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INFLUENCE OF MATERNAL ANXIETY, PARENTING BEHAVIORS, AND SIBLINGS ON
CHILDREN'S SOCIAL ANXIETY

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ABSTRACT

Social Anxiety Disorder is a prevalent psychiatric diagnosis among school-aged children (Costello, Egger, & Angold, 2005) that can cause adverse effects on children's emotional development and overall quality of life (Richards, 2013). In order to better address the issue of social anxiety in children we need to understand the underlying factors that contribute to the development of symptoms. The goal of this study was to examine maternal anxiety, maternal parenting behaviors, and sibling presence and how they interact to influence these symptoms. Results indicated that mother's anxiety levels are positively associated with the mother's ratings of her child's anxiety. No significant direct relation between maternal anxiety and authoritative parenting was found, although results suggest authoritative parenting was related to less child anxiety. Increases in maternal anxiety were associated with more authoritarian parenting, which, in turn, was associated with increases in child anxiety. Permissive parenting was not associated with higher maternal anxiety, but there were stronger effects with permissive parenting on child anxiety. Additionally, the results indicated a positive association between mother's anxiety and child's anxiety, which on trend was stronger for families with only one child. Although no significant sibling by parenting interaction was found in any model, I did find that increases in the number of siblings was associated with a decrease in maternal authoritative behavior. Overall, the current study stresses the importance of understanding the family-home environment for child social anxiety and the need to better understand these relations in context.

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Chapter 1

Introduction

Everyday children engage in social interactions that begin to shape their lives. Children are encouraged to engage in social situations within their homes, schools, and communities. Some children thrive off of social situations but many avoid them in fear. The most common class of psychiatric disorder among school-aged children are anxiety disorders (Costello, Egger, & Angold, 2005). Social Anxiety Disorder (SAD), also known as Social Phobia, is defined in the DSM-V as a persistent (lasting six months or longer) fear of social situations in which the individual feels subjected to failure and ridicule (Richards, 2013). The avoidance, anxious anticipation, or distress that the child fears can interfere significantly with his or her life activities (Richards, 2013). These feelings can cause adverse effects that persist into adolescence and place children at an increased risk for social and educational deficits later in life.

This study aims to explore the development of social anxiety symptoms in children based upon four different relations and how they interact: parental anxiety and child anxiety; parenting behaviors and child anxiety; the presence of siblings and child anxiety, and parenting behaviors and the presence of siblings. By examining these relations, we can better understand the environment an anxious child grows up in and how that environment can be altered to better aid them in navigating our complex social world.

Parental Anxiety and Child Anxiety

Ample research has been conducted on the association between parental anxiety and child anxiety, linking both genetic and environmental factors to the development of child anxiety

(Gregory & Eley, 2007; Fisak & Grills-Taquechel, 2007). Anxiety disorders are passed on through families by first-degree relatives (McClure, Brennan, Hammen, & Brocque, 2001), thus parental anxiety disorders result in an increased risk for similar diagnoses among their children (Beidel & Turner, 1997; Biederman, Petty, Hirshfeld-Becker, Henin, Faraone, & Dang, 2006; Merikangas, Avenevoli, Dierker, & Grillon, 1999). Children of parents with an anxiety disorder are nearly five times more likely to meet the diagnostic criteria for an anxiety disorder compared to children with parents who did not have an anxiety disorder, and a child's chances of meeting the criteria for an anxiety disorder by the age of fifteen doubled when their mothers had an anxiety diagnosis (McClure et al., 2001). Additionally, researchers found that prenatal maternal anxiety predicts cortisol levels in school-aged children (O'Connor, Ben-Shlomo, Heron, Golding, Adams, & Glover, 2005). This finding suggests maladaptive levels of arousal, which is a potential risk for anxiety (Shirtcliff & Essex, 2008). The existence of this genetic component is essential in understanding a child's social anxiety. Not only are children at risk for the development of anxiety when their parents are anxious, but they are also at risk for developing other disorders, such as mood disorders (Burstein, Ginsburg, & Tein, 2010).

Parents with anxiety influence their children on an environmental level through their behaviors and responses to their children's expression of emotions. Parents with anxiety disorders tend to struggle with regulating their negative emotional responses, which in turn, affects how they react to their children's expression of negative emotions (Mennin, Heimberg, Turk, & Fresco, 2002). Children who grow up watching their parents' expressions of anxiety and avoidance are more likely to adopt those behaviors as well (Fisak & Grills-Taquechel 2007). Parents are a main source of learning regarding emotions, emotion expression, and emotion regulation (Bariola, Hughes, & Gullone, 2012), and children with anxious parents may

experience a drastically different process of learning emotions than children of non-anxious parents (Barrett, Rapee, Dadds, & Ryan, 1996). Using what we know about this genetic and environmental relation between parent and child anxiety, we can examine how parenting behaviors, influenced by anxiety, may impact the child and increase their social anxiety or risk for social anxiety.

