boys and girls.
2. In the context of high maternal warmth, social fear at age 2 will be negatively associated with social withdrawal at age 7 for boys but not for girls. Specifically, at higher levels of maternal warmth, higher social fearfulness is expected to predict lower social withdrawal, indicating

that maternal warmth acts as a buffer against the developmental of social withdrawal in the presence of boys' social fear. This effect is not expected among girls.

CHAPTER II

METHOD

Participants

The current study utilized data from three cohorts of children who are part of an ongoing longitudinal study of social and emotional development. The goal for recruitment was to obtain a sample of children who were at risk for developing future externalizing behavior problems, and who were representative of the surrounding community in terms of race and socioeconomic status (SES). All cohorts were recruited through child day care centers, the County Health Department, and the local Women, Infants, and Children (WIC) program. Potential participants for cohorts 1 and 2 were recruited at 2-years of age (cohort 1: 1994-1996 and cohort 2: 2000-2001) and screened using the Child Behavior Checklist (CBCL 2-3; Achenbach, 1992), completed by the mother, in order to over-sample for externalizing behavior problems. Children were identified as being at risk for future externalizing behaviors if they received an externalizing T-score of 60 or above. Efforts were made to obtain approximately equal numbers of males and females. This recruitment effort resulted in a total of 307 children. Cohort 3 was initially recruited when infants were 6 months of age (in 1998) for their level of frustration, based on laboratory observation and parent report, and were followed

through the toddler period (see Calkins, Dedmon, Gill, Lomax, & Johnson, 2002, for more information). Children from Cohort 3 whose mothers completed the CBCL at two-years of age were then included in the larger study ($N = 140$). Of the entire sample ($N = 447$), 37% of children were identified as being at risk for future externalizing problems.

Of the 447 originally selected participants, six were dropped because they did not participate in any data collection at 2 years old. An additional 12 families participated at recruitment, did not participate at two-year, but did participate at later years. At 4 years of age, 399 families participated. Families lost to attrition included those who could not be located, moved out of the area, declined participation, or did not respond to phone and letter requests to participate. There were no significant differences between families who did and did not participate at age four in terms of gender, $\chi^2 (1, N = 447) = 3.27, p = .07$, race, $\chi^2 (1, N = 447) = .65, p = .42$, two-year SES, $t (432) = -.92, p = .36$, or 2-year externalizing T score, $t (445) = .45, p = .65$. At 7 years of age, 350 families participated, including 19 that did not participate in the 5-year assessment. Again, there were no significant differences between families who did and did not participate in terms of gender, $\chi^2 (1, N = 447) = 2.12, p = .15$, race, $\chi^2 (3, N = 447) = .19, p = .67$, and two-year externalizing T score, $t (445) = 1.30, p = .19$. Families with lower 2-year SES, $t (432) = -2.61, p < .01$, were less likely to participate in the 7-year assessment.

This study used questionnaire data from the 2 and 7 year assessments, as well as coded video data from the 4 year assessment. Social fear was measured at the 2 year visit and was selected as the main predictor variable, as BI assessed in toddlerhood is a commonly accepted time point for examining the child's disposition. Moreover, since

social withdrawal is typically not viewed as non-normative until the 4th grade, (Younger, Schwartzman, & Ledingham, 1985), social withdrawal was assessed by the child's teacher at the 7 year (second grade) assessment, in order to assess withdrawn behavior just prior to the age at which risk for exclusion and victimization would hypothetically increase. Assessing withdrawal prior to the 4th grade may give a better indication of pure withdrawn behavior that has not been combined with observed behavior due to peer exclusion. Lastly, as the study will examine maternal warmth as a moderator in the relation between social fear and social withdrawal, maternal warmth was measured at the 4 year assessment. As mentioned above, the transition to school may be a particularly relevant time for children who are socially inhibited as they navigate the onset of more frequent peer interaction, and therefore a warm and supportive parent may affect the degree of withdrawal later exhibited by children who experience different levels of social fear. Given the sex differences reported in emotion socialization, child's sex was also considered as another moderator.

Participants in proposed study.

