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## **Chapter 1**

### **Introduction**

A growing body of research continues to focus on childhood social anxiety, which has an estimated prevalence rate of 5 to 15% among youth (Ollendick & Hirschfeld-Becker, 2002). While researchers have recognized the importance of investigating contextual and environmental influences such as the family in understanding the etiology of social anxiety (Barrett, Rapee, Dadds, & Ryan, 1996; Rapee, 1997; Siqueland, Kendall, & Steinberg, 1996), research on emotion and childhood social anxiety remains sparse. Specifically, although risk factors related to a child's family environment such as childrearing, parental control, and modeling have been explored in the development of anxiety disorders, emotion regulation – the ability to flexibly modulate emotion to the demands of the social context (Campos, Mumme, Kermoian, & Campos, 1994) – has not been well explored. A literature search of emotion regulation as it relates to specific anxiety disorders in children (e.g. specific phobia, generalized anxiety, and social anxiety) reveals a dearth of research. This is surprising considering the increasing attention that children's emotion research has garnered over recent years. "Hot" topics such as emotion regulation, emotion understanding, and emotional competence have been hypothesized to play a critical role in the development of children's socioemotional competence and later adjustment in life (Cicchetti, Ackerman, & Izard, 1995). Indeed, while researchers have acknowledged the significance of emotion and emotion regulation research, the need to apply advances in emotion research into prevention and treatment programs has been recognized only recently (Izard, 2002; Zeman, Cassano, Perry-Parrish, & Stegall, 2006). Thus, the investigation of family influences and emotion regulation on social anxiety may benefit future emotion-based intervention programs.

## **1.1 Anxiety and Family Factors**

Research on the treatment of childhood anxiety reveals the important role that the family plays in the maintenance of anxiety disorders (e.g. Barrett et al., 1996). Furthermore, research has also shown that the family enhancement of avoidant responding (FEAR) effects, in which the interpretation of ambiguous situations and reinforcement of anxious behavior in the parents of anxious children are examined, may affect the development of children's anxiety (Dadds, Barrett, Rapee, & Ryan, 1996; Velting, Setzer, & Albano, 2004). These studies highlight the significant role that the family plays in the development of anxiety, suggesting that the family environment is a significant etiological contributor (Hudson & Rapee, 2000). Research specific to social anxiety has hypothesized the development of children's social anxiety to be associated with parental risk factors including child rearing style, parental modeling of social avoidance, overprotection, and restricted contact with social situations (Lieb et al., 2000; Masia & Morris, 1998). Indeed, these parental influences have been found to be associated with social anxiety disorder (SAD) – an impairment in academic and social functioning due to a persistent fear of social and performance situations – in children and adolescents (Ollendick & Hirschfeld-Becker, 2002).

The association between parental influences and SAD seems reasonable considering that children's psychosocial functioning is affected by various factors including parental socialization of emotion and expression of emotion. Research on emotion socialization has shown that mothers of anxious children express emotion less frequently compared to mothers of non-anxious children, thus suggesting that family expressivity of emotion may play a role in the development of anxiety and adaptive psychosocial functioning (Suveg, Zeman, Flannery-

Schroeder, & Cassano, 2005). Extant research supports this relation between emotional expressivity and anxiety. Melfsen and colleagues' examination of emotional expressions in children 8 to 12 years of age and their mothers revealed that socially anxious children displayed restricted facial activity more so than non-socially anxious children. Furthermore, mothers of socially anxious children showed less intense facial expressions compared to controls (Melfsen, Osterlow, & Florin, 2000). Underlying these parental emotional influences is the theme of irregular family expressivity of emotion in anxious families, where parents propagate poor and ineffective emotional expressions. In a similar vein, Hummel and Gross's (2001) behavioral observation research has shown that socially anxious children between the ages of 9 and 12 years and their parents engaged in fewer verbal exchanges and used less positive feedback and more negative feedback than non-anxious children and parents. These collective findings support the idea that a relationship between family expressivity and social anxiety may exist. Specifically, these studies indicate that more restricted forms of emotional expressivity in the mothers are associated with socially anxious tendencies in the behavior of children.

## **1.2 Expressiveness and Emotion Regulation**

Although a relationship between expressivity of parents and anxiety in children exists, how much does expressivity matter in children's development? Family expressivity, the style of expressing verbalized and nonverbalized expressions within the context of a family (Halberstadt, Cassidy, Stifter, Parke, & Fox, 1995), can be thought of as an indirect method of socialization that can influence children's schemas of the self- and world (Dunsmore & Halberstadt, 1997). The quality and quantity of emotional expressivity matters, as too little or too much emotional expressivity in the family can be detrimental in children's formation of their schemas about emotionality, expressivity, and how people respond to their behavior. Experiencing too little

expressivity may lead children to inhibit their emotional responses and behaviors, while experiencing too much expressivity may lead children to exhibit dysregulation of emotion by inappropriately displaying emotion or reactively responding to emotional cues. In this sense, there is good reason to believe that family expressivity is related to emotion regulation, as children's schemas can influence how they maintain, enhance, or inhibit emotions (Thompson, 1994). Thus, the development of emotions appears to be closely embedded in the context of the family, which serves as an important avenue in which children learn not only how to express emotions, but also how to regulate their emotions.