Parenting Behaviors and Child Anxiety

Parenting behaviors can reflect a parent's own anxiety and in turn, affect their child's socio-emotional functioning. A study conducted by Budinger, Drazdowski, and Ginsburg (2012) examined the differences in parenting behaviors between parents with and without SAD. They evaluated five parenting behaviors – warmth and positive affect, criticism, doubts of child competency, over-control, and granting of autonomy during two 5-minute tasks with their non-anxious child. Parents with SAD demonstrated less warmth and positive affect and more criticism and doubts of child competency than did those without SAD (Budinger, Drazdowski, & Ginsburg, 2012). However, there were no group differences in over-control or granting of autonomy (Budinger, Drazdowski, & Ginsburg, 2012). The findings indicate that there are differences in the parenting styles of parents with and without social anxiety that can contribute to the development of social anxiety in children.

Another study hypothesized that physiological arousal mediates the relation between parental emotion socialization and child emotion regulation to predict child anxiety (Williams & Woodruff-Borden, 2015). Researchers focused on children ages five and six years old because of the importance of this developmental period. During this time, children are exposed to a variety of new environments where they begin to develop and understand their own emotional vocabulary (Williams & Woodruff-Borden, 2015). This age window is also marked by socio-

emotional developmental events including the maturation of self-image and emotion regulation which influence the ways in which children experience and process emotion (Williams & Woodruff-Borden, 2015). Previous work found that mothers of socially anxious children more frequently discouraged their child's expression of negative emotions than did mothers of non-anxious children (Williams & Woodruff-Borden, 2015). Conceptualizing anxiety through evaluating a child's emotion regulation skills provided a different type of data compared to the results researchers find through self-report questionnaires measuring child anxiety. Parents may show bias when completing surveys or may not know how to describe their child, so observing the child's responses first-hand can help account for some of this misleading or missing information.

Researchers have also found an interesting relation between parental control and child anxiety. Parental control can influence the development of child anxiety by increasing the child's perception of threat, reducing the child's perception of control over threat, or by limiting the child of opportunities to explore the environments around them and learn how to deal with new situations (Rapee, 2011; Chorpita, Brown, & Barlow, 1998; Barlow, 2002). Furthermore, parent's anxiety contributes to the amount of parental control they exert over their children (Adam, Gunnar, & Tanaka, 2004; Ginsburg, Grover, & Ialongo, 2004; Turner, Beidel, Roberson-Nay, & Tervo, 2003). Parents who experience high levels of anxiety can form maladaptive coping skills which are expressed through avoidance, rejection, and over-control (Ginsburg & Schlossberg, 2002). Some parents' anxiety interferes with what they allow their children to experience, often shielding them from experiencing new situations that appear as threatening (Wood, 2006; Woodruff-Borden, Morrow, Bourland, & Cambron, 2002).

Parenting styles are often defined by the amount of control parents display during their interactions with their children. Research has been conducted on how these styles might be related to child anxiety. Baumrind defined three parenting styles based on responsiveness (warmth, acceptance, and affection) and demandingness (strictness, control) of the parent (Baumrind, 1966). Permissive parents show high responsiveness and low demandingness, authoritarian parents show low responsiveness and high demandingness, and authoritative parents show high responsiveness and high demandingness. Typically, adolescents with authoritative parents exhibit lower levels of emotional and behavioral problems than adolescents with authoritarian and permissive parents who exhibit much higher levels (Finkenauer, Engels, & Baumeister, 2005). Other research has led to the conclusion that overprotective and overinvolved styles of parenting can initiate the development and persistence of anxiety disorders (Rapee, 2001). On the other hand, parents who allow their children to face unfamiliar and challenging situations and encourage autonomy can help reduce the likelihood of their children developing anxiety disorders.

Parents who are not accepting, use rejection, are low on warmth, and criticize might foster feelings of insecurity and anxiety in their children (Manassis & Bradley, 1994; Vasey & Dadds, 2001). Parents who are overprotective and exert control send messages to their children that convey they are not capable of handling challenges thus fostering feelings of insecurity and anxiety (Hudson & Rape, 2001). Parents who catastrophize give children the viewpoint that most environments are threatening and put children at a disadvantage for developing coping and problem-solving skills (Capps & Ochs, 1995; Whaley, Pinto, & Sigman, 1999).