The sample for the current study included 215 children and their families who participated in the 2, 4, and 7 year assessments. Children were included in the current study if they had complete data on the measures described at all three assessments, which resulted in a total sample of 215 participants. In the current study, 45.6% of the participants were male and 54.4% of participants were female. Of this sample, 72.1% of participants identified as Caucasian, 21.9% identified as African-American, 4.2% identified as belonging to multiple races, and 1.9% of participants identified as Other for

their race. Families were economically diverse based on Hollingshead (1975) scores at the 2, 4, and 7-year assessments, with a range from 14 to 66 ($M = 41.35$, $SD = 10.61$), thus representing families from each level of social strata typically captured by this scale. Hollingshead scores that range from 40 to 54 reflect minor professional and technical occupations, which are considered to be representative of the middle class.

Procedures

Each child and one parent, typically the child's mother, participated in laboratory assessments at various ages. Assessments were conducted at the University of North Carolina at Greensboro at the 2, 4, and 7-year visits. All assessments were led by trained graduate students and research assistants. Consent and assent (at age 7) were collected by the experimenters at each visit prior to the start of any measured tasks. During the assessments, the children completed a series of tasks that were designed to elicit emotional and behavioral responses, which included a series of interactive tasks between the child-parent dyad. Questionnaires were completed in addition to the above-mentioned emotional and behavioral response tasks, which are filmed and subsequently coded according to predetermined coding schemas. Questionnaires were completed by the mother and willing fathers at the 2, 4, and 7-year assessments. Teachers were asked to complete questionnaire packets regarding participants in the second grade, when the children were on average 7.86 years of age. Questionnaires completed by the mother and teacher, as well as observational coding, were utilized in the current study.

Measures

Social Fear.

Because a specific indicator of BI that relates explicitly to fear in social situations was desired for the present study, scores were derived from the Social Fearfulness subscale from the 111-item Toddler Behavior Assessment Questionnaire (TBAQ). See Appendix A. Data were imputed at the single item level for the TBAQ, indicating that a parent may have accidentally skipped an item, chose not to answer certain items, or skipped a page of a measure. Imputation was completed by removing all cases with completely missing data, and utilizing the expectation maximization (EM) method to impute at the item level for the remaining participants. Missing values within the measure were at random. The Social Fearfulness scale includes 19 items that assess “inhibition, distress, withdrawal (vs. approach), or signs of shyness in novel or uncertainty-provoking situations or of a social nature” (Goldsmith, 1996). These items assess fearfulness of new or unfamiliar adults and children, and fearfulness from being separated from caregivers. While behavioral inhibition has been traditionally measured using a fear of novel objects task, early work on BI has demonstrated that fear of individuals is more predictive of later social withdrawal (Gazelle & Rubin, 2010), and Rubin and colleagues (1997) demonstrated that inhibition is not consistent across social and non-social contexts. This measure was completed by mothers at the 2-year visit. In the TBAQ, mothers rate their children’s behavior on a scale from 1 to 7 with an additional option to select “NA” for “Does not apply.” A response of “1” indicates that the behavior occurs “Never,” “2” indicates “Very Rarely,” “3” indicates “Less than half the time,” “4” indicates “About

half the time,” “5” indicates “More than half the time,” “6” indicates, “Almost always,” and “7” indicates “Always.” An average score of responses on the Social Fear subscale of the TBAQ was used in the current study, and NA responses were not included in the calculation. The Cronbach’s alpha coefficient for the Social Fearfulness scale in the current sample is .70.

Social withdrawal.

The dependent variable of interest in the current study is Social Withdrawal, which was measured using the Withdrawal subscale in the Teacher Rating Scale of the Behavior Assessment System for Children (BASC-TRS-C) See Appendix B. The Withdrawal subscale addresses behaviors such as shyness, reluctance to engage socially, and clinginess towards caregivers by asking teachers to report on child behavior on a scale using the descriptors “Never”, “Sometimes”, “Often”, and “Almost always”. These qualitative descriptors were converted to a 0 to 3 scale, with “0” indicating that the behavior never occurs, “1” indicating that the behavior sometimes occurs, “2” indicating that the behavior often occurs, and “3” indicating that the behavior almost always occurs. The nine items on this scale focus on the behaviors typically exhibited by socially withdrawn children, including reluctance to talk, join in group activities, and exhibit shyness. The BASC is a widely accepted measure and is used across contexts to assess behavior in children. Age normed T-scores are generated and internal consistency, reliability, and validity have been shown to be well-established in the field for this tool. Cronbach’s alpha for the Withdrawal subscale in this sample is .643.

Maternal Warmth.

