

Parental Attitudes Toward Socially Inhibited Children:

An Exploratory Analysis

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Abstract

Intergenerational transmission of shyness, or the social process through which shy characteristics or behavioral patterns demonstrated by parents are passed on to their children, has received recent empirical attention and has suggested a positive relationship between levels of shyness in parents and children. One factor that may relate to this relationship is the attitudes parents hold toward having a shy child. The present study sought to illuminate several questions surrounding parental attitudes toward shyness and the presence of withdrawn, inhibited behavior in children. It was hypothesized that: a) parental attitudes toward shyness and shyness in parents would interact to influence inhibited behavior in children; and b) childrearing practices would serve as a mediator in the anticipated relationship between parental attitudes toward shyness and inhibited behavior in children. Results indicated a significant positive relationship between parental attitudes toward shyness and withdrawn, inhibited behavior in children, as well as a series of significant relationships between parental attitudes toward shyness and specific parenting strategies. No significant moderational or mediational effects were found, however.

Table of Contents

Introduction	1
Hypotheses	9
Method	11
Results	17
Discussion	21
References	31
Appendix	37
<i>Encouragement of Independence Scale and Parental Attitudes Predicting DECA-WD Total Score Controlling for Time Spent in Nonparental Care</i>	

List of Figures and Tables

Figure 1	9
<i>Test of Moderation</i>	
Figure 2	10
<i>Test of Mediation</i>	
Table 1	39
<i>Descriptive Statistics</i>	
Table 2	40
<i>Bivariate Regressions Among all Variables</i>	
Table 3	41
<i>Parental Anxiety and Attitudes Predicting BIA – Spontaneous Comments</i>	
Table 4	42
<i>Parental Anxiety and Attitudes Predicting BIA – Smiles</i>	
Table 5	43
<i>Parental Anxiety and Attitudes Predicting BIA – Global BI Rating</i>	
Table 6	44
<i>Parental Anxiety and Attitudes Predicting IPSIB Total Score</i>	
Table 7	45
<i>Parental Anxiety and Attitudes Predicting DECA-WD Total Score</i>	
Table 8	46
<i>Protection of Child Scale and Parental Attitudes Predicting IPSIB Total Score</i>	
Table 9	47
<i>Authoritarian Control Scale and Parental Attitudes Predicting IPSIB Total Score</i>	
Table 10	48
<i>Expression of Affection Scale and Parental Attitudes Predicting IPSIB Total Score</i>	
Table 11	49
<i>Encouragement of Independence Scale and Parental Attitudes Predicting IPSIB Total Score</i>	

Table 12	50
<i>Control by Anxiety Induction Scale and Parental Attitudes Predicting IPSIB Total Score</i>	
Table 13	51
<i>Protection of Child Scale and Parental Attitudes Predicting DECA-WD Total Score</i>	
Table 14	52
<i>Authoritarian Control Scale and Parental Attitudes Predicting DECA-WD Total Score</i>	
Table 15	53
<i>Expression of Affection Scale and Parental Attitudes Predicting DECA-WD Total Score</i>	
Table 16	54
<i>Encouragement of Independence Scale and Parental Attitudes Predicting DECA-WD Total Score</i>	
Table 17	55
<i>Control by Anxiety Induction Scale and Parental Attitudes Predicting DECA-WD Total Score</i>	

Parental Attitudes Toward Socially Inhibited Children: An Exploratory Analysis

Generally regarded as an indication of social anxiety disorder, shyness is a condition that involves anxious self-preoccupation and behavioral inhibition in social interactions that result largely from the prospect of being evaluated by others (Bruch, Gorsky, Collins, & Berger, 1989). As many as 30 to 40 % of Americans label themselves as dispositionally shy and report feeling inhibited, self-conscious, and awkward in social situations (Zimbardo, 1977). This condition often appears in childhood and can affect children throughout their development, especially by causing painful and disruptive effects during a child's formative years. Shyness frequently interferes with children's lives by affecting their social and academic success, for example (Ishiyama, 1984).

A well-documented precursor to shyness is a temperamental style known as behavioral inhibition. Generally speaking, behavioral inhibition is conceptualized as a pattern of responding to unfamiliar, novel stimuli or situations in a wary, disorganized fashion that is detectable early-on in life (e.g., Burgess, Rubin, Cheah, & Nelson, 2001). This pattern of wary, timid behavior has been consistently observed in approximately 10 to 15 percent of children (Kagan, 1989). In infants, this temperamental profile has been found to include high levels of motor activity, arousal, crying, and negative affect, particularly in response to the presentation of novel sensory stimuli (Fox, Henderson, Rubin, Calkins, & Schmidt, 2001). In young children, behavioral inhibition is typically manifested through hesitancy, reticence, and inhibited spontaneous comments and delayed smiling with an unfamiliar adult or peer (Ollendick & Hirshfeld-Becker, 2002).

Uninhibited children, by contrast, are more likely to easily approach unfamiliar objects and people, and respond to such stimuli with smiling, laughing, and conversation.

Behavioral inhibition is regarded as a biological construct, with researchers concluding that behaviorally inhibited children are physiologically prone to display socially fearful behavior (e.g., Kagan, 1989). The sympathetic nervous system has been found to be highly responsive to novel, stressful environmental stimuli in behaviorally inhibited individuals. Specifically, the high physiological reactivity associated with behavioral inhibition typically includes accelerated heart rate, increased morning salivary cortisol levels, and muscle tension in the vocal cords and larynx (Kagan, Reznick, Clarke, Snidman, & Garcia-Coll, 1984).

Though they are related, the presentations of behavioral inhibition and shyness are distinctly different. Whereas behavioral inhibition primarily involves approach and avoidance behaviors, shyness is unique in that it involves social evaluative concerns as well (Cheek & Buss, 1981). Moreover, shyness often cannot be identified in young children because they do not yet possess the social maturity and cognitive capacity necessary for grasping social evaluative concerns (which often require that they make comparisons between their own social abilities and those of others). Hence, in research involving populations of young children, behavioral inhibition is a more appropriate measure than shyness. The present study will also investigate socially withdrawn behavior, which is related to conditions such as behavioral inhibition and shyness and which typically denotes a child's social reticence and self-isolation from peers (Neal & Edelman, 2003).

The growing body of literature on this topic continues to suggest an association between behavioral inhibition in childhood and conditions such as shyness and social anxiety later in life. For example, Biederman and colleagues found that behaviorally inhibited children were over five times more likely than non-inhibited children to develop social anxiety disorder (Biederman et al., 2001). Developmental psychopathologists have hypothesized that temperamental factors of behavioral inhibition create an important diathesis to the development of lifelong social inhibition (Neal & Edelmann, 2003). Nonetheless, the relationship between behavioral inhibition and shyness or social anxiety is not perfect and the pathway is not direct. Longitudinal data have revealed that about 50 % of inhibited one- to two-year-old children remain inhibited through the eighth year of life (Kagan, Snidman, & Arcus, 1993); therefore, a significant percentage of children who demonstrate a behaviorally inhibited temperament in their early years of life grow up to be non-shy children and adults. It is clear, then, that the persistence of children's inhibited behavior cannot be explained by a temperamental disposition alone. A pertinent area of exploration, then, is to examine those factors that are associated with changes in children's levels of shy, inhibited behavior over time.

Shy, inhibited behavior in children has also been linked to similar behavior in parents. In general, offspring of parents with anxiety disorders have been found to be at an increased risk for developing an anxiety disorder themselves (e.g., Silverman, Cerny, Nelles, & Burke, 1988; Turner, Beidel, & Costello, 1987). Likewise, this relationship has received much support in relation to socially anxious behavior in particular, where shyness in parents significantly predicts shyness in children (e.g., Boegels, Van Oosten,

Muris, & Smulders, 2001). There is considerable evidence for both genetic transmission of social anxiety from parents to children, as well as evidence for strong environmental influences (e.g., Daniels & Plomin, 1985).

Intergenerational transmission of shyness, or the social process through which shy characteristics or behavioral patterns demonstrated by parents are passed on to their children, has also received much recent attention (e.g., Lieb, Wittchen, Hofler, Fuetsch, Stein, & Merikangas, 2000). Such transmission from parent to child of thoughts and behaviors appears to occur through various mechanisms. Some researchers have hypothesized that mothers of shy children transmit their own social fearfulness to their children through over-involved parenting (Burgess et al., 2001). Socially anxious parents may also model social avoidance and be less likely to arrange social interactions for their child (through play dates, for example). Furthermore, socially anxious parents may be less able to help their children cope with social fearfulness and may in turn promote their engaging in more avoidant coping strategies (Barrett, Rapee, Dadds, & Ryan, 1996).