### **1.3 Psychopathology and Difficulties Regulating Emotions**

In addition to parental influences, difficulties associated with the management of emotions appear to be related to the development and expression of social anxiety as well. Several researchers have postulated that difficulties in regulating emotions (i.e., emotion dysregulation) are a risk factor in the development of child psychopathology including internalizing problems such as anxiety (Keenan, 2000; Weems & Silverman, 2006; Zeman, Shipman, & Suveg, 2002). Based on preliminary findings that difficulty in identifying, inhibiting, and regulating select emotions are predictive of internalizing symptoms in children (Zeman et al., 2002), it can be inferred that there is an association between social anxiety and poor regulation of emotion in children. Indeed, emerging research on anxiety and emotion processes reveals that children who meet *Diagnostic and Statistical Manual for Mental Disorders-IV (DSM-IV*; American Psychiatric Association, 1994) criteria for anxiety disorders (e.g., separation anxiety, generalized anxiety, and social anxiety) have less developed understanding of expression of emotions and emotion regulation compared to non-anxious controls (Southam-Gerow & Kendall, 2000). Understanding of emotions is implicitly associated with children's understanding of

emotion regulation and how they use this knowledge to guide their behavior. Thus, Southam-Gerow and Kendall's investigation, although focused on emotion understanding, provides supportive evidence in light of meager research on emotion regulation and anxiety disorders.

Further support for Southam-Gerow and Kendall's (2000) finding on emotion understanding comes from Suveg and Zeman's (2004) investigation of emotion regulation in children with an anxiety disorder. Following Southam-Gerow and Kendall's approach, Suveg and Zeman recruited children who met the *DSM-IV* criteria for anxiety disorders (separation anxiety, generalized anxiety, social anxiety, and specific phobia) and then investigated their emotion regulation abilities. Their findings confirm previous research suggesting that emotion regulation difficulties are associated with anxiety. They too found that children diagnosed with an anxiety disorder exhibited greater difficulty regulating emotions of sadness, anger, and worry than their non-anxiety disorder counterparts. Thus, findings of emotion understanding and emotion regulation research on children with anxiety disorders suggest that there is a relationship between the poorly developed emotional processes and anxiety disorders. These recent findings also provide implications for the relationship between emotion regulation and social anxiety, as these studies included children who met diagnostic criteria for social anxiety disorder, suggesting that an association likely exists between poor emotion regulation and social anxiety.

#### **1.4 Family Expressivity, Social Anxiety, and Emotion Regulation**

Collectively, the aforementioned literature suggests that one important avenue of research is the relationship among family expressivity of emotion, social anxiety, and emotion regulation. However, a recent literature search revealed only one study by Suveg and colleagues (Suveg et al., 2005) that investigated similar constructs. In their study, Suveg et al. investigated emotion socialization in families of children with an anxiety disorder (generalized anxiety, separation

anxiety, social anxiety, and specific phobia) and nonanxious children. They found that mothers of anxious children engaged in restricted parental socialization practices more than mothers of nonanxious children, such that the mothers of anxious children spoke less frequently than their children, used fewer positive emotion words, and, in general, discouraged the discussion of emotion. These differences in parental socialization of emotion between mothers of children with anxiety disorders and control-group mothers indicate that children with anxiety may be at a disadvantage in acquiring emotion skills than nonanxious children. Suveg and colleagues further postulated that this limited socialization may lead anxious children to view their mothers as an unreliable source of emotional assistance. This negative expectation of their mothers may then lead children to ineffectively regulate their emotional expressivity in ways that may be viewed as socially or culturally inappropriate. While Suveg and colleagues suggest that children with anxiety disorders may have poor management of emotions due to restricted parental socialization, this speculation was only inferred and not based upon empirical findings.

### **1.5 Present Study**

The current research expanded on the research by Suveg and colleagues (Suveg & Zeman, 2004; Suveg et al., 2005) by investigating children's social anxiety, emotion regulation, and family expressivity of emotion. The primary goal of this study was to investigate the differences in emotion regulation as it pertained to family emotional expressivity and socially anxious tendencies among a sample of clinically referred children. Participants were parents and a clinically referred sample of children who presented at a child assessment clinic for a psychological evaluation.

This study expanded on limitations of past research in several ways. First, as several researchers have noted, most research on emotion regulation has focused on normative



populations of children, while research on children with psychopathology remains scant (McClure & Pine, 2006; Southam-Gerow & Kendall, 2002). From a developmental psychopathology perspective, there is a need to expand current research to incorporate the investigation of clinical populations in order to gain a better understanding of developmental pathways that contribute to psychosocial deficits such as social anxiety. Thus, the participants for the proposed study consisted of a clinically referred sample of children. While research has postulated that emotion regulation and social anxiety are associated (e.g., McClure & Pine, 2006), empirical studies directly investigating these variables in children do not yet exist. Thus, this study also attempted to establish the link among the variables of emotion regulation, family expressivity, and social anxiety.

The research of Suveg and colleagues (Suveg & Zeman, 2004; Suveg et al., 2005) has shown an association between family emotional expressivity and anxiety. It is possible that this relationship may be mediated or moderated by emotion regulation, as emotion regulation has been found (Suveg & Zeman, 2004) and postulated to be associated with anxiety (McClure & Pine, 2006; Weems & Silverman, 2006). However, due to the lack of empirical support on the role of emotion regulation, how emotion regulation is associated with family expressivity and social anxiety is uncertain. Thus, the current study examined two competing models of the role of emotion regulation.

The first hypothesis was that children's emotion regulation would mediate the relationship between their family's expressivity of emotion and the presence of social anxiety. Specifically, it was expected that poor or inadequate family expressivity of emotion would lead to compromised children's emotion regulation, which, would in turn, be associated with greater social anxiety. A mediator effect for emotion regulation would be observed if the effect of family

expressivity on social anxiety decreases or diminishes totally as a result of controlling for emotion regulation (Baron & Kenny, 1986; Holmbeck, 1997).

The second or alternative hypothesis was that children's emotion regulation would moderate the relationship between their family's emotional expressivity and the presence of social anxiety. A moderator effect for emotion regulation would be established if the relationship between family expressivity and social anxiety varies depending on the level of emotion regulation. It was predicted that children low in emotion regulation would display a stronger relationship between family expressivity and social anxiety, compared to children high in emotion regulation. This prediction was based on the premise that children who have good emotion regulation skills, in comparison to children who have poor emotion regulation, would come from an emotionally expressive family that would in turn be associated with lower social anxiety.