Maternal warmth was assessed using global behavioral coding of parent-child interaction tasks that were recorded during the 4-year lab visit. Coded tasks included a period of freeplay and a period of pretend play between the mother and child, as well as a teaching task in which the mother and child work together to build something from blocks provided by the experimenter. A clean-up period after the building task was also coded, in addition to a second teaching task in which the mother and child work together to solve a puzzle. Videos were scored using global codes adapted from the Early Parenting Coding System (Winslow, Shaw, Bruns, & Kiebler, 1995). Scores range from 1 to 4. The “Mother Warmth and Positivity” code was used to assess level of maternal warmth. A score of “1” indicates no warmth and no positivity with neutral or negative emotional expression; a score of “2” indicates no warmth, but a few expressions of positivity but was otherwise neutral or negative in affect; “3” indicates some warmth and expressions of positivity as frequent as expressions of negativity or neutral affect; “4” indicates consistent warmth and expressions of positivity that occur more often than not. See Appendix C for the coding scheme. Raters were trained to achieve a reliability of Cronbach’s alpha = .75. At least 20% of all tapes were consensus coded and spot checks of reliability were instituted throughout the coding process. Coders achieved a reliability score of $\alpha = .878$. Maternal warmth codes from each task were averaged to create one maternal warmth variable.

CHAPTER III

RESULTS

Preliminary Analyses

TBAQ data was first imputed at the single item level using the expectation maximization (EM) method in SPSS, as discussed above. As part of the preliminary analyses, descriptive statistics were examined on all variables to assess normality. Data for all variables was normally distributed, however, one outlier was found within the BASC Withdrawal variable ($T = 90$), and as a result this case was removed. Table 1 lists complete descriptive information for the variables examined in this study.

T-tests were conducted in order to examine possible differences in the study variables by sex. No significant overall sex differences for the variables of interest were found, and descriptive information by sex can be found in Tables 2 and 3. A one-way ANOVA was conducted to assess for differences in the variables of interest by race. Yielded results indicate that significant differences between races existed for social fear, $F(3, 211) = 5.272, p = .002$, and for maternal warmth, $F(3, 211) = 18.197, p = .000$. Additional analyses indicated that African American children were reported by their parent to have greater levels of social fear than Caucasian children (African Americans: $M=4.22, SD=.866$; Caucasian: $M=3.77, SD=.848$). On average, Caucasian mothers were rated as being more warm and positive than African American mothers (Caucasian: $M=2.94, SD=.609$; African Americans: $M=2.20, SD=.709$). This is consistent with

parental warmth literature, which has indicated that Caucasian mothers report greater levels of warmth compared to African-American mothers, when assessed by traditional measures (Hill & Tyson, 2008). However, it is of note that the behavioral coding scheme used in the current study may not have been designed to capture cultural differences in parenting behaviors such as warmth and positivity for Caucasian parents and African American parents, potentially affecting the average code assigned for each group. Additionally, coding was completed primarily by trained coders who identify as Caucasian, which may have affected the codes assigned to participants. In light of this information, race was included as a control variable in subsequent analyses. Full descriptive data for participants whose mothers have identified them as Caucasian or as African American can be found in Tables 4 and 5.

Correlations between all study variables were examined and can be found in Table 6. One significant correlation existed among the study variables. Correlations were generally low; however, social fear was significantly negatively correlated with mother warmth and positivity ($r=-.189, p<.01$), indicating that greater levels of fear are associated with lower levels of maternal warmth. Correlations were also examined by sex in order to assess how the relations between these variables differ for boys and girls (Tables 7, 8). Among girls, social fear and maternal warmth continued to be negatively and significantly correlated ($r=-.220, p<.05$). Among boys (Table 8), the correlation between social fear and maternal warmth was not significant. Instead, the relation between maternal warmth and behavioral withdrawal was significantly and negatively

correlated ($r=-.213, p<.05$), such that greater maternal warmth is associated with less withdrawal.