In exploring these associations, a wide variety of parent and child characteristics have been included in order to examine conditions conducive to either continuity or discontinuity in childhood inhibition. Such studies have revealed that child characteristics (e.g., IQ, social competence), life events (e.g., birth of sibling, marital conflict, death of a parent, day-care change), and familial factors and processes (e.g., mother's personality, parenting behaviors) play influential roles in the developmental process (Rubin, Burgess, & Hastings, 2002). One potentially important factor that has not yet been empirically examined, however, is the attitudes that parents hold toward

having a shy child. Undoubtedly, different parents place different values on shy, reticent behavior in their children. Although some parents may feel concerned, disappointed, and/or even embarrassed when their children demonstrate shy behaviors, other parents may have a more accepting and positive attitude toward their children's shyness.

Although it is apparent that shyness is typically regarded as a negative and maladaptive trait that individuals ought strive to overcome, there has recently been a movement toward "depathologizing" shyness (e.g., Avila, 2002; Schmidt & Tasker, 2000). This movement is rooted in the notion that shyness is not inherently problematic; instead, many features of shyness can be viewed in a positive and beneficial light. Indeed, shy persons may be more socially sensitive, more reflective, and better at listening, for example. From the perspective of a parent, having a shy child may be advantageous in that the child may be better behaved, more compliant, and less impulsive. Reviews of the literature have revealed that parents complain less about shy, withdrawn behavior in their children than they do about aggressive behavioral problems, perhaps suggesting they are less disturbed by or at least more accepting of such behavior (Campbell, 1998).

Moreover, cross-cultural research on shyness has revealed that it is frequently viewed as a positive trait in many other countries (e.g., Chen, Hastings, Rubin, Chen, Cen, & Stewart, 1998). Such research has suggested that, in general, Western, individualistic cultures tend to view shyness as maladaptive and reflective of social incompetence, whereas Eastern, collectivist cultures tend to view this same condition as adaptive and reflective of social maturity. Further, North American parents have been

found to exhibit stronger negative reactions to social withdrawal in their children than parents in Italy (Schneider, Attili, Vermigly, & Younger, 1997).

In short, shyness is not necessarily viewed as problematic by all parents or all cultures. As such, it is likely that different parents place different values on reserved, reticent behavior, and that variability among these attitudes and values may play an important role in the ways in which parents interact with their children. For example, if parents of shy children are over-controlling, it may be partly due to the notion that they have strong negative attitudes toward their child's shy behaviors. The ways in which parents think and feel about their children's level of shyness may lead some parents to *encourage* and others to *discourage* behaviors typically associated with shyness in their children. As parental attitudes become instantiated in parental behavior, they may play a role in the development or maintenance of children's shy and socially withdrawn behavior.

Caspi, Elder, and Bem (1988) argue that parental judgments of their children's behavior may be important in their cumulative effect upon children's self-definitions. More specifically, the ways in which parents interpret their children's development and their attitudes toward their child's characteristics may influence parent-child interaction, which in turn may influence the child's development. They propose that dispositional shyness may develop in children through the interaction of temperamental qualities (e.g., behavioral inhibition) with parenting and socialization factors. Subsequently, beyond these first several years of life, they argue that the stage is set for continuity of this inhibited behavioral style across the lifespan through phenomena such as children's

tendencies to evoke maintaining responses from others and to select environments that reinforce their shy, inhibited behavior.

From a social psychological perspective, parental attitudes toward their children's shyness may serve as a mechanism through which the parents' preferences (as indicated by their attitudes) may be actualized in their children. Similar to the processes through which expectancy effects are communicated (Rosenthal & Jacobson, 1968), parents' preferences for their child may be communicated through their actions and actually alter their child's development in such a way that the child's resultant behavior conforms to the parents' initial desire. Central to this idea is the assumption that attitudes and beliefs mediate behaviors. In other words, parents may communicate their attitudes and preferences to their children through a variety of processes, including verbal and nonverbal cues as well as overt actions (Harris & Rosenthal, 1985). In this sense, parents' attitudes can affect the manner in which they behave toward their child when the child displays shy, withdrawn behavior in ways that either promote or discourage such behavior. Therefore, it is likely that the ideas held by parents about their children are likely to influence their choices of parenting strategies and ultimately their child's development.

In particular, recent research has suggested that highly protective, involved, and unaffectionate childrearing practices are associated with shy and withdrawn behavior in children (e.g., Chen et al., 1998; Rubin, Hastings, Stewart, Chen, & Henderson, 1997), which typically involve higher levels of parental control and restriction of the child's activities. Such childrearing practices may implicitly encourage shyness and inhibition in

children as they are denied opportunities to experience novel situations and practice self-regulation (Hastings & Rubin, 1999). Importantly, it appears as though these sorts of overprotective, overcontrolling parenting practices are at least in part a reaction to their child's shy disposition; in other words, early social fearfulness in children may elicit such parenting responses (Rubin, Nelson, Hastings, & Asendorpf, 1999). Therefore, it appears that parental and child behavior relate to one another in a transactional manner, as has been hypothesized by many developmental psychopathology theorists (see Ollendick & Hirshfeld-Becker, 2002).

The present study sought to illuminate several questions surrounding this general topic of parental attitudes toward shyness and the presence of withdrawn, inhibited behavior in children. First, a moderational model regarding the relations among parental shyness, parental attitudes toward shyness, and behavioral inhibition in children was examined. Second, the relations among parental attitudes toward shyness, childrearing practices, and behavioral inhibition were examined using a mediator model. Young children (i.e., 3 and 4 years old) were selected to serve as participants in the present study for several reasons. First, the impact of parents on children is thought to be greater at earlier ages (e.g., DeHart, Stroufe, & Cooper, 2000), especially given the notion that children at these young ages are less likely to be involved in networks of peers. Moreover, the present study will seek to follow up on this sample of young children in several years to assess for continuity or discontinuity of behavioral inhibition and parental attitudes toward shyness.

Hypotheses

The first goal of the present study was to examine the relationship between shyness in parents and parental attitudes toward shyness as they relate to behavioral inhibition in children. It was hypothesized that parent's attitudes toward shyness would differentially influence the relationship between shyness in parents and behavioral inhibition in their children. It was expected that the positive correlation between parental shyness and child behavioral inhibition would be stronger when parents hold more positive attitudes and weaker when parents hold less positive attitudes toward shyness. Hence, it was hypothesized that parental attitudes toward shyness would serve as a moderator in the anticipated relationship between shyness in parents and behavioral inhibition in their children. Specifically, parental attitudes toward shyness and levels of shyness in parents were expected to interact to influence levels of behavioral inhibition in children (see Figure 1).

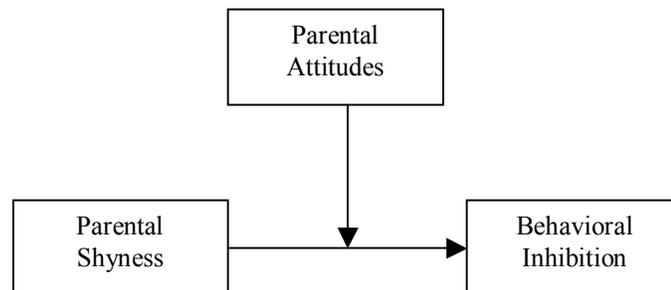


Figure 1.

The second goal of the present study was to examine the relationship between parental attitudes toward shyness and childrearing practices as they relate to behavioral inhibition in children. It was hypothesized that parental attitudes toward shyness would

affect parents' choices of childrearing practices which, in turn, would affect levels of behavioral inhibition in children. Specifically, it was expected that parents who hold more positive attitudes toward shyness would engage in childrearing practices that are more controlling, protective, and affectionate and that discourage independence. On the other hand, it was expected that parents who hold less positive attitudes toward shyness would engage in childrearing practices that are less controlling, protective, and affectionate and that encourage independence. Subsequently, it was expected that overcontrolling, overprotective parenting behaviors would result in higher behavioral inhibition in children, while less controlling and protective parenting behaviors would ultimately result in lower behavioral inhibition in children. Thus, it was hypothesized that parenting practices would serve as a mediator in the anticipated relationship between parental attitudes toward shyness and levels of behavioral inhibition in children (see Figure 2).

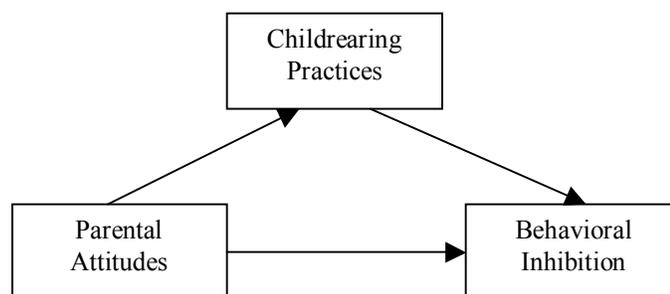


Figure 2.