The research on children of permissive parents is inconclusive. One study found that children of parents who have a permissive parenting style tend to show low depersonalization

and anxiety levels and high levels of coping abilities (Wolfradt, Hempel, & Miles, 2003). It is possible that through allowing children to regulate themselves parents are enabling their children to develop better psychosocial adjustment (Wolfradt, Hempel, & Miles, 2003). However, other studies have found that permissive parenting can potentially lead to symptomatic mental health problems (Uji et al., 2013) and difficulties with self-regulation and insecurity (Baumrind, 1967). Further research needs to be conducted on the topic of anxiety and permissive parenting to gain a better understanding of this association. From this research and Baumrind's definition of parenting styles, one can hypothesize that authoritarian parenting styles may contribute to the development of child anxiety while authoritative parenting styles may be a preventative factor in the development of child anxiety. Permissive parenting styles may or may not play a significant role in the development of child anxiety.

Siblings and Child Anxiety

Research on the effects of siblings on child anxiety and parenting behaviors is extensive. Dia and Harrington demonstrated that sibling relationships have long-lasting impacts on children's development (2006). Positive sibling relationships were associated with stronger friendships, elevated self-esteem, and lower levels of loneliness, depression, and negligent behaviors (Dia & Harrington, 2006). This study, however, found that interactions between siblings and children with an anxiety disorder consisted of higher levels of conflict, expression of more controlling behaviors from the anxious child, and less warmth between siblings with anxiety compared to siblings without an anxiety disorder (Dia & Harrington, 2006). Other studies found mixed results but identified heightened anxiety in siblings due to the other child's condition (Wood, Sherman, Hamiwka, Blackman, & Wirrell, 2008; Pollard, Barry, Freedman, &

Kotchick, 2012). The focus of the present study is with a non-clinical sample, but this research suggests how sibling relationships can impact broad patterns of socio-emotional functioning.

Research on non-clinical samples identifies two main relations between siblings, anxiety, and parenting behaviors – anxiety in children and sibling interactions, and anxiety in children and parental differential treatment. In a study of children in middle childhood (Dunn, Slomkowski, Beardsall, & Rende, 1994), younger siblings' internalizing problems were positively correlated with negative relationship qualities – having a relationship with an older sibling that was low on intimacy and warmth. In addition, negative comments made by the older sibling resulted in higher internalizing problems in the younger sibling (Dunn, Slomkowski, Beardsall, & Rende, 1994). Internalizing issues can lead to problems such as anxiety and depression (Eisenberg et al., 2001). Sharing a more positive sibling relationship could help decrease the chances of children developing anxiety.

Parenting Behaviors and Siblings

Siblings influence the family environment through their interactions and their contributions and interpretations of parental differential treatment (Rowe & Plomin, 1981). Meunier and colleagues examined the dynamic between parental treatment of siblings, children's behaviors, and children's perceptions of parental treatment (Meunier, Roskam, Stievenart, Moortele, Browne, & Wade, 2012). The findings indicated that self-efficacious parents, parents who believe in their ability to shape their children's behavior, are less sensitive to children's difficult behavior and display lower levels of parental differentiated treatment compared to parents who view themselves as less efficacious (Meunier et al., 2012). Considering these findings in relation to the development of social anxiety in children, a child who feels they are treated unfairly may start to form feelings of worthlessness and worry when compared to others.

Children long to be loved and appreciated, and if a child feels that their sibling is perceived as superior to them by their parents, feelings of insecurity are likely to arise. Adolescent siblings who perceive differential treatment are more likely to have lower self-esteem and more internalizing problems (Daniels, Dunn, Furstenberg, & Plomin, 1985). Siblings in middle childhood display internalizing problems when mothers show less affection to the older child in comparison to the younger child (Dunn, Stocker, & Plomin, 1990). In addition, when a mother exerts more control toward the older child than the younger child, the older child will be more likely to develop internalizing and externalizing problems (Dunn, Stocker, & Plomin, 1990). A third study showed that adolescents who perceive more negative preferential treatment are at a much higher risk of developing both internalizing and externalizing problems as well (Reiss, et al., 1995). Although parents may or may not actually display differential treatment, it is the child's perception of its existence that contributes to the potential development of anxiety (Daniels, Dunn, Furstenberg, & Plomin, 1985).

The Current Study

Previous research provides evidence of the existing correlations between parental anxiety and children's anxiety, parental anxiety and parenting behaviors, parenting behaviors and children's anxiety, parenting behaviors and existence of siblings, and sibling relationship and child's anxiety, leaving a strong basis for further research. This study builds on these previous studies in that I am investigating the interplaying relation between these factors in children with varying levels of risk for social anxiety. Four hypotheses are examined through this study.