Hierarchical Regression Analysis Examining Sex, Social Fear, and Maternal Warmth in the Prediction of Social Withdrawal

A hierarchical regression analysis was performed to examine the hypotheses that the association between social fear and withdrawal depends on the level of maternal warmth displayed, and this effect is further dependent on the sex of the child. The analysis followed the procedure described by Aiken and West (1991). Continuous variables were centered prior to conducting the regression analysis. Race was entered into the model as a covariate due to the significant differences found for maternal warmth and social fear by race, as well as due to the literature that indicates parenting differences among Caucasian and African American parents. The three main effects of social fear, maternal warmth, and sex were entered to predict behavioral withdrawal in Step 2 of the analysis. All two-way interactions were entered in Step 3 (social fear X maternal warmth, maternal warmth X sex, and social fear X sex). Lastly, the 3-way interaction variable of social fear, maternal warmth, and sex was entered in step 4. Coefficients were examined to assess whether these variables were associated with the level of behavioral withdrawal at age 7. Results indicated that the three way interaction of social fear, maternal warmth, and sex was significant ($t(206) = 2.186, p = .030, R^2 = .051$). Results from the complete model, including standardized betas for comparison across variables as well as significance values and change in effect size can be found in Table 10. As the 3-way interaction was significant, simple slopes analysis was conducted according to the

methodology prescribed by Aiken and West (1991), in order to determine how the association between social fear and withdrawal is contingent on the level of maternal warmth and the sex of the child. A significant main effect of maternal warmth was found for boys ($t(93) = -2.010, p = .047, R^2 = .085$; See Table 11). No significant main effects were found for girls. This indicates that as maternal warmth increases among boys, the degree of social withdrawal decreases. Simple slopes analysis found that the association between social fear and maternal warmth in the prediction of social withdrawal among boys was negative but only trending towards statistical significance ($t(93) = -1.921, p = .058, R^2 = .085$). Simple slopes analysis was used to determine which levels of maternal warmth affected the association between social fear and social withdrawal among boys. High levels of maternal warmth, defined as one standard deviation above the mean (Aiken & West, 1991), did not significantly affect the relation between social fear and withdrawal among boys, as indicated by the lack of a significant effect of social fear on social withdrawal. Low levels of maternal warmth, analyzed at one standard deviation below the mean, also did not significantly affect the relation between social fear and social withdrawal among boys.

CHAPTER IV

DISCUSSION

The purpose of the current study was to investigate the role of early behavioral inhibition as assessed through social fear, maternal warmth, and sex, in the development of social withdrawal in the second grade, at approximately age 7. Specifically, this study investigated how social fear at age 2 interacts with the sex of the child and maternal warmth at age 4 to predict social withdrawal displayed at age 7. Social withdrawal has been shown to increase the risk for less optimal developmental outcomes for children, including increased risk for anxiety and depressive disorders, poorer academic outcomes as a result of performance worries and lack of confidence, low self-esteem, peer victimization, as well as a delay in achieving adult milestones, including entering into marriage and having children (Rubin, Coplan, and Bowker, 2009; Doey, Coplan, & Kingsbury, 2014, La Greca & Harrison, 2005; Vernberg, Abwender, Ewell, & Beery, 1992). A significant and negative main effect of maternal warmth on social withdrawal was found for boys, but not for girls, indicating that maternal warmth may play a unique role for boys in the ability to develop effective coping skills for use in social situations. The expectation that social fear, maternal warmth, and sex would interact to predict behavioral withdrawal was statistically supported in this sample, however, the results of this study were only able to detect differences between male and female groups in the association between social fear and withdrawal, contingent upon level of maternal

warmth, at a trending level of significance. Additionally, the study was not able to determine the level of maternal warmth that affects the relation between social fear and withdrawal among boys. Therefore, the hypotheses of this study were unsupported, although the trend-level interaction among boys may indicate that additional research is warranted. The lack of a significant association for boys between social fear and withdrawal that is dependent on the level of maternal warmth could be partially attributed to the power of this analysis, as there were only 98 boys with complete data in this sample. Therefore, one potential future direction would include using imputation techniques in order to increase sample size and thus increase the ability to detect significant associations between these variables.

The results of the study suggest that the maternal role may be more important for sons than for daughters in preventing the development of socially withdrawn behavior. This could be explained by the emotion socialization literature that indicates that the processes that occur for boys differ from the emotion socialization processes that occur for girls. Girls are more likely than boys to be encouraged by their mothers to share negative emotions like sadness, worry, or fear (Doey, et al., 2013), and fathers have been shown to reward their daughters, but not their sons, for expressing sadness or fear (2002). Teachers as well have been shown to provide more physical comfort to girls when they express negative emotions (Ahn & Stifter, 2010). Since young girls receive more frequent messages of acceptance of their display of emotions, and this acceptance comes from multiple sources, expressions of warmth from mothers may not be as impactful for girls as it is for boys, who on the other hand have been shown to be less likely to have adult

figures who encourage discussion of negative emotions. Further, since social withdrawal may represent an underlying component of anxiety or fear in children when it comes to social situations (Rubin, 2010), the encouragement of discussion of anxiety by a warm mother in initially distressing situations may be especially helpful for boys' development of coping skills, and may lead to less social withdrawal as a child grows.