Method

Participants

Participants were 55 children (28 male; 27 female) between the ages of 3.4 and 4.6 years (mean age = 4.05 years) and their mothers. Inclusion criteria required that children be within two weeks of 3.5, 4.0, or 4.5 years old because they were also enrolled in another study being conducted in conjunction with the present study (i.e., Christy Wolfe's dissertation research, which was being conducted under the supervision of Dr. Martha Ann Bell). Participants were 91% Caucasian and came from families with a mean income of \$64,576 (SD=25,375). Participants were recruited using multiple techniques. Some (n=29) were located through use of an existing database of families who have participated previously in research conducted by Dr. Martha Ann Bell of our department, while others (n=25) were located through use of an existing database of birth announcements published in the local newspaper in 1999 and 2000. In both cases, parents were sent letters in the mail informing them of the project and subsequently were contacted via telephone to inquire about their willingness to participate. In total, approximately 150 families were contacted in this manner. Finally, several (n=6) participants were located through recruitment letters that were made available at preschools and daycare centers in Montgomery County. In total, approximately 200 such letters were distributed to nine local preschools and daycares. All participants were treated in accordance with APA ethical standards (APA, 1992), and each parent-child tuple was given \$5 in cash to thank them for their participation.

Materials

Child Instrument:

Behavioral Inhibition Assessment Battery for Four Year Olds (BIA; Hirshfeld-Becker, 1998): Children's levels of behavioral inhibition were measured using a modified version of the Behavioral Inhibition Assessment Battery, which consists of a series of unfamiliar tasks that the child is asked to complete. For example, children are asked to repeat a story aloud, scribble in a book, and guess the identity of an object with their eyes closed. The battery was reduced in length by omitting two components (i.e., those involving the blood pressure cuff), as per the author's assent (Hirshfeld-Becker, personal communication, October 2003). Children's reactions to unfamiliar people, objects, and test procedures are observed and rated on two dimensions, including the number of spontaneous comments made by the child and the number of spontaneous smiles from the child, which are coded according to stringent criteria. Each child is also assigned a global rating of behavioral inhibition on a 4-point scale (1 = not inhibited, 4 = very inhibited). The researcher was trained using this system and established reliability with Dr. Hirshfeld-Becker's research team. In the past, adequate psychometric properties have been found (e.g., Rosenbaum et al., 2000). In the present study, a second rater coded 35% of BIA videotapes to establish reliability with the researcher. Interrater reliability coefficients were .84 for number of spontaneous comments made, .97 for number of spontaneous smiles, and .76 for global behavioral inhibition ratings, all of which were significant at the $p = .00$ level.

Parent Instruments – filled out about child:

Infant-Preschool Scale for Inhibited Behaviors (IPSIB; Warren, 2001):

Children's symptoms of behavioral inhibition were assessed using the 51-item Infant-Preschool Scale for Inhibited Behaviors. Parents rate their children's inhibited behaviors on a 0-3 Likert-type scale (0 = not true; 3 = problem behavior; N = no opportunity or not applicable), with higher scores being indicative of greater behavioral inhibition.

Examples of items include "my child will eat new foods right away" and "my child never 'warms up' to strangers". Warren reported a coefficient alpha of .96 obtained on a sample of 171 children (Warren, personal communication, October 2004). In the present study, a coefficient alpha of .92 was obtained.

Devereux Early Childhood Assessment Clinical Form – Withdrawal/Depression Scale (DECA-WD; LeBuffe & Naglieri, 2002): Children's levels of withdrawn behavior were assessed using the Withdrawal/Depression scale of the 62-item Devereux Early Childhood Assessment Clinical Form. Parent participants rate how frequently their child evidenced a series of behaviors over the past four weeks on a 5-point scale ranging from "never" to "very frequently". Examples of items on this scale include "how often does your child avoid being with adults?" and "how often does your child resist participating in group activities?". LeBuffe and Naglieri reported a coefficient alpha of .91 for the total protective factors scale and a coefficient alpha of .88 for the total behavioral concerns scale, both of which were obtained on a sample of 2000 preschool children. In the present study, a coefficient alpha of .74 was obtained.

Parent Instruments – filled out about self:

Perceived Advantages of Shyness Survey (PASS; Schmidt & Tasker, 2000):

Parental attitudes toward shyness were assessed using the 14-item Perceived Advantages of Shyness Survey, which assesses the degree to which parents view various features of shyness as positive (e.g., “I like that my child doesn’t speak to strangers”, “teachers prefer shy children”). Parent participants rate the degree to which they consider a variety of things to be advantages to either having or being a shy child, as well as the degree to which they consider various items drawbacks to either having or being a shy child on a 5-point Likert-type scale (1 = strongly agree, 5 = strongly disagree). This testing instrument has not yet been subjected to rigorous scientific standards; therefore its psychometric properties are unknown at this time (Schmidt, personal communication, August 2003). In the present study, a coefficient alpha of .88 was obtained.

Child-Rearing Practices Report (CRPR; Block, 1986): Parental socialization behaviors and child-handling techniques were measured using a modified version of the Child-Rearing Practices Report. Five factors (28 items) from the original scale were used in this study: Authoritarian Control (e.g. “I have strict, well-established rules for my child”), Encouragement of Independence (e.g., “I let my child make many decisions for herself”), Expression of Affection (e.g., “I feel a child should be given comfort and understanding when she is scared or upset”), Protection of Child (e.g., “I prefer that my child not try things if there is a chance that she will fail”), and Control by Anxiety Induction (e.g., “I control my child by warning her about the bad things that can happen to her”). The original CRPR was also modified from using a Q-sort format to using

Likert-type scales to facilitate data collection, as has been done in previous studies (e.g., Lin & Fu, 1990). Parent participants rate the extent to which statements describe their relationship with their child on a 1-5 Likert-type scale (1 = strongly disagree, 5 = strongly agree). Block reported a test-retest reliability coefficient of 0.71 obtained on a sample of 90 undergraduates. In the present study, a coefficient alpha of .60 was obtained.

Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998): Parental shyness was assessed using the 19-item Social Interaction Anxiety Scale, which measures anxiety and nervousness in meeting or talking with other people (e.g., “I get nervous if I have to speak with someone in authority”, “I find myself worrying I won’t know what to say in social situations”). Parent participants rate their anxiety on a 0-4 Likert-type scale (0 = not at all; 4 = extremely), with higher scores being indicative of more severe levels of shyness. Mattick and Clarke reported a coefficient alpha of 0.88 obtained on a sample of 482 undergraduate students. In the present study, a coefficient alpha of .91 was obtained.

Parent Information Form: Demographic information was gathered using a parent information form. Parent participants were also asked to answer questions about their child’s preschool attendance, daycare attendance, siblings, extracurricular activities, and medical history.

Other Instruments:

In addition to these seven instruments, the Pictorial Scale of Perceived Competence and Social Acceptance – Preschool/Kindergarten version (Harter & Pike,

1983) and the Fear Survey Schedule for Infants and Preschoolers (Warren & Ollendick, 2001) were administered for purposes of other research but were not analyzed herein.

Procedure

Participants each attended one session, lasting approximately 40 minutes, during which parent-child tuples were invited to meet with the examiner in a room in Williams Hall on the Virginia Tech campus. Upon arrival for the experiment, participants were provided with a general overview of the experimental procedures and were given the opportunity to provide their explicit informed consent to participate.

The child was then asked to engage in the activities involved in the Behavioral Inhibition Assessment. These activities included: 1) showing the child a series of pictures and asking him/her to identify what is depicted; 2) asking the child to listen to and repeat a story out loud, using a series of pictures illustrating scenes in the story; 3) asking the child to repeat several strings of numbers orally after the examiner said them; 4) asking the child to hold out his/her hands, close his/her eyes, and guess the object placed in his/her hands; 5) asking the child to comply with several unusual requests, including pouring water from one cup to another, scribbling in a book, tearing a sheet of paper, throwing a ball, pouring juice onto a table, scribbling on a sheet of paper, throwing a ball at the researcher's face, tearing a picture, putting his/her finger in an empty cup, hitting a table, and putting his/her finger in a cup filled with gel; 6) administering a matrix completion activity in which the child is shown an incomplete pattern that he/she is asked to complete by choosing from a series of possible pictorial choices; and 7)

allowing the child to choose a sticker after completing each of the aforementioned six activities.

Parent participants were present in the room during administration of these activities, but were asked not to participate in any of them. Instead, parents were given a packet of questionnaires to complete and return to the examiner prior to leaving the session. The process of completing these questionnaires required approximately 40-minutes.

Sessions were videotaped for subsequent analyses and will be erased upon completion of the project.