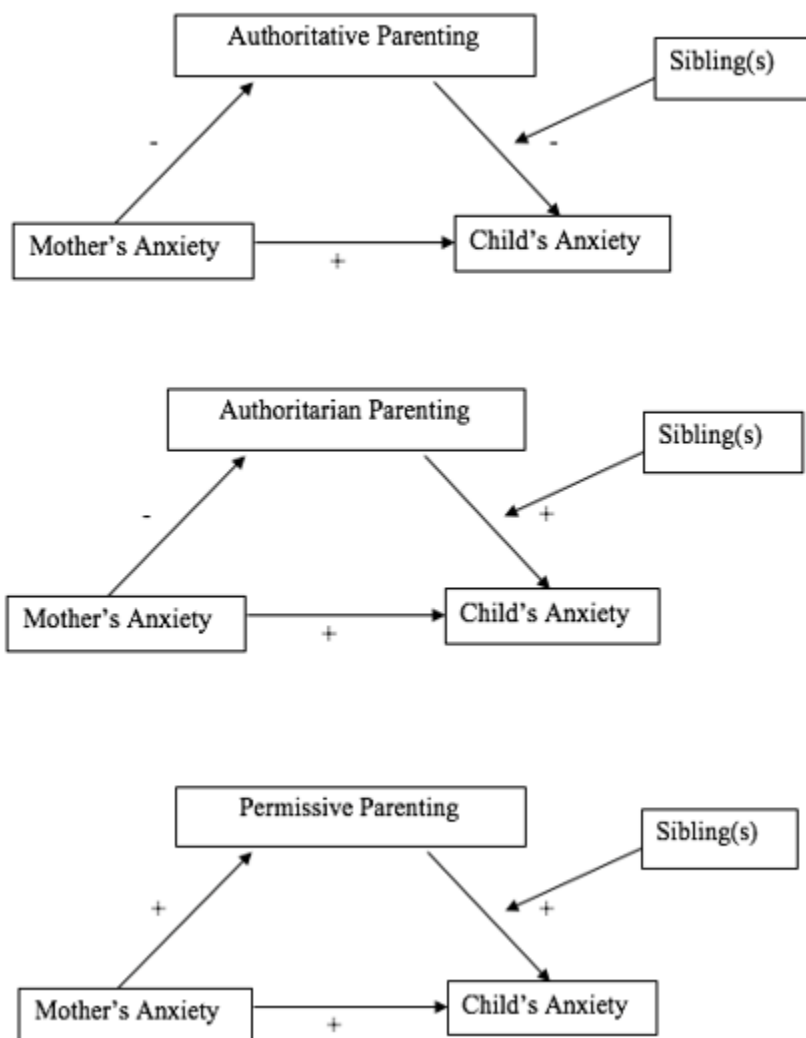
Hypothesis 1: A child with a socially anxious mother is more likely to show socially anxious behaviors than a child without a socially anxious mother.

Hypothesis 2: Socially anxious mothers will show more emotion-suppressing parenting behaviors than mothers who are not socially anxious.

Hypothesis 3: The relationship between a mother's anxiety and a child's anxiety will be weaker for families with multiple children verses one child.

Hypothesis 4: A socially anxious mother will show more emotion regulating parenting behaviors if they have more than one child.

Figure 1 Predicted Results



Chapter 2

Methods

Participants

Mothers and their children participated in a larger on-going study investigating children's social and emotional development. Participants were healthy English-speaking children 5-7 years of age and their mothers living within Centre County, Pennsylvania (N = 82 mother-child dyads). Child participants were not required to have a sibling in order to participate in the study, but the majority of participants had siblings (70 participants; 85.4%). A database listing for families interested in participating in research as well as flyers and postings at various daycares and child-related events were used to recruit participants. Children were 5.96 years old on average at time of visit (*Range*=5.01–7.74 years, *SD*=0.73). The sample was primarily White Non-Hispanic (89% Non-Hispanic White, 2.5% Asian, 4.9% African American, and 3.7% Hispanic). There were 39 male and 43 female children who participated. All parents included in the study were females.

Procedure

Families participated in the larger study for one two-hour session that included tasks and measures not used for this thesis. Written consent was obtained from parents and verbal assent from children prior to participating in the study. Parents were asked to complete a set of questionnaires and the children to complete a series of tasks.

Measures

Mothers' Anxiety. Mothers completed the Depression and Anxiety Stress Scale 21 (DASS-21). The 21-item questionnaire assesses for negative emotion including depression, anxiety, and stress (Lovibond & Lovibond, 1995). Participants were instructed to respond to each statement using a 4-point scale to reflect how much the statement applied to them within the last week. Higher scores correspond with higher levels of anxiety.

Mothers' Parenting Behaviors. To assess parenting style and behaviors, the mother completed the Parenting Style Questionnaire (PSQ). I standardized and averaged across ratings for the PSQ. Higher scores reflected responsive and supportive parenting styles, while lower scores reflected less involved and less nurturing parenting behaviors.