Although not examined in this study, this may be the result of a bidirectional effect in which young boys display certain behaviors that elicit warmth from mothers, and this warmth decreases the experience of overwhelming emotions that prevent social interaction. Premo and Kiel (2014) showed that 2 year old boys who showed greater caregiver-focused regulation, as compared to self-soothing or attention regulation techniques, during a low-threat situation had mothers who less often used non-supportive socialization strategies at age 3, which includes minimizing the child's negative emotions or punishing the child for displaying negative emotions. This effect was nonsignificant for girls, suggesting that nonsupportive socialization practices may be used less frequently with girls regardless of their style of regulation, but that boys may need to elicit supportive socialization behaviors from mothers that help them cope with their negative feelings. Boys who demonstrate more caregiver-focused regulation strategies in distressing situations instead of attempting to self-soothe may indicate to their mothers that they require additional warmth and attention to cope, and this increased warmth may help improve the child's self-reliance in distressing situations, thus buffering against the development of social withdrawal due to fear or worry in the future.

The current study's findings may also be the result of different parent beliefs about appropriate expression of emotion. Wong, McElwain, and Halberstadt (2009) found that among boys, parents who were more accepting of negative feelings like anger and sadness were less likely to perceive these reactions in their children as problematic. These parents were shown to be less likely to respond to negative emotions in a nonsupportive way, including responding with punishment, dismissiveness, or with minimization of the problem. It is possible parents who are less likely to punish or dismiss their sons for expressing negative emotions may show greater warmth and acceptance during distressing situations. These boys may become better equipped to navigate social interactions, and therefore may be less likely to become behaviorally withdrawn.

Although the frequency of social withdrawal is approximately the same for boys and girls, some evidence indicates that withdrawal may lead to poorer outcomes, such as peer rejection, loneliness, and anxiety, as well as a delay in entering into marriage and having children (Doey, Coplan, & Kingsbury, 2014; Rubin, Coplan, & Bowker, 2009). It has been discussed by Rubin and Barstead (2014) that withdrawn boys may suffer more negative psychological outcomes than girls, although only when the withdrawal is accompanied by peer rejection. Even though both withdrawn boys and girls have been shown to be able to create mutual friendships, Rubin and Barstead (2014) further explain that research has shown that males appear to achieve a sense of self-worth from group acceptance, whereas females place a greater emphasis on close dyadic relationships, and therefore rejection by the group may be more harmful for boys. As peer rejection has

been shown to accompany withdrawal (Ladd, 2006), understanding how boys and girls differ in their development of social withdrawal is relevant in determining how to decrease the risk for undesired psychosocial outcomes. Overall, these results contribute to the literature by demonstrating how a beneficial parenting behavior, the display of warmth, is a predictor of social withdrawal in the negative direction for boys only, indicating one factor that affects the gender that has been shown to be at greater risk for poor socioemotional outcomes associated with withdrawal.

There are some limitations in this study that should be considered and explored in future projects. As discussed previously, the smaller sample size of boys in this study may have limited the ability to detect simple slopes significantly different from zero, and thus future research would benefit from using a larger sample size. Another aspect of this study that may warrant adjustment in future research is the method of assessment of maternal behavior. Observational data of parent-child interactions is often superior to maternal self-report when examining parenting behavior, however, the description of the maternal warmth code in this study included both warmth and positivity levels. Warmth and positivity are associated, but are not necessarily observed to the same degree in all mothers. A parent may consistently use a warm and supportive tone of voice, but be less likely to frequently laugh, smile, or use “cheerleader” statements, indicating lower positivity. Other maternal behaviors such as sensitivity or responsiveness should also be examined in addition to warmth, as these behaviors may more specifically promote the expression of negative emotions among boys, leading to the development of coping skills and diminished negative expectations for social interaction. Warmth is an aspect of both

sensitive parent and oversolicitous parent, and while sensitive parenting has been linked to adaptive outcomes, oversolicitous parenting has been associated with increased social withdrawal. Therefore, an assessment of warmth depending on intrusiveness and responsiveness is warranted. Future investigation of the interaction effect of sex by social fear and possible beneficial maternal factors should assess if warmth, positivity, or both behaviors buffer against the development of behavioral withdrawal.