## **Chapter 2**

### **Method**

#### **2.1 Participants**

Participants were children and their parent(s) who presented to the Child Assessment Clinic at Virginia Tech's Child Study Center for psychoeducational assessment. Families were referred to the clinic by community pediatricians, schools, and mental health professionals for a variety of psychological and academic difficulties. Children included in the present study were part of a larger pool of children who received a psychoeducational assessment at the clinic.

The current sample consisted of 53 children (33 boys, 20 girls) between the ages of 7 and 16 years ( $M = 10.47$ ,  $SD = 2.48$ ). The sample was largely homogeneous with the majority of children identified as Caucasian ( $n = 49$ ), two children identified as Hispanic, and two children

as Asian/Native American. Because research on parental involvement in children's development indicates that fathers play a significant role in children's perceived competence (Dubowitz et al., 2001) and are instrumental in the development of child and adolescent psychopathology (Phares & Compas, 1992), the current data investigated both mother and father reports.

Like many clinical samples (Phares, 1992; Phares & Compas, 1992), both mothers and fathers were not present for all families who presented to the Child Assessment Clinic. As such mothers were present for 51 of the 53 children, fathers were present for 38 of the 53 children, and there were 36 children where both mothers and fathers were present. Within the mother sample, 48 of the parents were biological mothers. Additionally, within this sample, 41 parents were married (77.3%), while five were divorced, three were separated, and two were widowed. There were 31 biological fathers in the father sample, with 33 reported being married (86.8%), two divorced, and two separated. Although 41 parents were married in the mother sample, this number dropped to 36 cases when both parent samples were aggregated due to incomplete questionnaires or because some fathers did not complete the questionnaires due to a lack of involvement in their children's lives.

## **2.2 Measures**

*Multidimensional Anxiety Scale for Children (MASC)*. The Social Anxiety subscale of the MASC (March, 1997) was used to identify children with socially anxious tendencies. The MASC is a 39-item self-report measure of anxiety that uses a four-point Likert scale where children are asked to rate each item based on their own experience. While the MASC is not a diagnostic instrument, it is capable of discriminating between various symptoms of anxiety and serves as a reliable screening tool (Silverman & Ollendick, 2005). The MASC was chosen due to its good internal consistency ( $\alpha = .79$  to  $.86$ ) and its inclusion of a basic scale that assesses social

anxiety. The Social Anxiety subscale is comprised of 9 items, which is further divided into Humiliation/Rejection (5 items) and Performance Fear (4 items) subscales. March reported good discriminant validity for the MASC, suggesting that the instrument is capable of differentiating between anxious and non-anxious children.

The MASC includes an Inconsistency Index where random or careless responding is detected by comparing responses between two questions. None of the children had an Inconsistency Index score greater than the cutoff score suggested by March (1997).

*Family Environment Scale (FES).* To assess the social-environmental characteristics of the families participating in the study, the Family Expressivity subscale of the FES (Moos & Moos, 1994) was used to assess the degree of emotional expressivity within the family as reported by the parents. The FES is a widely used 90-item true or false questionnaire with good internal consistency and acceptable construct validity. The Expressiveness scale, which is part of the Relationship dimension of the FES, includes 9 items that assesses the degree of family emotional expressivity. Specifically, the subscale measures the degree to which family members are encouraged to openly and directly express their feelings through items such as “Family members often keep their feelings to themselves,” “We tell each other about our personal problems,” and “We are usually careful about what we say to each other.” The Expressiveness scale has adequate internal consistency ( $\alpha = .69$ ).

*Behavior Rating Inventory of Executive Function (BRIEF).* To measure children’s ability to regulate their emotions, the Emotional Control scale of the BRIEF (Gioia, Isquith, Guy, & Kenworthy, 2000) was used. The Emotional Control subscale is comprised of 10 items that assesses for children’s ability to control their emotions. Each item is rated on a three point scale of *Never*, *Sometimes*, or *Often*. The BRIEF has high internal consistency, with Cronbach’s alpha

ranging from .80 to .98. Additionally, the BRIEF has good construct and content validity. Although the BRIEF broadly assesses executive functioning difficulties, Gioia et al. claim that the Emotional Control scale addresses the “manifestation of executive functions within the emotional realm and assesses a child’s ability to modulate emotional responses” (p. 18).

### **2.3 Procedure**

Children who presented to the clinic were seen for three sessions, during which a variety of assessments were administered including intellectual and achievement tests, a clinical interview, as well as laboratory and self-report measures. Two clinicians worked with every family such that one clinician interviewed and administered measures to the parent(s), while another clinician conducted the child assessment.

The current sample of 53 children were drawn from a larger sample of 60 children who were referred to the Child Assessment Clinic. Children whose Full Scale IQ (FSIQ) scores fell below the low average range of functioning (< 80) on the Wechsler Intelligence Scale for Children – Fourth Edition (WISC-IV; Wechsler, 2003) were excluded (n = 7). Excluding children who obtained FSIQ below 80 on the WISC-IV ensured that participating children possessed the intellectual ability to understand and complete the self-report questionnaires used in this study.