Results

Means, standard deviations, and ranges were computed for each measure and are presented in Table 1. Data were screened for normality; all assumptions were met. Bivariate regressions were then conducted among all variables, and Pearson r 's are presented in Table 2.

Children's age and gender were not significantly associated with any measures. Within the BIA, all three indices were significantly related to one another, with a positive relationship emerging between the number of spontaneous comments made by the child and the number of smiles from the child, and a negative relationship emerging between the global rating of behavioral inhibition and both the number of spontaneous comments and smiles from the child. A significant positive relationship emerged between behavioral inhibition in children as measured by the IPSIB and withdrawn behavior in

children as measured by the DECA-WD, although behavioral inhibition as measured by all indices of the BIA was not significantly related to either of these measures.

Surprisingly, shyness in parents as measured by the SIAS was not significantly related to inhibition in children as measured by the BIA, IPSIB, or DECA-WD.

However, positive attitudes toward shyness as measured by the PASS were significantly and positively related to inhibition in children as measured by both the IPSIB and DECA-WD, but not the BIA. The SIAS and the PASS were not significantly related.

Moreover, several significant trends emerged regarding parenting strategies as measured by the CRPR. First, a significant positive relationship emerged between shyness in parents and Control by Anxiety Induction, while a significant negative relationship emerged between shyness in parents and Encouragement of Independence. Second, positive attitudes toward shyness were significantly and positively related to three of the five scales of the CRPR: Protection of Child, Authoritarian Control, and Control by Anxiety Induction. On the other hand, positive attitudes toward shyness were significantly and negatively related to the Encouragement of Independence scale. Finally, there was a significant positive relationship between withdrawn behavior in children as measured by the DECA-WD and the Control by Anxiety Induction scale.

Hierarchical Regressions Regarding Parental Anxiety and Attitudes: Tests of Moderation

A series of five hierarchical regressions were conducted to test for significant main effects of shyness in parents and parental attitudes toward shyness in predicting inhibited behavior in children, as well as the possible moderating effect of parental attitudes toward shyness in the relationship between parental shyness and child

behavioral inhibition (see Figure 1). Regressions were run separately for each of five criterion variables measuring withdrawn, inhibited behavior in children; namely, the BIA (total number of spontaneous comments, total number of smiles, and global BI rating), IPSIB, and DECA-WD.

After controlling for participants' age and gender in block one of the hierarchical regressions, the main effect of parental shyness was tested in block two and the main effect of parental attitudes toward shyness was tested in block three. The interaction term of the SIAS and PASS was entered in block four (Holmbeck, 2002).

Results of the regressions are illustrated in Tables 3 through 7. Unexpectedly, none of the models emerged as significant. In the regression using the IPSIB as the criterion variable, a significant main effect of parental attitudes toward shyness emerged, $t(45) = 2.31, p = .03$ (see Table 4). No other main effects were significant, and no interaction terms emerged as significant.

Hierarchical Regressions Regarding Parental Attitudes and Parenting Strategies: Tests of Mediation

A series of ten hierarchical regressions were conducted to test for a significant main effect of parenting strategies in predicting inhibited behavior in children, as well as the possible mediating effect of parenting strategies in the relationship between parental attitudes toward shyness and behavioral inhibition in children (see Figure 2).

Regressions were run separately for two criterion variables measuring withdrawn, inhibited behavior in children; namely, the IPSIB and the DECA-WD. Analyses were not conducted using the BIA as a criterion variable due to the lack of significant bivariate

relationships between all indices of the BIA and the PASS. Regressions were run separately for each scale of the CRPR (Protection of Child, Authoritarian Control, Expression of Affection, Encouragement of Independence, and Control by Anxiety Induction).

After controlling for participants' age and gender in block one of the hierarchical regressions, the main effect of parental attitudes toward shyness was tested in block two and the main effect of parenting strategies was tested in block three. Results of the regressions are illustrated in Tables 8 through 17. None of the models emerged as significant. As in the previous series of regression analyses, a significant main effect of parental attitudes toward shyness emerged in predicting IPSIB total scores, $t(44) = 2.16$, $p = .04$, but no other main effects were significant.

Post-Hoc Analyses Incorporating Experience of Nonparental Care

Fox, Henderson, Rubin, Calkins, and Schmidt (2001) found that levels of behavioral inhibition in young children were related to experience of nonparental care (defined by whether the child was currently or had in the past been cared for on a regular basis by someone other than the child's mother or father). In light of this finding, the data from the present study were reanalyzed using time spent in nonparental care as a covariate. In the present study, nonparental care was operationalized as hours per week spent in daycare or at preschool.

Analyses revealed that children in the present study spent between zero and 59 hours per week in nonparental care ($M = 18.85$, $SD = 17.79$). Bivariate regressions indicated that time spent in nonparental care was significantly related only to withdrawn

behavior in children as measured by the DECA-WD ($r = -.29$, $p = .05$) and to the Protection of Child scale of the CRPR ($r = -.38$, $p = .01$). Partial correlations were then calculated entering time spent in nonparental care as a covariate, and results did not differ significantly from those reported previously.

A series of new hierarchical regression analyses were conducted to determine if the addition of controlling for time spent in nonparental care had a significant impact on results. Again, when predicting IPSIB scores from the PASS and SIAS, a significant main effect of parental attitudes toward shyness emerged, $t(45) = 2.07$, $p = .05$. With one exception, results of the regressions did not differ significantly from those reported previously. Specifically, for the regression predicting DECA-WD scores from the PASS and the Encouragement of Independence scale of the CRPR, the model emerged as significant ($F(5, 40) = 2.45$, $p = .05$). Two main effects also emerged as significant in this regression (see Appendix). Time spent in nonparental care was negatively related to withdrawn behavior in children ($t = -2.08$, $p = .04$), and positive attitudes toward shyness were positively related to withdrawn behavior in children as measured by the DECA-WD ($t = 2.08$, $p = .04$). Conditions for a partially mediated model were not met, however.

Discussion

Unexpectedly, the results of the present study did not support either of the primary hypotheses. The hypothesis that parental attitudes toward shyness would moderate the relationship between shyness in parents and behavioral inhibition in their children was not supported, nor was the hypothesis that childrearing practices would serve as a mediator between parental attitudes toward shyness and behavioral inhibition

in children. However, results did indicate several meaningful bivariate relationships, including a significant relationship between the two parent-report measures of inhibited behavior in children, a significant relationship between parental attitudes toward shyness and reported levels of inhibited behavior in children, and several significant relationships between parental attitudes toward shyness and childrearing strategies.

The lack of a significant relationship between parent-reported behavioral inhibition and behavioral inhibition as measured by the observation-based BIA is certainly surprising. In previous studies employing observation-based and parent-report measures of behavioral inhibition contemporaneously, significant inter-measure correlations have been found (e.g., Reznick, Gibbons, Johnson, & McDonough, 1989). However, such studies have used different measures of behavioral inhibition as well as children of different ages than those included in the present study. Additionally, it is important to note that a modified version of the BIA was utilized in the present study; hence, it remains a possibility that in its entirety the BIA would correlate significantly with other, parent-report measures of behavioral inhibition in children. Furthermore, the lack of significant agreement between these measures might be explained in terms of the vastly different methods through which information was collected. Inasmuch as both parent-report measures of behavioral inhibition utilized similar response formats, part of their relationship may be explained by common method variance.

Also surprising was the lack of a significant relationship between shyness in parents and behavioral inhibition in children. As mentioned previously, a positive correlation between parent and child shyness has been supported in the literature (e.g.,

Boegels et al., 2001; Lieb et al., 2000). However, because this relationship did not emerge in the present study as was anticipated, the hypothesis that parental attitudes toward shyness would serve as a moderator between shyness in parents and behavioral inhibition in their children was unlikely to be supported from the outset.

Several factors have the potential to explicate the lack of congruence between the findings of the present study and those frequently found in the literature regarding the relationship between parent and child shyness. Among them is the notion that behavioral inhibition and shyness are distinct constructs (e.g., Cheek & Buss, 1981), and it is possible that behavioral inhibition in children relates to parental shyness in a different fashion than does shyness in children. Hence, given that the present study measured behavioral inhibition in children (and not shyness, *per se*), the difference between these two constructs could play a large role in explaining the lack of a significant relationship between shyness in parents and behavioral inhibition in children in the present study.

The positive, significant relationship between parental attitudes toward shyness and parent-reported inhibition in children (as measured by both the IPSIB and DECA-WD) that emerged in the present study is worthy of note. This relationship appears to be a relatively robust one as it remained significant across all analyses in the present study, including when controlling for age, gender, and time spent in nonparental care, as well as when adding the effects of variables such as parental shyness and parenting strategies into the model. This trend suggests that parents who hold more positive, accepting attitudes toward having a shy child are more likely to report that their child is withdrawn and inhibited.