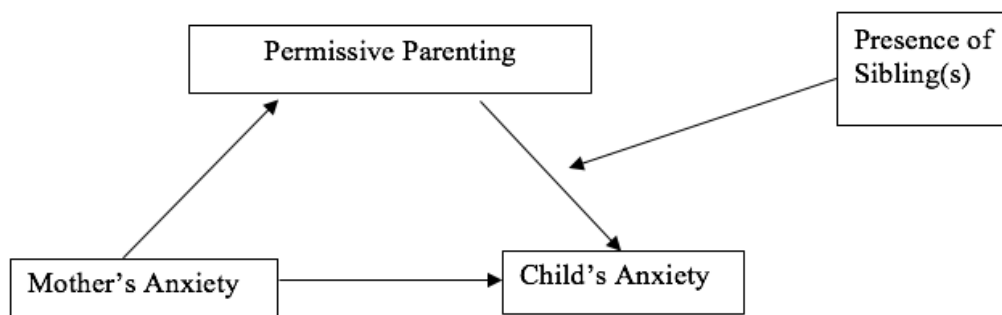
Children's Anxiety. Child's anxiety was assessed through parent report of the child's anxiety through the Child Behavior Checklist (CBCL; Achenbach, 1991). The CBCL is a 113-item measure that uses a 3-point Linkert scale to assess child behavior problems across 8 subscales: social withdrawal, somatic problems, anxiety/depression, social problems, thought problems, attention problems, delinquency, and aggressive behavior.

Presence of Siblings. Information on the presence and number of siblings was collected with a basic demographic questionnaire that was completed by the parent before each session began.

Data Analysis. Data analyses were conducted to initially characterize mean levels of mother anxiety, mother parenting behaviors, and child anxiety. I then completed a t-test to examine child age, number of siblings, child anxiety, mother anxiety, and mother parenting behavior as a function of gender (Male/Female), and then again for presence of a sibling (Yes/No). I then examined the zero-order correlations between core study measures.

The main focus of my analyses was on the impact of sibling presence on the potential relations between maternal anxiety and maternal parenting behaviors on the child's anxiety. To do so, I analyzed the potential relations using the SPSS (version 22; Chicago IL) macro PROCESS with 5,000 bootstrap samples (Preacher, Rucker, & Hayes; Hayes, 2012). Similar to a regression, the work of Preacher et al. (2007) allows researchers to examine moderated mediation patterns across multiple variables simultaneously. Figure 2 illustrates the model for my analysis examining permissive parenting and the presence of siblings (Model 5 in this study).

Figure 2. PROCESS Model



In each model, maternal anxiety (DASS) served as the independent variable and the dependent variable was child anxiety (CBCL). Across models, I examined the presence of siblings (Yes/No) or number of siblings (continuous) as the potential moderator. Again, across models, maternal authoritative, authoritarian, and permissive parenting were alternately used as the mediator.

The first model incorporated authoritative parenting style with the presence of siblings. The second model incorporated authoritative parenting style with the number of siblings. The third model incorporated authoritarian parenting style with the presence of siblings. The fourth

model incorporated authoritarian parenting style with the number of siblings. The fifth model incorporated permissive parenting style with the presence of siblings. Finally, the sixth model incorporated permissive parenting style with the number of siblings.

Chapter 3

Results

Table 1 presents the demographic information (gender, ethnicity, and sibling presence) for the sample, while Table 2 presents the values for the core continuous variables in the study. There were no significant associations for study variables with gender (p 's > 0.14). As such, I did not incorporate gender into the models. Presence of sibling was not associated with child or parenting measures (p 's > 0.13). However, mothers with only one child self-reported higher anxiety levels on the DASS (Mean=1.73) versus mothers with multiple children (Mean=1.04), $t(78)=5.74$, $p=0.019$, $d=1.30$.

Mothers' anxiety levels were positively associated with the mothers' ratings of her child's anxiety, $r(80)=0.229$, $p=0.04$. Increases in maternal anxiety were also associated with increases in authoritarian parenting behaviors, $r(80)=0.290$, $p=0.01$. In addition, increases in maternal authoritarian, $r(80)=0.261$, $p=0.02$, and permissive, $r(80)=0.448$, $p=0.001$, parenting were each associated with increases in child anxiety. Although not significant, authoritative parenting was associated with less anxiety, $r(80)=-0.139$, $p=0.22$, as predicted. Authoritarian and permissive parenting were negatively associated, as expected, $r(80)=-0.345$, $p=0.002$. Permissive parenting was not associated with the other parenting profiles (p 's > .28). Finally, at trend, increases in the number of siblings were associated with a decrease in maternal authoritative behavior, $r(80)=-0.216$, $p=.055$.

When examining presence of siblings as a moderating factor on mother and child anxiety, mother's anxiety was positively associated with the mothers' ratings of her child's anxiety when

the child had no siblings, $r(11)=.672, p=.02$. Although the relation was positive in multi-sibling families, it was not significant, $r(69)=.203, p=.095$. The pattern was also evident when examining 1-sibling, $r(32)=.254, p=.161$, and multi-sibling, $r(37)=.264, p=.115$ families.