## **Chapter 3**

### **Results**

#### **3.1 Descriptive and Correlational Analyses**

Gender analyses were conducted for child report on the MASC and for mother and father reports on family environment and emotion regulation. A comparison of the means and standard deviations by gender is presented in Table 1. Inasmuch as more mothers than fathers participated,

separate analyses were conducted for the samples. For the mother report sample, a significant difference was observed between boys and girls on the MASC *T* scores, with girls reporting significantly higher scores than boys. For the father report sample, a trend towards significance was observed between boys and girls on the MASC *T* scores, with girls once again reporting higher scores than boys. For the normative sample, MASC *T* scores have a mean of 50 and a standard deviation of 10. In both the mother and father analyses, the total mean MASC *T* scores were higher than the normative sample (see Table 1), suggesting that this clinical sample tended to be more anxious than the normative population. This was especially so for the girls.

In addition, the total mean BRIEF *T* scores for mother and father analyses were also higher than the normative sample, suggesting that the children in this sample tended to have poorer emotion regulation than the general population. Total mean FES *T* scores were found to be generally commensurate with normative scores, however.

As shown in Table 2, children in this study received a wide range of *DSM-IV* Axis I diagnoses, the most common being Attention-Deficit/Hyperactivity Disorder (ADHD). Anxiety disorders were also common, with 25 of the 53 children receiving some type of an anxiety disorder diagnosis. In this sample, a total of seven children (13% of total sample) received a Social Anxiety Disorder diagnosis, of which four received SAD as the primary diagnosis. The current sample was also highly comorbid with 68% of the children having more than one disorder. Two children (3.77%) did not receive an Axis I diagnosis and 13 children (24.5%) received only one diagnosis. However, 26 children (49.1%) received two diagnoses, 11 (20.8%) received three diagnoses, and one child (1.89%) received five diagnoses. Lastly, children's Global Assessment of Functioning (GAF) scores were used to identify their psychosocial level of functioning. For the total sample ( $N = 53$ ), the GAF ranged from 40 (major impairment) to 80

(slight impairment), with overall presenting symptomatology falling in the mild to moderate range ( $M = 61.5, SD = 7.57$ ). Children included in analyses for mother reports were similar on the GAF to that of the total sample ( $M = 61.87, SD = 7.07$ ), as was the case with children included in the father analyses ( $M = 62.63, SD = 7.60$ ). For the mother report sample, boys ( $M = 61.82, SD = 6.59$ ) and girls ( $M = 61.94, SD = 8.07$ ) obtained comparable GAF scores, but for the father report sample, boys exhibited somewhat higher GAF scores ( $M = 64.10, SD = 5.70$ ) than girls ( $M = 60.63, SD = 9.46$ ). This difference, however, was not statistically significant,  $t(36) = 1.41, p = .17$ .

Correlations were computed for both mother and father reports. As shown in Table 3, the correlational analyses for mother and father reports did not reveal significant relations among the study measures. However, it should be noted that a difference in the relationship between parental reports of expressivity on the FES and children's reports of social anxiety on the MASC was observed. Specifically, there was a borderline negative relation between mothers' reports of family expressivity and social anxiety,  $r(51) = -.21, p = .08$ , while an opposite and positive borderline effect was observed for fathers' reports of family expressivity and social anxiety,  $r(38) = .23, p = .09$ . These discrepant relations will be explored further below.

### **3.2 Test for Emotion Regulation as a Mediator**

Even though the correlations between family expressiveness and social anxiety were only of borderline significance, it was determined to proceed with the original analyses as planned in order to fully explore the relations observed. To test the primary hypothesis, a hierarchical regression analysis was performed to examine the potential mediating role of emotion regulation on family expressivity and social anxiety. As recommended by Baron and Kenny (1986) and Holmbeck (1997), three conditions need to be met in order for emotion regulation to be

considered a mediator. First, the predictor variable must be significantly related to the mediator variable. Thus, family expressivity was tested for its relations to emotion regulation by regressing scores of the Emotional Control subscale of the BRIEF on the Family Expressivity subscale scores from the FES. Second, the predictor variable must be significantly related to the dependent variable. In this regard, family expressivity was tested for its relation to social anxiety. Social anxiety scores were represented by the children's response to the Social Anxiety subscale of the MASC and were regressed on to the Family Expressivity subscale scores. Third, the mediator must be significantly related to the dependent variable. Therefore, the relation between emotion regulation and social anxiety were tested by regressing the Emotional Control score on the Social Anxiety score. As shown in Table 3, none of these prerequisites were met.

Illustratively, for mother reports, when family expressivity was entered in the first step of the hierarchical regression equation, the standardized beta coefficient was not significant ( $t = -1.46, p = .15$ ). When emotion regulation was entered into the second step, family expressivity ( $t = -1.43, p = .16$ ) and emotion regulation ( $t = .08, p = .94$ ) were not significant. As shown in Table 4, all steps in the hierarchical regression were not significant. This finding indicates that emotion regulation did not mediate the relationship between children's reports of social anxiety and mother's reports of family expressivity.

For father reports, when family expressivity was entered in the first step of the hierarchical regression equation, the standardized beta coefficient was also not significant ( $t = 1.40, p = .17$ ). When emotion regulation was entered into the second step, family expressivity ( $t = 1.33, p = .19$ ) and emotion regulation ( $t = .74, p = .46$ ) were not significant. As shown in Table 5, all steps in the hierarchical regression were not significant. Similar to mother reports, this



finding indicates that emotion regulation did not mediate the relationship between children's reports of social anxiety and father's reports of family expressivity.

### **3.3 Test for Emotion Regulation as a Moderator**

To test the secondary hypothesis, hierarchical regression analyses were again conducted to examine the potential moderating role of emotion regulation. To test for the role of emotion regulation as a moderator, family expressivity was first entered into the regression equation, followed by emotion regulation, and finally the interaction variable of family expressivity and emotion regulation. Holmbeck (1997) recommends that variables be centered before testing for moderation to reduce the multicollinearity between the two predictor variables and the interaction term. However, the variables for emotion regulation, social anxiety, and family expressivity were not centered as standardized *T* scores were used in these analyses.