This finding does not reveal, however, whether children of parents who hold more positive attitudes toward shyness are indeed more inhibited than children of parents who hold fewer positive attitudes toward shyness, or, on the other hand, if parents who hold more positive attitudes toward shyness are simply more willing and more likely to disclose that their children display signs of behavioral inhibition. This distinction is an important one, as it raises several important methodological issues regarding the validity of parent-report questionnaires. This finding also does not reveal anything regarding the directionality of this relationship. In other words, it remains unknown whether parents developed positive attitudes toward having a shy child after observing their child demonstrating withdrawn, inhibited behaviors, or, by contrast, whether parents who hold more positive attitudes toward shyness tend to encourage such withdrawn, inhibited behavior in children. Finally, as this finding has not previously been found in the literature, replication will be necessary.

The present study also revealed a series of significant relationships between parental attitudes toward shyness and parenting strategies. First, positive parental attitudes toward shyness were positively related to parenting strategies of a protective nature. Second, positive parental attitudes toward shyness were positively related to parenting strategies of a controlling nature. Third, positive parental attitudes toward shyness were positively related to parenting strategies that involve inducing anxiety in children in order to manage their behavior. Fourth, positive parental attitudes toward shyness were negatively related to parenting strategies that encourage independence in children. These findings, which suggest that parental attitudes toward shyness are

significantly related to certain types of parenting strategies, are a new contribution to the literature, which has previously suggested only a relationship between parenting strategies and socially inhibited behavior in children (e.g., Chen et al., 1998). Hence, the present study extends past research findings by suggesting that parental attitudes are also related to parents' choices of childrearing techniques. Again, as these findings have not previously been found in the literature, replication will be necessary.

In addition to the significant relationships between parenting strategies and parental attitudes toward shyness, several other significant relationships emerged regarding parenting strategies. Consistent with previous research which shows that anxious mothers are more likely to catastrophize (Moore, Whaley, & Sigman, 2004) and engage in parenting strategies of a controlling nature (Woodruff-Borden, Morrow, Bourland, & Cambron, 2002), shyness in parents was negatively related to parenting strategies that encourage independence in children. Furthermore, shyness in parents was positively related to parenting strategies that involve inducing anxiety in children in order to manage their behavior.

Finally, results of the present study suggested that withdrawn behavior in children was positively related to parenting strategies involving inducing anxiety in children. This finding is consistent with previous research suggesting that parenting of a highly protective and controlling nature is related to social inhibition in children (e.g., Rubin et al., 1997). Though the directionality of this relationship cannot be determined, it is alluring to conclude that children develop withdrawn behavior in response to such anxiety-provoking parenting strategies. The converse of this conclusion, in which

parents develop anxiety-inducing childrearing strategies in response to observing withdrawn behavior in their children, makes less intuitive sense. It is important to note that due to the correlational nature of the present study, however, such conclusions are purely speculative and no causal relationships can be inferred.

The distinction between the constructs of behavioral inhibition and shyness is important to note in reviewing the results of the current study. As mentioned previously, though behavioral inhibition and shyness are conceptually related constructs, they possess distinctly different meanings in the psychological literature and should not be viewed as synonymous. Whereas definitions of behavioral inhibition include children's reactions to most novel conditions (e.g., people, objects, situations, etc.), shyness by definition is constrained to only social stimulation. Moreover, definitions of shyness are extended to include an element of evaluative discomfort and self-preoccupation (e.g., Jones, Cheek, & Briggs, 1986), hence suggesting the invocation of cognitive components as well. By contrast, behavioral inhibition is not motivated by a concern with negative evaluation.

Despite such important distinctions separating these constructs, behavioral inhibition and shyness are certainly interrelated and are often considered as more similar than dissimilar (e.g., Beidel & Turner, 1999). Also related to both behavioral inhibition and shyness are a myriad of additional constructs, such as social anxiety, social phobia, withdrawal, reticence, and introversion. While these constructs often apply to the same general arena of problems and appear to overlap in several important ways, they are not interchangeable. Instead, several researchers have proposed that such interrelated

constructs exist along a continuum, spanning from behavioral inhibition and shyness at one end to more pathological levels of social phobia at the other (e.g., McNeil, 2001).

Inspection of the means and ranges of scores obtained on the measures in the present study also raises several important points. First, whereas the most prominent researchers in the area of behavioral inhibition have typically included only extreme groups in their studies (e.g., Kagan, 1993; Fox, 2001), the present study considered the full range of behavioral inhibition by including participants with intermediate levels of behavioral inhibition. Moreover, the present study did not utilize clinical samples of either parents or children, and in some cases (e.g., on several scales of the CRPR), ranges of scores were restricted. In sum, the moderate and somewhat restricted nature of the scores obtained by many participants in this sample may not comprise an ideal sample for use in investigating the hypotheses posed in the current study. Given the possibility that different findings may be obtained on different samples, future investigation might be undertaken using clinical populations.

While the sample size of 55 in the present study appears to have been sufficient in most cases, it is possible that there was not adequate statistical power to educe some effects that may have emerged with the addition of more participants. Two borderline effects are worthy of note. First, there was a trend toward a positive relationship between behavioral inhibition in children as measured by the IPSIB and the global rating of the BIA. Second, there was a trend toward a positive relationship between parental shyness and withdrawn behavior in children as measured by the DECA-WD.

Although it cannot be guaranteed that these effects would emerge as statistically significant with a larger sample size and the ensuing increase in power, the possibility remains viable. Examination of a statistical table for critical values of the Pearson r (e.g., Welkowitz, Ewen, & Cohen, 1991) reveals that approximately 85 participants would have been necessary to educe a significant relationship between behavioral inhibition in children as measured by the IPSIB and the global rating of the BIA (using $r = .21$, as found in the present study, and $\alpha = .05$). Likewise, approximately 70 participants would have been necessary to educe a significant relationship between parental shyness and withdrawn behavior in children as measured by the DECA-WD (using $r = .23$, as found in the present study, and $\alpha = .05$). Should these borderline effects indeed represent valid, legitimate relationships, parent-reported levels of withdrawn behavior in children would be validated with a behavioral measure of inhibition, and support would be provided for the proposed relationship between shyness in parents and behavioral inhibition in children.

The results of the present study have several implications for future research. First, future research might be conducted to examine further the relationship between parental attitudes toward shyness and the presence of withdrawn, inhibited behavior in children. As mentioned previously, the present study does not allow for directional or causal inferences to be made regarding this finding, and some question remains concerning the interpretation of this finding. One possibility is that parental attitudes may impact how parents respond to parent-report questionnaires about their children. If this first interpretation is upheld in future research, then constructs such as parental

attitudes and preferences ought be included in and perhaps controlled for in studies utilizing parent-report questionnaires to obtain information on young children. On the other hand, the significant relationship between parental attitudes toward shyness and withdrawn, inhibited behavior in children may not be reflective of such a response bias on the part of parents; instead, it may represent a veritable relationship wherein children of parents who hold more positive attitudes toward shyness are indeed more inhibited than children of parents who hold fewer positive attitudes toward shyness. If this second interpretation is upheld in future research, then the impact of parental attitudes and preferences on other child characteristics (besides social inhibition) might be investigated, as similar significant relationships might emerge in relation to a variety of psychological constructs.

Moreover, longitudinal investigation of the relationship between parental attitudes toward shyness and behavioral inhibition in children appears warranted. Longitudinal data would provide clues regarding the directionality of this relationship, and would reveal if either parental attitudes or child inhibition change over time. In the event that children's levels of withdrawn, inhibited behavior changed to become more aligned with their parents' attitudes toward shyness, it would appear that parental attitudes would then play an important role in the child's development. Conversely, in the event that parents' attitudes toward shyness changed to become more aligned with their children's levels of withdrawn, inhibited behavior, it would appear that parental attitudes would be more a consequence of the child's behavior than a precursor to it.

Finally, future research might also investigate potential differences between mothers and fathers in terms of their attitudes toward having a shy child. It is possible that fathers might be less accepting of shy, inhibited behavior in their children than would mothers. Additionally, given that fathers spend less time with their children than do mothers (qualified by earning status; Renk et al., 2003), it is possible that the relationship between paternal attitudes toward shyness and behavioral inhibition in children may not be as robust as this relationship when maternal attitudes are considered.

Overall, although the present study's primary moderational and mediational hypotheses failed to receive support, several meaningful indications of the impact of parental attitudes toward shyness were illustrated. The significant relationships between parental attitudes toward shyness and parents' choices of childrearing strategies are novel findings, as is the robust relationship between parental attitudes toward shyness and reported levels of inhibited behavior in children. Furthermore, the contention that parental attitudes have the potential to impact the development of children is an exciting possibility for the field of developmental psychopathology, and is deserving of future investigation.