Table 1. Frequencies

	Frequency	Percent
Child Gender Male	39	47.6
Child Gender Female	43	52.4
Ethnicity White Non-Hispanic	73	89.0
Ethnicity Asian	2	2.4
Ethnicity African American	4	4.9
Ethnicity Hispanic	3	3.7
Sibling No	12	14.6
Sibling Yes	70	85.4

Table 2. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Age at Visit	92	5.01	7.74	5.96	0.73
Number of Siblings	82	0.00	5.00	1.54	1.08
Child Anxiety CBCL	81	0.00	9.00	2.42	2.48
Mom Anxiety DASS	80	0.00	10.00	1.14	1.68
PSQ Authoritative	80	2.92	6.00	4.99	0.54
PSQ Authoritarian	81	1.00	4.75	2.08	0.72
PSQ Permissive	80	1.00	4.75	2.08	0.72

Models next examined the impact of maternal parenting behavior and siblings on the relation between maternal and child anxiety. Results from each model are presented in Table 3.

Model 1: Authoritative Parenting and Sibling Presence

As expected, there was no direct relation between maternal anxiety and authoritative parenting, $t=-1.08, p=0.28$. In predicting child anxiety, maternal anxiety was significant, as seen

above, $t=2.10$, $p=0.04$. No other predictors were significant, $p's>0.15$. For this model, and all five that follow, I found no significant sibling by parenting interaction, $p's>0.19$.

Table 3. Model 1 Results

Maternal Anxiety – Authoritative Parenting		Authoritative Parenting – Child Anxiety		Maternal Anxiety – Child Anxiety		Presence of Siblings – Child Anxiety		Authoritative Parenting x Presence of Siblings– Child Anxiety	
B (SE)	t	B (SE)	t	B (SE)	t	B (SE)	t	B (SE)	t
-.039 (.036)	-1.08	-.358 (.561)	-.638	.368 (.176)	2.10	1.16 (.806)	1.44	.505 (1.16)	.437
F(1,77)=1.17, $p=.28$				F(4, 74) = 1.89, $p = .12$, $R^2 = .092$					

Model 2: Authoritative Parenting and Number of Siblings

Reflecting Model 1, again there was no direct relation between maternal anxiety and authoritative parenting, $t=-1.08$, $p=0.28$, and only maternal anxiety significantly predicted child anxiety, $t=2.19$, $p=0.03$.

Table 4. Model 2 Results

Maternal Anxiety – Authoritative Parenting		Authoritative Parenting – Child Anxiety		Maternal Anxiety – Child Anxiety		Number of Siblings – Child Anxiety		Authoritative Parenting x Number of Siblings– Child Anxiety	
B (SE)	t	B (SE)	t	B (SE)	t	B (SE)	t	B (SE)	t
-.039 (.036)	-1.08	-.597 (.524)	-1.14	.384 (.175)	2.19	-.317 (.260)	-1.22	.474 (.382)	1.24
F(1,77)=1.17, $p=.28$				F(4,74)=2.10, $p=.09$, $R^2=.102$					

Model 3: Authoritarian Parenting and Sibling Presence

Here, in contrast to Models 1 and 2, maternal anxiety was related with increases in authoritarian parenting, $t=2.66$, $p=0.009$. In addition, the model as a whole, significantly predicted levels of child anxiety, $F(4, 74)=2.51$, $p=.05$, $R^2=0.120$. Although at trend, the overall pattern was driven by the cumulative maternal authoritarian behavior, $t=1.74$, $p=0.09$, and maternal anxiety, $t=1.51$, $p=0.13$, and the presence of siblings, $t=1.40$, $p=0.17$.

Table 5. Model 3 Results

Maternal Anxiety – Authoritarian Parenting		Authoritarian Parenting – Child Anxiety		Maternal Anxiety – Child Anxiety		Presence of Siblings – Child Anxiety		Authoritarian Parenting x Presence of Siblings– Child Anxiety	
B (SE)	t	B (SE)	t	B (SE)	t	B (SE)	t	B (SE)	t
.113 (.042)	2.67	.759 (.463)	1.74	.262 (.173)	1.51	1.11 (.794)	1.40	-.490 (1.11)	-.440
F(1,77)=1.17, p=.01				F(4,74)=2.51, p=.05, R ² =.120					

Model 4: Authoritarian Parenting and Number of Siblings

Echoing Model 3, maternal anxiety was related with increases in authoritarian parenting, $t=2.66$, $p=0.009$, and the model as a whole significantly predicted levels of child anxiety, $F(4, 74)=2.72$, $p=.04$, $R^2=0.128$. Again, at trend, the overall pattern was driven by the cumulative influence of maternal authoritarian behavior, $t=1.91$, $p=0.06$, maternal anxiety, $t=1.57$, $p=0.12$, and the presence of siblings, $t=-1.25$, $p=0.22$.