When considering social withdrawal, future research should differentiate between children who are shy/anxious-withdrawn, and those who lack social interest. This would allow specification of which type of children are at risk for becoming socially withdrawn if they display social fear in toddlerhood, and which children are particularly helped by warm parenting. This may be particularly relevant because socially disinterested children may not be at risk for the development of internalizing symptoms or other less desired socioemotional outcomes for the same reasons as shy and anxious-withdrawn children. For example, the Child Social Preference Scale was used by Coplan and colleagues (2004) to distinguish shy children from disinterested children. As hypothesized, shy children showed positive associations with a socially fearful temperament style and lacked an association with a preference to play alone, while children labeled as socially disinterested lacked an association with social fearfulness and reported a decreased preference for playing with other children.

A final future direction for this work would include peer assessment of withdrawal as well as teacher report of withdrawn behavior. Although teachers are an appropriate source of information on withdrawn behaviors among 7 year old children, as

they typically observe the same children throughout most of the school day and will likely take notice of children who appear to play alone more frequently, the peer group is also able to provide information on which children are less likely to join in on play with classmates. In addition, peers may be better able to identify children who are excluded by the peer group, as compared to children who exclude themselves from others.

Comparison of teacher- versus peer- reported withdrawn behavior when examining the differential effect of maternal behavior on the development of withdrawal among boys and girls may contribute new information to the field.

Despite the limitations mentioned above, this study has offered a contribution to the literature on social withdrawal in childhood. The current study has also added to the mixed literature on whether beneficial maternal behaviors significantly contribute to the development of withdrawal. It was shown that maternal warmth at age 4 is significantly predictive of withdrawal at age 7 in the negative direction among boys. Higher levels of maternal warmth with sons were associated with lower levels of withdrawn behavior three years later, indicating that maternal warmth may help boys learn how to cope with novel social situations. Maternal warmth did not significantly predict withdrawal among girls. In addition, the association between social fear and maternal warmth among boys was trending towards significantly predicting social withdrawal. Although simple slopes analysis was unable to detect the levels at which warmth impacted the association between fear and withdrawal among boys, this trending result indicates a need for future research addressing the previously discussed limitations. The findings of this study suggest that the interactions between mothers and sons and mothers and daughters may

differentially affect the development of withdrawn behavior, and warm behavior may specifically confer benefit on boys. Therefore, emotion socialization by gender plays a role in how boys and girls come to display different levels of withdrawal. Future work could lend support to an intervention to encourage warmth in the face of displayed sadness or fear among boys in order to promote coping and diminish the risk for less frequent interaction with peers, thus increasing the chance of the development of effective social skills and fewer symptoms of anxiety in the face of social interaction as the child grows.

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APPENDIX A

ID#: ___ Today's Date ___/___/___ Child's Gender ____ Birthdate: ___/___/___ Age of Child ___, ___, (mos, wks)

INSTRUCTIONS: Please read carefully before starting.

This questionnaire should be filled out by the mother. As you read each description of the child's behavior below, please indicate how often the child did this during the last month by circling one of the numbers in the left column. These numbers indicate how often you observed the behavior described during the last month.

(1) Never (2) Very Rarely (3) Less than (4) About half (5) More than (6) Almost (7) Always
half the time the time half the time always

The “Not Applicable” column (NA) is used when you did not see the child in the situation described during the last month. For example. If the situation mentions the child going to the doctor and there was not time in the last month when the child went to the doctor, circle the NA column. “Does not apply” (NA) is different from “Never” (1). “Never” is used when you saw the child in the situation but the child never engaged in the behavior mentioned during the last month. **Please be sure to circle a number or NA for every item.**

PLAYING – Social Fear subscale

When s/he saw other children while in park or playground, how often did your child:

4. Approach and immediately join in play? 1 2 3 4 5 6 7 NA

When at the doctor's office, how often did your child:

66. Cling to the parent? 1 2 3 4 5 6 7 NA
67. Seem unconcerned and comfortable? 1 2 3 4 5 6 7 NA
68. Cry or struggle when the doctor tried to touch her/him? 1 2 3 4 5 6 7 NA

When first meeting a stranger coming to visit in the home, how often did your child:

73. Allow her/himself to be picked up without protest? 1 2 3 4 5 6 7 NA
74. Abandon the parent to go to the stranger? 1 2 3 4 5 6 7 NA
75. "warm up" to the stranger within 10 minutes? 1 2 3 4 5 6 7 NA