For the mother report sample, the  $R^2$  regressing Social Anxiety *T* score on family expressivity was not significant at .04 variance accounted for. The inclusion of emotion regulation in the second step did not increase the  $R^2$ , which remained at .04. The Family Expressivity x Emotion Regulation interaction was not statistically significant either ( $R^2 = .05$ ). Similarly, for the father report sample, the  $R^2$  regressing Social Anxiety *T* score on family expressivity was not significant at .05. The inclusion of emotion regulation increased the total  $R^2$  to .07, but this increase was not statistically significant. Finally, the Family Expressivity x Emotion Regulation interaction was not statistically significant ( $R^2 = .09$ ). These findings indicate that children's reports of social anxiety and parental reports of family expressivity were not moderated by emotion regulation for either mothers or fathers.

### 3.4 Post Hoc Exploratory Analyses

The initial results of the study did not indicate that emotion regulation mediated or moderated the relationship between family expressivity and social anxiety. However, of interest, the direction of the relationship between expressivity and social anxiety differed for mothers and fathers. An inverse relationship, as predicted, was found for mothers but a direct, positive relationship was found for fathers. Therefore, exploratory analyses were conducted to further examine the relationships among these variables. A comparison of the means and standard deviations by gender for this sample is presented in Table 6. Girls had significantly higher MASC social anxiety *T* scores than boys but none of the other measures significantly differed. Correlations were computed among the measures for both mother and father reports, as shown in Table 7.

A regression analysis was conducted on data where both parents completed the FES and the BRIEF ( $n = 36$ ). As can be seen in Table 8, when reports of expressivity by the mothers and fathers were entered simultaneously into the first step, both expressivity reported by the mother ( $t = -2.07, p < .05$ ) and father ( $t = 2.11, p < .05$ ) were significant. When maternal and paternal reports of emotion regulation were entered into the second step, mother expressivity was no longer significant ( $t = -1.89, p = .07$ ); however, father expressivity remained significant ( $t = 2.13, p < .05$ ). Neither emotion regulation as reported by the mothers ( $t = .54, p = .59$ ) or fathers ( $t = .33, p = .75$ ) was statistically significant.

## Chapter 4

### Discussion

The primary goal of this study was to investigate differences in emotion regulation as it pertained to family emotional expressivity and socially anxious tendencies among a sample of

clinically referred children. It was expected that emotion regulation would be associated with family expressivity of emotion and social anxiety in two ways. The first hypothesis was that children's emotion regulation would potentially mediate the relationship between their family's expressivity and social anxiety, such that poor or low family expressivity would decrease children's emotion regulation and be associated with greater social anxiety. The alternative hypothesis postulated that the children's emotion regulation would potentially moderate the relationship between family expressivity and social anxiety, such that children with low emotion regulation would display a stronger relationship between family expressivity and social anxiety, while children high in emotion regulation would show a weak relationship between family expressivity and social anxiety.

Unfortunately, the current study failed to show a significant relationship between family expressivity and social anxiety as predicted. Moreover, results of the present study revealed that emotion regulation neither mediated nor moderated the relationship between family expressivity of emotion and social anxiety for either mother or father reports. The lack of any significant relationship was surprising in as much as past research has suggested a link between emotion regulation and anxiety (e.g., Southam-Gerow & Kendall, 2000; Suveg & Zeman, 2004; Zeman et al., 2002), anxiety and family expressivity (e.g., Hummel & Gross, 2001; Melfsen et al., 2000), and family expressivity and emotion regulation (Suveg et al., 2005).

#### **4.1 Relationship Between Family Expressiveness and Social Anxiety**

Despite the lack of significant findings for the primary and alternative hypotheses, additional analyses revealed a modest non-significant association between parental reports of family expressivity on the FES and children's reports of social anxiety on the MASC. Specifically, mothers' reports of family expressivity tended to be negatively associated with

social anxiety, while an opposite, positive effect was found for fathers' reports. Post-hoc exploratory analyses confirmed these modest associations, as family expressivity as reported by mothers and fathers were significantly related to social anxiety, with mother reports negatively related to social anxiety and father reports positively related to social anxiety. This finding suggests that mothers' reports of family expressivity were associated with less social anxiety, whereas fathers' reports of expressivity were associated with increased social anxiety in children.

Why might this be so? Although the finding for mothers' report were consistent with previous studies (e.g., Hummel & Gross, 2001; Melfsen et al., 2000; Suveg et al., 2005), the finding that fathers' reports of family expressivity were associated with increased social anxiety cannot be readily reconciled. However, extant literature suggests that fathers interact with their children in a different manner than mothers (Hummel & Gross, 2001; Siegal, 1987). Siegal's review of socialization behavior of young children in mothers and fathers revealed that fathers rated or treated their sons and daughters in a different manner, but this difference was not observed in mothers. Additionally, it was reported that father-specific effects were most evident in the area of discipline and physical involvement and weaker in areas of affection and everyday conversation. Siegal's findings suggest that while mothers tend to interact with their daughters and sons in a similar way, fathers respond differently to their children based on their gender. Thus, there may be a qualitative difference in how mothers and fathers treat their children (e.g., expressing emotion, engagement in activities with parents) and this difference in sex-typing (where fathers place greater distinction between sons and daughters) could have become evident in the level of expressivity observed in the current investigation.