References

- American Psychological Association (1992). Ethical principles of psychologists and code of conduct. American Psychologist, *47*, 1597-1611.
- Avila, A. (2002). The Gift of Shyness. New York, NY: Simon & Schuster.
- Barrett, M., Rapee, R., Dadds, M., & Ryan, S. (1996). Family enhancement of cognitive style in anxious and aggressive children. Journal of Abnormal Child Psychology, *24*, 187-203.
- Biederman, J., Hirshfeld-Becker, D., Rosenbaum, J., Herot, C., Friedman, D., & Snidman, N., et al. (2001). Further evidence of association between behavioral inhibition and social anxiety in children. American Journal of Psychiatry, *158*, 1673-1679.
- Block, J. (1986). The Child-Rearing Practices Report (CRPR): A set of Q items for the description of parental socialization attitudes and values. Berkeley, CA: University of California.
- Boegels, S., van Oosten, A., Muris, P., Smulders, D. (2001). Familial correlates of social anxiety in children and adolescents. Behaviour Research and Therapy, *39*, 273-287.
- Bruch, M. A., Gorsky, J. M., Collins, T. M., & Berger, P. A. (1989). Shyness and sociability reexamined: A multicomponent analysis. Journal of Personality and Social Psychology, *57*, 904-915.
- Burgess, K., Rubin, K., Cheah, C., & Nelson, L. (2001). Behavioral inhibition, social withdrawal, and parenting. In W. R. Crozier & L. E. Alden (Eds.), International

handbook of social anxiety: Concepts, research, and interventions relating to the self and shyness (pp. 137-158), New York, NY: John Wiley & Sons.

Campbell, S. (1998). Developmental perspectives. In T. Ollendick & M. Hersen (Eds.), Handbook of child psychopathology (3rd ed.) (pp. 3-35), New York, NY: Plenum Press.

Caspi, A., Elder, G., & Bem, D. (1988). Moving away from the world: Life-course patterns of shy children. Developmental Psychology, 24, 824-831.

Cheek, J. & Buss, A. (1981). Shyness and sociability. Journal of Personality and Social Psychology, 41, 330-339.

Chen, X., Hastings, P., Rubin, K., Chen, H., Cen, G., & Stewart, S. (1998). Child-rearing attitudes and behavioral inhibition in Chinese and Canadian toddlers: A cross-cultural study. Developmental Psychology, 34, 677-686.

Daniels, D. & Plomin, R. (1985). Origins of individual differences in infant shyness. Developmental Psychology, 21, 118-121.

DeHart, G., Stroufe, L., & Cooper, R. (2000). Child Development: Its Nature and Consequences (4th ed.). Boston, MA: McGraw Hill.

Fox, N., Henderson, H., Rubin, K., Calkins, S., & Schmidt, L. (2001). Continuity and discontinuity of behavioral inhibition and exuberance: Psychophysiological and behavioral influences across the first four years of life. Child Development, 72, 1-21.

Gunst, R. & Mason, R. (1980). Regression analysis and its applications. New York: Dekker.

- Harris, M. & Rosenthal, R. (1985). Mediation of interpersonal expectancy effects: 31 meta-analyses. Psychological Bulletin, *97*, 363-386.
- Harter, S. & Pike, R. (1983). The Pictorial Scale of Perceived Competence and Social Acceptance for Young Children. Denver, CO: University of Denver.
- Hastings, P. & Rubin, K. (1999). Predicting mothers' beliefs about preschool-aged children's social behavior: Evidence for maternal attitudes moderating child effects. Child Development, *70*, 722-741.
- Hirshfeld-Becker, D. (1998). The Behavioral Inhibition Assessment Battery. Boston, MA: Massachusetts General Hospital.
- Holmbeck, G. (2002). Post-hoc probing of significant moderational and mediational effects in studies of pediatric populations. Journal of Pediatric Psychology, *27*, 87-96.
- Ishiyama, F. I. (1984). Shyness: Anxious social sensitivity and self-isolating tendency. Adolescence, *19*, 903-911.
- Jones, J., Cheek, J., & Briggs, S. (1986). Shyness. New York: Plenum.
- Kagan, J. (1989). Temperamental contributions to social behavior. American Psychologist, *44*, 668-674.
- Kagan, J., Reznick, J., Clarke, C., Snidman, N., & Garcia-Coll, C. (1984). Behavioral inhibition to the unfamiliar. Child Development, *55*, 2212-2225.
- Kagan, J., Snidman, N., & Arcus, D. (1993). On the temperamental categories of inhibited and uninhibited children. In K. Rubin and J. Asendorpf (Eds.), Social

withdrawal, inhibition, and shyness in childhood (pp. 19-28). Hillsdale, N.J.: L. Erlbaum Associates.

LeBuffe, P. & Naglieri, J. (2002). The Devereaux Early Childhood Assessment – Clinical Form (DECA-C). Lewisville, NC: The Kaplan Company.

Lieb, R., Wittchen, H., Hofler, M., Fuetsch, M., Stein, M., & Merikangas, K. (2000). Parental psychopathology, parenting style, and the risk of social phobia in offspring: A prospective longitudinal community study. Archives of General Psychiatry, *57*, 859-866.

Lin, C. & Fu, V. (1990). A comparison of child-rearing practices among Chinese, immigrant Chinese, and Caucasian-American parents. Child Development, *61*, 429-433.

Mattick, R. & Clarke, J. (1998). Development and validation of measure of social scrutiny fear and social interaction anxiety. Behaviour Research and Therapy, *36*, 455-470.

McNeil, D. (2001). Terminology and evolution of constructs in social anxiety and social phobia. In S. Hofmann & P. DiBartolo (Eds.), From Social Anxiety to Social Phobia: Multiple Perspectives (pp. 8-19). Needham Heights, MA: Allyn & Bacon.

Moore, P., Whaley, S., & Sigman, M. (2004). Interactions between mothers and children: Impacts of maternal and child anxiety. Journal of Abnormal Psychology, *113*, 471-476.

Neal, J. & Edelman, R. (2003). The etiology of social phobia: Toward a developmental profile. Clinical Psychology Review, *23*, 761-786.

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

Renk, K., Roberts, R., Roddenberry, A., Luick, M., Hillhouse, S., Meehan, C., et al. (2003). Mothers, fathers, gender role, and time parents spend with their children. Sex Roles, *48*, 305-315.

Reznick, J., Gibbons, J., Johnson, M., & McDonough, P. (1989). Behavioral inhibition in a normative sample. In J. Reznick's (Ed.), Perspectives on Behavioral Inhibition (pp. 25-49). Chicago, IL: The University of Chicago Press.

Rosenbaum, J., Biederman, J., Hirshfeld-Becker, D., Kagan, J., Snidman, N., & Friedman, D. (2000). A controlled study of behavioral inhibition in children of parents with panic disorder and depression. American Journal of Psychiatry, *157*, 2002-2010.

Rosenthal, R. & Jacobson, L. (1968). Pygmalion in the classroom: Teacher expectations and pupils' intellectual development. New York, NY: Holt, Rinehart, & Winston.

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

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

Rubin, K., Nelson, L., 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.

Schmidt, L. & Tasker, S. (2000). Childhood shyness: Determinants, development, and 'depathology'. In W. R. Crozier (Ed.), Shyness: Development, consolidation, and chance (pp. 30-46). London, UK: Routledge Press.

Warren, S. (2001). The Infant-Preschool Scale for Inhibited Behaviors (IPSIB). Washington, D.C.: George Washington University.

Warren, S. & Ollendick, T. (2001). The Fear Survey Schedule for Infants and Preschoolers (FSSIP). Washington, D.C.: George Washington University.

Welkowitz, J., Ewen, R., & Cohen, J. (1991). Introductory Statistics for the Behavioral Sciences (4th Ed.). Orlando, FL: Harcourt Brace & Company.

Woodruff-Borden, J., Morrow, C., Bourland, S., Cambron, S. (2002). The behavior of anxious parents: Examining mechanisms of transmission of anxiety from parent to child. Journal of Clinical Child and Adolescent Psychology, 31, 364-374.

Zimbardo, P. (1977). Shyness: What it is, what to do about it. Reading, MA: Addison-Wesley.