When the child knew the parents were about to leave her/him at home, how often did the child:

81. Cry? 1 2 3 4 5 6 7 NA
82. Cling to the parent? 1 2 3 4 5 6 7 NA
83. Show no evidence of distress? 1 2 3 4 5 6 7 NA

When one of the parents' friends, who does not have daily contact with your child, visited the home, how often did the child:

84. Check with the parent for assurance?	1	2	3	4	5	6	7	NA
85. Talk much less than usual?	1	2	3	4	5	6	7	NA
86. Enthusiastically greet them?	1	2	3	4	5	6	7	NA

When first visiting a babysitting co-op, daycare center, or church nursery, how often did your child:

102. Cry when not being held by the parent and resist being put down?	1	2	3	4	5	6	7	NA
103. Feel at ease within 10 minutes?	1	2	3	4	5	6	7	NA
104. Immediately begin to explore?	1	2	3	4	5	6	7	NA

When your child was being approached by an unfamiliar adult while shopping or out walking, how often did your child:

105. Babble or talk?	1	2	3	4	5	6	7	NA
106. Show distress or cry?	1	2	3	4	5	6	7	NA
107. Avoid possible danger by looking to parent for assurance?	1	2	3	4	5	6	7	NA

APPENDIX B

BEHAVIOR ASSESSMENT SYSTEM FOR CHILDREN, TEACHER RATING SCALE, CHILD (BASC-TRS-C) WITHDRAWAL SUBSCALE

14. Refuses to talk.	N S O A
28. Avoids competing with other children.	N S O A
51. Plays alone.	N S O A
65. Avoids other children.	N S O A
88. Is chosen last by other children for games.	N S O A
102. Has trouble making new friends.	N S O A
125. Is shy with adults.	N S O A
139. Refuses to join group activities.	N S O A

APPENDIX C

GLOBAL CODING OF MOTHER-CHILD INTERACTION TASKS AT AGE 4

Warmth Code:

1. Overall, how much warmth and positive affect did the parent express during the task—through tone of voice and facial expressions?
 - 1- **None** (not warm, parent expressed no positive emotion when communicating with child; parent's emotional expression was neutral or negative)
 - 2- **A little** (not war, a few times parent expressed positive emotion but otherwise was affectively neutral or negative with the child)
 - 3- **Some** (somewhat warm, parent expressed positive emotion almost as often as neutral or negative affect was expressed with the child)
 - 4- **A lot** (warm, parent expressed positive emotion more often than not with the child)

APPENDIX D
TABLES AND FIGURES

Table 1

Descriptive Information for Primary Measures for the Full Sample ^a

Measure	Mean	Std. Dev.	Min	Max	Variance	Skewness	Kurtosis
TBAQ Social Fear	3.89	.86	1.77	6.44	.74	.09	-.24
BASC-2 Withdrawal	48.37	7.75	39.00	77.00	60.13	1.01	.61
Maternal Warmth	2.74	.72	1.00	4.00	.51	-.43	-.33

Note. ^an = 215.

Table 2

Descriptive Information for Primary Measures among Boys ^a

Measure	Mean	Std. Dev.	Min	Max	Variance	Skewness	Kurtosis
TBAQ Social Fear	3.79	.85	1.77	6.00	.65	.02	.13
BASC-2 Withdrawal	47.66	7.59	39.00	71.00	57.55	.97	.51
Maternal Warmth	2.79	.68	1.00	4.00	.46	-.51	-.30

Note. ^an = 98.

Table 3

Descriptive Information of Primary Measures among Girls ^a

Measure	Mean	Std. Dev.	Min	Max	Variance	Skewness	Kurtosis
TBAQ Social Fear	3.97	.90	1.88	6.44	.80	.08	-.48
BASC-2 Withdrawal	48.97	7.88	39.00	77.00	57.55	.97	.51
Maternal Warmth	2.69	.74	1.00	4.00	.56	-.36	-.35

Note. ^a n = 117.

Table 4

Descriptive Information of Primary Measures among Participants Who Identify as Caucasian^a

Measure	Mean	Std. Dev.	Min	Max	Variance	Skewness	Kurtosis
TBAQ Social Fear	3.77	.85	1.77	6.00	.72	.09	-.43
BASC-2 Withdrawal	47.94	7.51	39.00	77.00	56.46	1.04	.82
Maternal Warmth	2.94	.61	1.00	4.00	.37	-.61	-.35

Note. ^an = 155.