## **4.2 Differential Role Theory**

With regards to sex-typing, differential role theory speculates that fathers' socialization promotes masculine and feminine characteristics in boys and girls, respectively, and that fathers seek out sex-typed roles in their children (Siegal, 1987). Results of the current investigation reveal that the more fathers reported the family to be expressive, the more socially anxious the children reported themselves as being, a finding that can only be partially accounted for by differential role theory. The theory suggests that a dissonance emerges when fathers promote non-masculine characteristics (e.g., expression), which may in turn be associated with the development of socially anxious tendencies in boys. The same logic does not fully account for the development of socially anxious tendencies in girls, as fathers are expected to engage in more emotionally expressive behavior with girls. There is a possibility, however, that sex-typed socialization behavior by fathers may enhance not only feminine role characteristics in girls, but also socially anxious tendencies in girls by increasing their daughter's social cognition. Furthermore, it has been reported that mothers speak with greater frequency to their children than fathers (Hummel & Gross, 2001), suggesting that mothers tend to spend more "quality" time with their children than fathers. These differences in both the quantity and quality of interaction with children may also have contributed to the difference in how parents perceived and reported family expressivity of emotion. Investigation of parental rearing style in future research may assist in further delineating this possible explanation in the differences between parental reports on children's social anxiety.

## **4.3 Gender Role Stereotypes**

An alternative explanation may be that the parents were influenced by societal gender role stereotypes in reporting differences in family expressivity. That is, the responses provided

by the parents could have been reflective of parent gender stereotypes that affected how they perceived and reported on family expressivity, which in turn was associated with socially anxious tendencies in children. Mothers could have considered themselves to be the primary caregivers that openly provide emotional support to the children, while fathers considered themselves to provide more discipline but comparably less warmth and expressivity than mothers. In keeping with these conventional stereotypes, mothers reported more warmth and openness within the family ( $M = 54.45$ ), while fathers reported less openness to expressivity ( $M = 49.21$ ), as shown in Table 1. Indeed, Halberstadt and colleagues found mothers to be significantly more expressive than fathers in their questionnaire on emotional expressivity within the family (Halberstadt et al., 1995). Furthermore, past research provides supportive evidence suggesting that fathers tend to be influenced by gender role stereotypes (Peterson, 2004), which could account for the lower level of expressivity in the current study. Specifically, Peterson found that when mothers and fathers provided narratives about their children being injured, fathers used descriptive language that emphasized the absence of emotional reaction in their sons, but not daughters. The collective findings by Peterson suggest that fathers appear to be projecting gender role stereotypes that emphasize less emotion and more masculinity in males, while emotionality is emphasized more in females. This difference could have manifested itself in the current findings, where fathers responded in a manner congruent to parental gender role stereotypes.

Furthermore, in developing a gender-based attitudes scale towards child rearing, Hoffman and Kloska (1995) reported that higher socioeconomic status, greater education level, being female, and maternal employment predicted less gender-stereotyped scores. However, families that participated in the current study had mixed characteristics and did not necessarily meet these criteria (e.g., SES, education level). Still, not meeting these demographic criteria does not rule

out the possibility that mothers and fathers could have differed in how they valued the importance of openly expressing emotions within the family. In fact, the current findings may suggest that not only could parental attitudes and demographic variables be associated with gender-stereotyped responses, but the manner in which parents *perceive* and *value* emotional expressivity could also affect stereotyped responding. In the current study, mothers' expressivity of emotion (e.g., warmth, openness, support) could have served as a buffer for socially anxious tendencies in children, but fathers who reported more expressivity may have enhanced social anxiety by going against conventional stereotype.

#### **4.4 Limitations and Future Directions**

Several possible explanations exist for the lack of the original hypothesized findings. First, a larger sample would permit a more extensive examination of the relationship among emotion regulation, family expressivity, and social anxiety. Although the current study included father data in the analyses, the sample ( $n = 38$ ) was comparably smaller than mother data ( $n = 51$ ). A larger sample could have provided more support for borderline or marginal relationships. Second, while sufficient grounds exist for using the FES and the BRIEF to assess family expressivity of emotion and emotion regulation respectively, it is possible that these measures did not fully assess the constructs of interest.

Previous research (e.g., Suveg et al., 2005) supports the use of the FES as a suitable instrument to assess family expressivity of emotion. However, the FES was not constructed to assess for emotional expressivity per se, but to measure family social environment characteristics (Moos & Moos, 1994). As such, there are 10 subscales, each with nine questions, which assess for a variety of family attributes including expressivity. These subscales are a component of the three main family dimensions of Relationship, Personal Growth, and System Maintenance. It can

be seen then, that the Expressivity subscale is only a small subset of the FES and may lack sufficient item content to accurately assess for family emotional expressivity. It is likely that this subscale broadly measures the level of *family expressivity* but does not comprehensively assess for *emotional expressivity* within the family. The subscale consists of items that reflect openness to expressivity (e.g., “Money and paying bills is openly talked about in our family,” “There are a lot of spontaneous discussions in our family,” and “If we feel like doing something on the spur of the moment we often just pick up and go”). In comparison, a measure such as the Self-Expressiveness in the Family Questionnaire (Halberstadt et al., 1995) is a 40-item questionnaire that is solely dedicated to assessing family emotional expressivity (e.g., “Praising someone for good work,” “Expressing deep affection or love for someone,” and “Telling family members how hurt you are”). Given these considerations, the Expressivity subscale may not have effectively assessed for family emotional expressivity.

Similarly, the Emotional Control scale of the BRIEF may not have accurately assessed emotion regulation. As Southam-Gerow and Kendall (2002) note, researchers have made distinctions between emotion regulation and emotion control (e.g., Bridges, Denham, & Ganiban, 2004; Cole, Michel, & Teti, 1994). Specifically, Cole et al. note that emotion regulation is more than merely stopping or controlling distressing emotions. Regulation, they assert, implies a “dynamic ordering and adjusting” of emotion, while control implies restraint. As such, Cole and colleagues suggest that emotional control is only a part of the larger construct of emotion regulation, and though intertwined, does not constitute emotion regulation itself. As indicated by the scale name, the 10 item Emotional Control scale used in this study reflects children’s ability to control emotions more so than regulate emotions. Due to the intertwined nature of emotion control and emotion regulation, the scale used in the current study likely tapped into a part of



emotion regulation but did not sufficiently assess for the construct as a whole. Gioia et al.'s (2000) claim that the scale can assess emotion regulation is accurate in this regard; however, the scale was not multifaceted enough to fully assess children's emotion regulation. A more comprehensive measure such as the Emotion Regulation Checklist (Shields & Cicchetti, 1997) or the Emotion Regulation Interview (Zeman & Shipman, 1997), both of which are more widely used measures of emotion regulation than the BRIEF, may be more appropriate when measuring this construct in future studies.