*Encouragement of Independence Scale and Parental Attitudes Predicting
DECA-WD Total Score Controlling for Time Spent in Nonparental Care*

Variable	B	SE B	β	ΔR^2
Block 1				.07
Gender	-3.03	2.81	-.16	
Age	3.97	3.31	.18	
Block 2				.07
Gender	-2.35	2.76	-.13	
Age	4.12	3.22	.19	
Nonparental Care	-.15	.08	-.27	
Block 3				.05
Gender	-1.33	2.77	-.07	
Age	3.33	3.19	.15	
Nonparental Care	-.15	.08	-.28	
PASS total score	.22	.13	.24	
Block 4				.04
Gender	-1.36	2.73	-.07	
Age	2.40	3.22	.11	
Nonparental Care	-.16	.08	-.29*	
PASS total score	.29	.14	.32*	
CRPR - Independence scale	4.82	.21	.21	

Appendix (Cont.)

Note: $R^2 = .24$ for Block 4; DECA-WD = Withdrawal/Depression Scale of the Devereux Early Childhood Assessment Clinical Form; PASS = Perceived Advantages of Shyness Survey; CRPR = Childrearing Practices Report.

* $p < .05$. ** $p < .01$.

Table 1

Descriptive Statistics

Measure	Mean	SD	Potential range	Observed range
BIA				
Spontaneous comments	24.13	18.37	0 - ∞	0 - 91
Smiles	18.04	12.17	0 - ∞	0 - 50
Global rating	2.29	0.94	1 - 4	1 - 4
IPSIB	0.9	0.30	0 - 3	.33 - 1.47
DECA-WD	52.04	9.17	28 - 72	34 - 71
SIAS	16.58	10.72	0 - 76	4 - 55
PASS	53.18	10.07	18 - 90	18 - 73
CRPR				
Protection of child	2.40	0.63	1 - 5	1.00 – 3.50
Authoritarian control	2.44	0.52	1 - 5	1.22 – 3.78
Expression of affection	4.59	0.25	1 - 5	4.00 – 5.00
Encourage independence	3.73	0.41	1 - 5	2.86 – 4.86
Anxiety induction	2.77	0.86	1 - 5	1.00 – 4.00

Note. SD = Standard deviation; BIA = Behavioral Inhibition Assessment; IPSIB = Infant-Preschool Scale for Inhibited Behaviors; DECA-WD = Withdrawal/Depression Scale of the Devereux Early Childhood Assessment Clinical Form; SIAS = Social Interaction Anxiety Scale; PASS = Perceived Advantages of Shyness Survey; CRPR = Childrearing Practices Report.

Table 2

Bivariate Regressions Among all Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age	1.00													
2. Gender	-.15	1.00												
3. BIA – comments	.24	-.05	1.00											
4. BIA – smiles	-.10	.27*	.29*	1.00										
5. BIA – global	-.15	.12	-.77**	-.47**	1.00									
6. IPSIB	-.12	-.10	-.14	-.17	.21	1.00								
7. DECA – WD	.20	-.19	.25	-.01	-.16	.48**	1.00							
8. SIAS	-.03	.11	.17	-.07	-.05	.12	.23	1.00						
9. PASS	.17	-.20	-.01	.02	-.01	.30*	.29*	-.02	1.00					
10. CRPR – protection	-.15	.03	.07	.14	-.04	.04	.04	-.03	.30*	1.00				
11. CRPR – authoritarian	.06	.01	-.10	-.10	.13	.03	.24	.20	.39**	.31*	1.00			
12. CRPR – affection	-.23	.12	.17	.13	-.12	-.24	-.05	-.14	-.24	-.01	-.28	1.00		
13. CRPR – independence	.14	.03	.05	.20	-.04	-.14	.09	-.35*	-.35*	-.12	.06	-.04	1.00	
14. CRPR – anxiety	-.01	.05	.01	.11	-.05	.12	.30*	.28*	.29*	.22	.55**	-.21	-.13	1.00

Note: * $p < .05$ (2-tailed). ** $p < .01$ (2-tailed).

Parental Anxiety and Attitudes Predicting BIA – Spontaneous Comments

Variable	B	SE B	β	ΔR^2
Block 1				.04
Gender	-1.01	5.33	-.03	
Age	8.11	6.23	.19	
Block 2				.03
Gender	-1.83	5.34	-.05	
Age	8.21	6.22	.19	
SIAS total score	.31	.24	.18	
Block 3				.00
Gender	-2.10	5.47	-.06	
Age	8.52	6.38	.20	
SIAS total score	.31	.25	.18	
PASS total score	-.08	.27	-.04	
Block 4				.00
Gender	-2.16	5.53	-.06	
Age	8.43	6.45	.20	
SIAS total score	-.18	1.87	-.11	
PASS total score	-.20	.52	-.11	
SIAS x PASS	.01	.04	.30	

Note: $R^2 = .07$ for Block 4; BIA = Behavioral Inhibition Assessment; SIAS = Social Interaction Anxiety Scale; PASS = Perceived Advantages of Shyness Survey. * $p < .05$. ** $p < .01$.

Parental Anxiety and Attitudes Predicting BIA – Smiles

Variable	B	SE B	β	ΔR^2
Block 1				.06
Gender	5.56	3.50	.23	
Age	-2.10	4.12	-.07	
Block 2				.01
Gender	5.84	3.55	.24	
Age	-2.11	4.14	-.07	
SIAS total score	-.11	.16	-.09	
Block 3				.01
Gender	6.22	3.63	.25	
Age	-2.56	4.23	-.09	
SIAS total score	-.11	.16	-.09	
PASS total score	.12	.18	.10	
Block 4				.03
Gender	6.34	3.62	.26	
Age	-2.31	4.22	-.08	
SIAS total score	1.25	1.23	1.11	
PASS total score	.44	.34	.36	
SIAS x PASS	-.03	.02	-1.23	

Note: $R^2 = .10$ for Block 4; BIA = Behavioral Inhibition Assessment; SIAS = Social Interaction Anxiety Scale; PASS = Perceived Advantages of Shyness Survey. * $p < .05$. ** $p < .01$.

Parental Anxiety and Attitudes Predicting BIA – Global BI Rating

Variable	B	SE B	β	ΔR^2
Block 1				.03
Gender	.25	.27	.14	
Age	-.24	.31	-.11	
Block 2				.01
Gender	.27	.27	.14	
Age	-.24	.32	-.11	
SIAS total score	-.01	.01	-.08	
Block 3				.00
Gender	.28	.28	.15	
Age	-.25	.32	-.12	
SIAS total score	-.01	.01	-.08	
PASS total score	.00	.01	.04	
Block 4				.03
Gender	.29	.28	.16	
Age	-.23	.32	-.11	
SIAS total score	.10	.09	1.17	
PASS total score	.03	.03	.31	
SIAS x PASS	-.00	.00	-1.28	

Note: $R^2 = .07$ for Block 4; BIA = Behavioral Inhibition Assessment; SIAS = Social Interaction Anxiety Scale; PASS = Perceived Advantages of Shyness Survey. * $p < .05$. ** $p < .01$.

Parental Anxiety and Attitudes Predicting IPSIB Total Score

Variable	B	SE B	β	ΔR^2
Block 1				.03
Gender	-1.01	5.33	-.03	
Age	8.11	6.23	.19	
Block 2				.02
Gender	-1.83	5.34	-.05	
Age	8.21	6.22	.19	
SIAS total score	.31	.24	.18	
Block 3				.11
Gender	-2.10	5.47	-.06	
Age	8.52	6.38	.20	
SIAS total score	.31	.25	.18	
PASS total score	-.08	.27	-.04*	
Block 4				.01
Gender	-2.16	5.53	-.06	
Age	8.43	6.45	.20	
SIAS total score	-.18	1.87	-.11	
PASS total score	-.20	.52	-.11*	
SIAS x PASS	.01	.04	.30	

Note: $R^2 = .16$ for Block 4; IPSIB = Infant-Preschool Scale for Inhibited Behaviors; SIAS = Social Interaction Anxiety Scale; PASS = Perceived Advantages of Shyness Survey. * $p < .05$. ** $p < .01$.

Parental Anxiety and Attitudes Predicting DECA-WD Total Score

Variable	B	SE B	β	ΔR^2
Block 1				.07
Gender	-1.01	5.33	-.03	
Age	8.11	6.23	.19	
Block 2				.06
Gender	-1.83	5.34	-.05	
Age	8.21	6.22	.19	
SIAS total score	.31	.24	.18	
Block 3				.05
Gender	-2.10	5.47	-.06	
Age	8.52	6.38	.20	
SIAS total score	.31	.25	.18	
PASS total score	-.08	.27	-.04	
Block 4				.01
Gender	-2.16	5.53	-.06	
Age	8.43	6.45	.20	
SIAS total score	-.18	1.87	-.11	
PASS total score	-.20	.52	-.11	
SIAS x PASS	.01	.04	.30	

Note: $R^2 = .19$ for Block 4; DECA-WD = Withdrawal/Depression Scale of the Devereux Early Childhood Assessment; SIAS = Social Interaction Anxiety Scale; PASS = Perceived Advantages of Shyness Survey. * $p < .05$. ** $p < .01$.