Table 5

Descriptive Information of Primary Measures among Participants Who Identify as African American ^a

Measure	Mean	Std. Dev.	Min	Max	Variance	Skewness	Kurtosis
TBAQ Social Fear	4.22	.87	2.58	6.44	.75	.17	.05
BASC-2 Withdrawal	50.28	8.45	39.00	71.00	71.34	.86	.16
Maternal Warmth	2.20	.71	1.00	3.83	.50	.52	.07

Note. ^an = 47.

Table 6

Correlation Coefficients for Study Variables among Full Sample

Measure	1	2	3
1. TBAQ Social Fear	--		
2. BASC-2 Withdrawal	.034	--	
3. Maternal Warmth	-.189**	-.084	--

Note. * $p < .05$, ** $p < .01$

Table 7

Correlation Coefficients for Study Variables among Girls

Measure	1	2	3
1. TBAQ Social Fear	--		
2. BASC-2 Withdrawal	.037	--	
3. Maternal Warmth	-.220*	.019	--

Note. * $p < .05$, ** $p < .01$

Table 8

Correlation Coefficients for Study Variables among Boys

Measure	1	2	3
1. TBAQ Social Fear	--		
2. BASC-2 Withdrawal	.009	--	
3. Maternal Warmth	-.130	-213*	--

Note. * $p < .05$, ** $p < .01$

Table 9

Social Fear and Maternal Warmth Regressed onto Behavioral Withdrawal at Age 7

Variable	β	R ²	ΔR^2
Step 1		.001	
Race	.029		
Step 2		.013	
Social Fear	.013		
Maternal Warmth	-.1.071		
Sex	.078		
Step 3		.015	
Social Fear X Maternal Warmth	-.029		
Social Fear X Sex	.085		
Maternal Warmth X Sex	.420		
Step 4		.022*	
Social Fear X Maternal Warmth/Positivity X Sex	.507		

Note. * $p < .05$

Table 10

Social Fear and Maternal Warmth Regressed onto Behavioral Withdrawal at Age 7 among Boys

Variable	β	R ²	ΔR^2
Step 1		.014	
Race	.119		
Step 2			.035
Social Fear	-.028		
Maternal Warmth	-.197		
Step 3			.036
Social Fear	.027		
Maternal Warmth	-.213*		
Social Fear X Maternal Warmth	-.200 [†]		

Note. [†] $p \leq .06$, * $p < .05$, ** $p < .01$

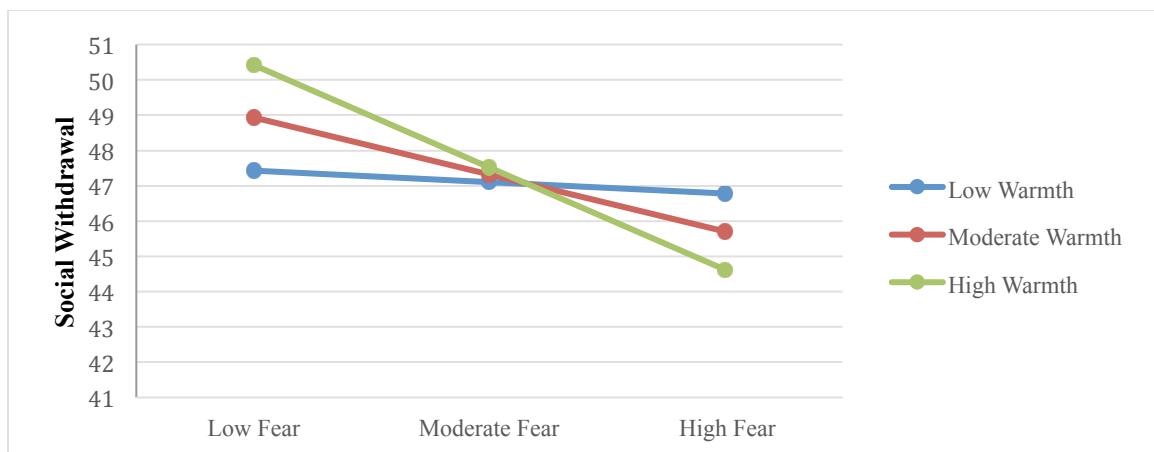


Figure 1. Interaction of Social Fear and Maternal Warmth Predicting Socially Withdrawn Behavior among Boys