Third, the current investigation attempted to increase the limited body of literature on emotion regulation in a clinical sample of children (McClure & Pine, 2006; Southam-Gerow & Kendall, 2002). However, the inclusion of a clinically referred sample of children could have limited the findings. The current study exclusively relied on the use of questionnaires completed by parents and children regardless of the form of child psychopathology. Although children's intelligence was controlled, neither parent nor child's psychopathology was taken into account. Parents with poor psychosocial functioning or those who were experiencing socio-emotional difficulties themselves may have provided skewed perceptions of their children's emotion regulation and family expressivity.

Similarly, children with other psychopathology (e.g., Pervasive Developmental Disorders, ADHD) may have exhibited greater difficulty with accurately and objectively assessing their own anxiety. Research has shown that comorbidity tends to be prevalent in clinical samples (Russo & Beidel, 1994). Indeed, the current study was no exception as 72% of the children were identified as having more than one *DSM-IV* Axis I diagnosis, with close to half of the children (49.1%) receiving two diagnoses and another 22.6% receiving three or more diagnoses. These coexisting disorders could have affected how accurately children perceived and reported their

presenting problems. As reported by Hoza and colleagues (2004), children with ADHD (the majority of children in this sample) have been reported to overestimate their competence relative to adult reports and that these inflated perceptions were in areas of their greatest deficit. Conversely, evidence suggests that anxious children tend to perceive themselves as being emotionally less efficacious than non-anxious children (Suveg & Zeman, 2004). Depression and anxiety symptoms have also been found to be associated with children's underestimation of their academic competency (Cole, Martin, Peeke, Seroczynski, & Fier, 1999).

These prior findings suggest that children prone to anxiety, including children in the current sample who obtained a higher average MASC *T* score than the normative population, may tend to underestimate their competency on self-report measures. Furthermore, a drawback to using questionnaires to assess anxious tendencies in children is socially desirable responding (DiBartolo, Albano, Barlow, & Heimburg, 1998), which may be particularly evident in socially anxious children. Although the MASC contains an Inconsistency Index, the index is designed to detect random or careless responding rather than socially desirable responding per se (March, 1997). In this regard, socially desirable responding could have also affected reports on the accuracy of anxiety. Among the 53 children in the current sample, only seven children received a non-anxiety or non-ADHD diagnosis, thus increasing the likelihood that these children could have overestimated or underestimated their problems on the MASC. Additionally, the average Global Assessment of Functioning score for these children was 61.5, which suggests that the average child had relatively mild to moderate psychopathological symptoms. While the MASC is considered to be a reliable screening tool for anxiety (Silverman & Ollendick, 2005), future research may benefit from including parental diagnostic interviews such as the Anxiety

Disorders Interview Schedule for DSM-IV, Parent Version (Silverman & Albano, 1996) or behavioral tasks to validate the presence of anxiety.

Despite these limitations, the current investigation revealed possible directions for future research in the area of social anxiety, family emotional expressivity, and emotion regulation. A notable strength of the current study was the inclusion of father data in the analyses. Despite the small sample size of father reports, post hoc analyses revealed that mother and father reports of family expressivity were related differentially to children's reports of social anxiety. This finding reaffirms the importance of investigating the socialization roles of both mothers and fathers in children's psychosocial functioning.

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Table 1.

*Comparison of Means and Standard Deviations of the Measures for Mother and Father Samples*

Measure	Sex	<i>M</i>	<i>SD</i>	<i>N</i>	<i>t</i>	<i>df</i>	Significance (Two-tailed)
Mothers ( <i>n</i> = 51)							
MASC	Total	54.08	12.44	51			
	Boys	50.52	11.14	33			
	Girls	60.61	12.30	18	-2.98	49	.004*
BRIEF	Total	60.39	14.71	51			
	Boys	62.70	15.16	33			
	Girls	56.17	13.23	18	1.535	49	.131
FES	Total	54.45	11.50	51			
	Boys	56.24	11.00	33			
	Girls	51.17	11.98	18	1.53	49	.133
Fathers ( <i>n</i> = 38)							
MASC	Total	57.82	13.92	51			
	Boys	54.27	12.32	33			
	Girls	62.69	14.88	18	-1.91	36	.065
BRIEF	Total	59.08	13.38	51			
	Boys	60.32	13.69	33			
	Girls	57.38	13.20	18	.664	36	.511
FES	Total	49.21	11.86	51			
	Boys	48.91	12.92	33			
	Girls	49.63	10.63	18	-.181	36	.857

*Note:* MASC = Multidimensional Anxiety Scale for Children; BRIEF = Behavioral Rating Inventory of Executive Function; FES = Family Environment Scale.

\*  $p < .05$ .

Table 2.