Table 6. Model 4 Results

Maternal Anxiety – Authoritarian Parenting		Authoritarian Parenting – Child Anxiety		Maternal Anxiety – Child Anxiety		Number of Siblings – Child Anxiety		Authoritarian Parenting x Number of Siblings– Child Anxiety	
B (SE)	t	B (SE)	t	B (SE)	t	B (SE)	t	B (SE)	t
.113 (.042)	2.67	.827 (.433)	1.91	.264 (.169)	1.57	-.313 (.251)	-1.25	-.442 (.337)	-1.31
F(1,77)=7.08, p=.01				F(4,74)=2.72, p=.04, R ² =.128					

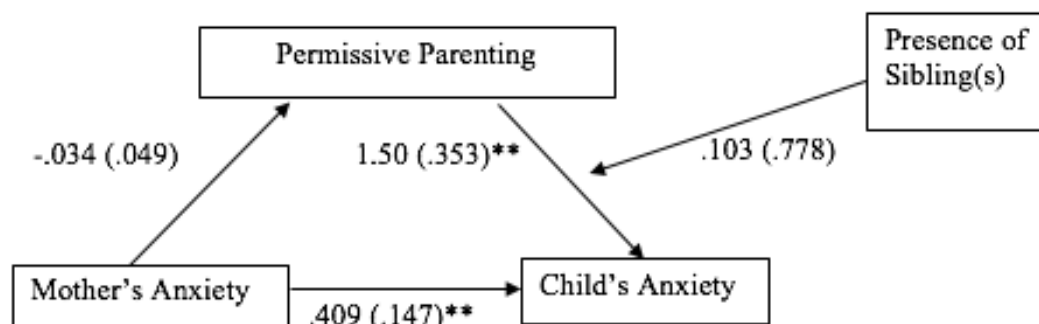
Model 5: Permissive Parenting and Sibling Presence

For this model, maternal anxiety was not associated with permissive parenting, $t=-.707$, $p=0.48$. However, the model as a whole significantly predicted levels of child anxiety, $F(4, 74)=7.21$, $p=.001$, $R^2=0.280$. The overall pattern was driven by significant relations with maternal permissive behavior, $t=4.25$, $p=0.001$, and maternal anxiety, $t=2.78$, $p=0.007$. The presence of siblings was at trend, $t=1.32$, $p=0.19$.

Table 7. Model 5 Results

Maternal Anxiety – Permissive Parenting		Permissive Parenting – Child Anxiety		Maternal Anxiety – Child Anxiety		Presence of Siblings – Child Anxiety		Permissive Parenting x Presence of Siblings– Child Anxiety	
B (SE)	t	B (SE)	t	B (SE)	t	B (SE)	t	B (SE)	t
-.034 (.049)	-.707	1.50 (.353)	4.25**	.409 (.147)	2.78	1.028 (.778)	1.32	0.799 (1.277)	.625
F(1,77)=.50, p=.48				F(4,74)=7.21, p=.00, R ² =.280					

Figure 3. Findings from the moderated mediation model incorporating permissive parenting and presence of siblings (Model 5).



* $p < 0.05$, ** $p < 0.01$

Model 6: Permissive Parenting and Number of Siblings

Echoing Model 5, maternal anxiety was not related to permissive parenting, $t = -.707$, $p = 0.48$, and the model as a whole significantly predicted levels of child anxiety, $F(4, 74) = 7.09$, $p = .001$, $R^2 = 0.277$. Again, the overall pattern was driven by maternal permissive behavior, $t = 4.68$, $p = 0.001$, and maternal anxiety, $t = 2.51$, $p = 0.014$. The number of siblings did not impact child anxiety, $t = -1.14$, $p = 0.26$.

Table 8. Model 6 Results

Maternal Anxiety – Permissive Parenting		Permissive Parenting – Child Anxiety		Maternal Anxiety – Child Anxiety		Number of Siblings – Child Anxiety		Permissive Parenting x Number of Siblings– Child Anxiety	
B (SE)	t	B (SE)	t	B (SE)	t	B (SE)	t	B (SE)	t
-.034 (.049)	-.707	1.627 (.348)	4.60**	.373 (.149)	2.51	-.267 (.233)	-1.14	-.162 (.310)	-.523

Chapter 4

Discussion

My research findings support some of my original hypotheses and add to the previous research conducted on maternal and child anxiety. My first hypothesis was that a child with a socially anxious mother is more likely to show socially anxious behaviors than a child without a socially anxious mother. I found that mother's anxiety levels were positively associated with the mother's ratings of her child's anxiety. Additionally, in all six models, maternal anxiety was significant in predicting child anxiety. This reaffirms the finding that there is a strong association between maternal and child anxiety and supports the previous research (Beidel & Turner, 1997; Biederman, Petty, Hirshfeld-Becker, Henin, Faraone, & Dang, 2006; Merikangas, Avenevoli, Dierker, & Grillon, 1999).