Protection of Child Scale and Parental Attitudes Predicting IPSIB Total Score

Variable	B	SE B	β	ΔR^2
Block 1				.04
Gender	-4.00	4.53	-.13	
Age	-5.78	5.40	-.16	
Block 2				.09
Gender	-1.79	4.47	-.06	
Age	-7.87	5.28	-.217	
PASS total score	.48	.22	.32*	
Block 3				.02
Gender	-1.22	4.54	-.04	
Age	-9.08	5.50	-.25	
PASS total score	.56	.24	.38*	
CRPR - Protection scale	-3.17	3.82	-.13	

Note: $R^2 = .15$ for Block 3; IPSIB = Infant-Preschool Scale for Inhibited Behaviors; PASS = Perceived Advantages of Shyness Survey; CRPR = Childrearing Practices Report.

* $p < .05$. ** $p < .01$.

Authoritarian Control Scale and Parental Attitudes Predicting IPSIB Total Score

Variable	B	SE B	β	ΔR^2
Block 1				.04
Gender	-4.00	4.53	-.13	
Age	-5.78	5.40	-.16	
Block 2				.09
Gender	-1.79	4.47	-.06	
Age	-7.87	5.28	-.217	
PASS total score	.48	.22	.32*	
Block 3				.01
Gender	-1.16	4.56	-.04	
Age	-8.07	5.31	-.22	
PASS total score	.57	.25	.38*	
CRPR - Authoritarian scale	-3.62	4.61	-.13	

Note: $R^2 = .14$ for Block 3; IPSIB = Infant-Preschool Scale for Inhibited Behaviors; PASS = Perceived Advantages of Shyness Survey; CRPR = Childrearing Practices Report.

* $p < .05$. ** $p < .01$.

Expression of Affection Scale and Parental Attitudes Predicting IPSIB Total Score

Variable	B	SE B	β	ΔR^2
Block 1				.04
Gender	-4.00	4.53	-.13	
Age	-5.78	5.40	-.16	
Block 2				.09
Gender	-1.79	4.47	-.06	
Age	-7.87	5.28	-.217	
PASS total score	.48	.22	.32*	
Block 3				.05
Gender	-1.36	4.41	-.05	
Age	-9.63	5.32	-.27	
PASS total score	.42	.22	.28	
CRPR - Affection scale	-13.56	8.74	-.23	

Note: $R^2 = .18$ for Block 3; IPSIB = Infant-Preschool Scale for Inhibited Behaviors; PASS = Perceived Advantages of Shyness Survey; CRPR = Childrearing Practices Report.

* $p < .05$. ** $p < .01$.

*Encouragement of Independence Scale and Parental Attitudes Predicting
IPSIB Total Score*

Variable	B	SE B	β	ΔR^2
Block 1				.04
Gender	-4.00	4.53	-.13	
Age	-5.78	5.40	-.16	
Block 2				.09
Gender	-1.79	4.47	-.06	
Age	-7.87	5.28	-.217	
PASS total score	.48	.22	.32*	
Block 3				.00
Gender	-1.79	4.52	-.06	
Age	-7.83	5.44	-.22	
PASS total score	.48	.24	.32*	
CRPR - Independence scale	-.24	5.71	-.01	

Note: $R^2 = .13$ for Block 3; IPSIB = Infant-Preschool Scale for Inhibited Behaviors; PASS = Perceived Advantages of Shyness Survey; CRPR = Childrearing Practices Report.

* $p < .05$. ** $p < .01$.

Control by Anxiety Induction Scale and Parental Attitudes Predicting IPSIB Total Score

Variable	B	SE B	β	ΔR^2
Block 1				.04
Gender	-4.00	4.53	-.13	
Age	-5.78	5.40	-.16	
Block 2				.09
Gender	-1.79	4.47	-.06	
Age	-7.87	5.28	-.217	
PASS total score	.48	.22	.32*	
Block 3				.00
Gender	-1.90	4.57	-.06	
Age	-7.79	5.36	-.22	
PASS total score	.47	.24	.31	
CRPR - Anxiety scale	.47	2.65	.03	

Note: $R^2 = .13$ for Block 3; IPSIB = Infant-Preschool Scale for Inhibited Behaviors; PASS = Perceived Advantages of Shyness Survey; CRPR = Childrearing Practices Report.

* $p < .05$. ** $p < .01$.

Protection of Child Scale and Parental Attitudes Predicting DECA-WD Total Score

Variable	B	SE B	β	ΔR^2
Block 1				.07
Gender	-3.10	2.73	-.17	
Age	3.89	3.21	.18	
Block 2				.05
Gender	-2.17	2.75	-.12	
Age	3.06	3.20	.14	
PASS total score	.22	.14	.24	
Block 3				.00
Gender	-2.15	2.82	-.12	
Age	3.02	3.35	.14	
PASS total score	.22	.15	.24	
CRPR - Protection scale	-.11	2.41	-.01	

Note: $R^2 = .12$ for Block 3; DECA-WD = Withdrawal/Depression Scale of the Devereux Early Childhood Assessment Clinical Form; PASS = Perceived Advantages of Shyness Survey; CRPR = Childrearing Practices Report.

* $p < .05$. ** $p < .01$.

Authoritarian Control Scale and Parental Attitudes Predicting DECA-WD Total Score

Variable	B	SE B	β	ΔR^2
Block 1				.07
Gender	-3.10	2.73	-.17	
Age	3.89	3.21	.18	
Block 2				.05
Gender	-2.17	2.75	-.12	
Age	3.06	3.20	.14	
PASS total score	.22	.14	.24	
Block 3				.02
Gender	-2.64	2.78	-.14	
Age	3.15	3.19	.14	
PASS total score	.14	.15	.16	
CRPR - Authoritarian scale	3.06	2.79	.17	

Note: $R^2 = .14$ for Block 3; DECA-WD = Withdrawal/Depression Scale of the Devereux Early Childhood Assessment Clinical Form; PASS = Perceived Advantages of Shyness Survey; CRPR = Childrearing Practices Report.

* $p < .05$. ** $p < .01$.

Expression of Affection Scale and Parental Attitudes Predicting DECA-WD Total Score

Variable	B	SE B	β	ΔR^2
Block 1				.07
Gender	-3.10	2.73	-.17	
Age	3.89	3.21	.18	
Block 2				.05
Gender	-2.17	2.75	-.12	
Age	3.06	3.20	.14	
PASS total score	.22	.14	.24	
Block 3				.00
Gender	-2.24	2.78	-.12	
Age	3.38	3.31	.15	
PASS total score	.23	.14	.25	
CRPR - Affection scale	2.45	5.52	.07	

Note: $R^2 = .12$ for Block 3; DECA-WD = Withdrawal/Depression Scale of the Devereux Early Childhood Assessment Clinical Form; PASS = Perceived Advantages of Shyness Survey; CRPR = Childrearing Practices Report.

* $p < .05$. ** $p < .01$.

*Encouragement of Independence Scale and Parental Attitudes Predicting
DECA-WD Total Score*

Variable	B	SE B	β	ΔR^2
Block 1				.07
Gender	-3.10	2.73	-.17	
Age	3.89	3.21	.18	
Block 2				.05
Gender	-2.17	2.75	-.12	
Age	3.06	3.20	.14	
PASS total score	.22	.14	.24	
Block 3				.03
Gender	-2.21	2.73	-.12	
Age	2.23	3.25	.10	
PASS total score	.28	.15	.31	
CRPR - Independence scale	4.34	3.50	.19	

Note: $R^2 = .15$ for Block 3; DECA-WD = Withdrawal/Depression Scale of the Devereux Early Childhood Assessment Clinical Form; PASS = Perceived Advantages of Shyness Survey; CRPR = Childrearing Practices Report.

* $p < .05$. ** $p < .01$.

*Control by Anxiety Induction Scale and Parental Attitudes Predicting**DECA-WD Total Score*

Variable	B	SE B	β	ΔR^2
Block 1				.07
Gender	-3.10	2.73	-.17	
Age	3.89	3.21	.18	
Block 2				.05
Gender	-2.17	2.75	-.12	
Age	3.06	3.20	.14	
PASS total score	.22	.14	.24	
Block 3				.07
Gender	-2.87	2.70	-.15	
Age	3.41	3.12	.16	
PASS total score	.13	.14	.14	
CRPR - Anxiety scale	2.89	1.57	.27	

Note: $R^2 = .19$ for Block 3; DECA-WD = Withdrawal/Depression Scale of the Devereux Early Childhood Assessment Clinical Form; PASS = Perceived Advantages of Shyness Survey; CRPR = Childrearing Practices Report.

* $p < .05$. ** $p < .01$.