*DSM-IV Axis-I Diagnoses in a Sample of Clinically Referred Children (N = 53)*


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	Primary Diagnosis	Additional Diagnoses
Adjustment Disorder	-	3
Anxiety Disorder - NOS	1	3
ADHD	20	7
Bipolar I & II Disorders	3	-
Developmental Coordination Disorder	-	1
Learning Disorders	2	12
Dysthymia	1	3
Generalized Anxiety Disorder	4	5
Obsessive-Compulsive Disorder	4	4
Oppositional Defiant Disorder	1	6
Pervasive Developmental Disorder	8	2
Post-Traumatic Stress Disorder	1	-
Reactive Attachment Disorder	1	-
Separation Anxiety Disorder	-	1
Social Anxiety Disorder	4	3
Specific Phobia	1	1

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*Note:* Additional Diagnoses column is a sum of secondary, tertiary, quaternary, and quinary diagnoses. Within the sample, two children did not receive a DSM-IV Axis I diagnosis. Anxiety Disorder - NOS = Anxiety Disorder, Not Otherwise Specified; ADHD = Attention-Deficit/Hyperactivity Disorder (includes Predominantly Inattentive Type, Predominantly Hyperactive Type, and Combined Type).

Table 3.

*Correlations Among Family Expressivity, Emotion Regulation, and Social Anxiety by Parental Report*

Variable	Emotion Regulation	Social Anxiety
Mothers ( <i>n</i> = 51)		
Family Expressivity	-.127	-.205
Emotion Regulation	–	.037
Fathers ( <i>n</i> = 38)		
Family Expressivity	.075	.227
Emotion Regulation	–	.138

*Note:* \*  $p < .05$ .

Table 4.

*Summary of Hierarchical Regression Analyses for Social Anxiety, Emotion Regulation, and Family Expressivity: Mothers (n = 51)*

Variable	<i>B</i>	<i>SE B</i>	$\beta$
Step 1			
FES	-.221	.151	-.205
Step 2			
FES	-.220	.154	-.203
BRIEF	.009	.120	.011
Step 3			
FES	-.611	.536	-.565
BRIEF	-.291	.411	-.344
FES x BRIEF	.006	.008	.486

*Note:* Dependent Variable = Social Anxiety total *T* score on the Multidimensional Anxiety Scale for Children; FES = Expressivity subscale total *T* score of the Family Environment Scale; BRIEF = Emotional Control subscale total *T* score of the Behavior Rating Inventory of Executive Function.  $R^2 = .042$  for Step 1 (*ns*),  $\Delta R^2 = .000$  for Step 2 (*ns*),  $\Delta R^2 = .012$  for Step 3 (*ns*).

\*  $p < .05$ .

Table 5.

*Summary of Hierarchical Regression Analyses for Social Anxiety, Emotion Regulation, and Family Expressivity: Fathers (n = 38)*

Variable	<i>B</i>	<i>SE B</i>	$\beta$
Step 1			
FES	.253	.181	.227
Step 2			
FES	.243	.182	.218
BRIEF	.120	.162	.122
Step 3			
FES	-.788	1.052	-.708
BRIEF	-.806	.945	-.817
FES x BRIEF	.018	.018	1.377

*Note:* Dependent Variable = Social Anxiety total *T* score on the Multidimensional Anxiety Scale for Children; FES = Expressivity subscale total *T* score of the Family Environment Scale; BRIEF = Emotional Control subscale total *T* score of the Behavior Rating Inventory of Executive Function.  $R^2 = .052$  for Step 1 (*ns*),  $\Delta R^2 = .015$  for Step 2 (*ns*),  $\Delta R^2 = .026$  for Step 3 (*ns*).

\*  $p < .05$ .

Table 6.

*Comparison of Means and Standard Deviations of the Measures for the Combined Mother and Father Sample (n = 36)*

Measure	Sex	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	Significance (Two-tailed)
MASC	Total	55.61	12.98			
	Boys	50.95	12.69			
	Girls	62.93	9.96	-2.99	34	.001**
Mother BRIEF	Total	58.31	14.52			
	Boys	59.09	15.73			
	Girls	57.07	12.85	.402	34	.690
Father BRIEF	Total	58.69	13.60			
	Boys	60.32	13.69			
	Girls	56.14	13.56	.895	34	.377
Mother FES	Total	55.53	11.52			
	Boys	56.41	12.53			
	Girls	54.14	10.01	.599	34	.573
Father FES	Total	48.97	12.05			
	Boys	48.91	12.92			
	Girls	49.07	11.01	-.039	34	.969

*Note:* MASC = Multidimensional Anxiety Scale for Children; BRIEF = Behavioral Rating Inventory of Executive Function; FES = Family Environment Scale.

\*  $p < .05$ .

\*\*  $p < .01$ .

Table 7.

*Correlations Among Family Expressivity, Emotion Regulation, and Social Anxiety by Parental Report With Both Parents Present (n = 36)*

Variable	Emotion Regulation	Social Anxiety
Mothers		
Family Expressivity	-.212	-.219
Emotion Regulation	–	.162
Fathers		
Family Expressivity	.055	.227
Emotion Regulation	–	.118

*Note: \* p < .05.*



Table 8.

*Summary of Hierarchical Regression Analyses for Social Anxiety, Emotion Regulation, and Family Expressivity With Both Parents Present (n = 36)*

Variable	<i>B</i>	<i>SE B</i>	$\beta$
Step 1			
FES - Mother	-.403	.194	-.358*
FES - Father	.391	.186	.363*
Step 2			
FES - Mother	-.391	.207	-.347
FES - Father	.408	.191	.378*
BRIEF - Mother	.196	.196	.119
BRIEF - Father	.067	.205	.070

*Note:* Dependent Variable = Social Anxiety total *T* score on the Multidimensional Anxiety Scale for Children; FES = Expressivity subscale total *T* score of the Family Environment Scale; BRIEF = Emotional Control subscale total *T* score of the Behavior Rating Inventory of Executive Function.  $R^2 = .401$  for Step 1 (*ns*),  $\Delta R^2 = .029$  for Step 2 (*ns*).

\*  $p < .05$ .