My second hypothesis was that socially anxious mothers will show more emotion-suppressing parenting behaviors than mothers who are not socially anxious. In terms of authoritative parenting (Models 1 and 2) there was no direct relation between maternal anxiety and authoritative parenting. However, although not significant, authoritative parenting was related to less anxiety. This is in line with our conceptualization that parents who take on an authoritative parenting style have the traits required to detect, understand, and explain emotional experiences to their children in a developmentally beneficial way (Budinger, Drazdowski, & Ginsburg, 2012). They provide equal amounts of warmth and demandingness for their children, whereas an anxious mother may not as easily deal with the emotions their child is experiencing.

Increases in maternal authoritarian and permissive parenting were associated with increases in child anxiety. Specifically, (in Models 3 and 4) higher maternal anxiety was associated with more authoritarian parenting. A mother who experiences anxiety may be so focused on her own emotional state that she unknowingly expresses her anxiety through her parenting behavior. Social situation might be daunting to her, so she shields her child from them through an authoritarian parenting style, making demands that deny social opportunity. This maladaptive tendency of the parent contributes to the presence of social anxiety symptoms in the children of authoritarian parents (Hudson & Rape, 2001; Manassis & Bradley, 1994; Vasey & Dadds, 2001).

Permissive parenting (Models 5 and 6) was not associated with higher maternal anxiety. However, I found stronger effects with permissive parenting (Model 6) on child anxiety, predicting that exposure to permissive parenting may have a stronger impact on child anxiety than maternal anxiety. More research would need to be conducted to further support this finding, but permissive parenting may play a large role in this association. Without rules and guidelines, the child may not have available the regulatory and coping skills needed to deal with ambiguous situations. This pattern may feed into the finding that children of parents who adopt a permissive parenting style tend to have difficulties with self-regulation and insecurity (Baumrind, 1967). This lack of regulation can induce stress on the child. If the relation holds true, practitioners might find this useful in teaching parents effective parenting behaviors that support positive social development within children.

My third hypothesis was that the relation between mother's anxiety and child's anxiety will be weaker for families with multiple children verses one child. I found a significant positive association between mother's anxiety and child's anxiety for families with only one child. For

families with multiple children, the relation was positive but at trend. For families in which there were two or more siblings, findings were not significant. These data are suggestive, indicating that maternal state may have a larger influence on her perception of the child when there are no other siblings that could serve as potential comparisons.

My fourth hypothesis was that socially anxious mothers would show more emotion regulating parenting behaviors if they have more than one child. Although no significant sibling by parenting interaction was found across the models, I did find that increases in the number of siblings was associated with a decrease in maternal authoritative behavior. This contradicts my hypothesis. Potential explanations for this may be that a mother with anxiety is less able to monitor multiple children and consistently engage in authoritative behavior. They may be more demanding and overcompensate for their anxiety (authoritarian behavior) or they might not be demanding at all because they cannot cope with their anxiety (permissive behavior). Further investigation with larger sample sizes will be needed in order to directly compare these two potential outcomes.

There are a couple limitations to this study. First, we are relying on self-reported data. The mother provided us with the data concerning her anxiety, her parenting behaviors, and the child's anxiety. The mother's perception of her anxiety could interfere with the way in which she completes these questionnaires (Francis, 2013). For future research, it would be helpful to add observational data or incorporate multiple informants. Another drawback of the study could be the lack in variation of family size. The majority of participants had siblings. More diversity within this variable may have provided a more robust test of my hypothesis regarding the presence of siblings.

Overall, my research provided insight to the relations between maternal anxiety, child anxiety, maternal parenting behaviors, and the effect of siblings on these relationships. The relation between child anxiety and maternal anxiety has been continually supported.

Understanding how maternal anxiety affects parenting behaviors and, in turn, affects child anxiety is important in that we can learn how to counteract the potential family environment factors that lead to the development of anxiety disorder symptoms in children.

Appendix A

Depression and Anxiety Stress Scale 21

DASS₂₁

Date:

Please read each statement and circle a number 0, 1, 2 or 3 that indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

- 0 Did not apply to me at all
- 1 Applied to me to some degree, or some of the time
- 2 Applied to me to a considerable degree, or a good part of time
- 3 Applied to me very much, or most of the time

1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I found it difficult to work up the initiative to do things	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I experienced trembling (eg, in the hands)	0	1	2	3
8	I felt that I was using a lot of nervous energy	0	1	2	3
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting agitated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I felt down-hearted and blue	0	1	2	3
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15	I felt I was close to panic	0	1	2	3
16	I was unable to become enthusiastic about anything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3

Appendix B

Parenting Style Questionnaire

PARENTING STYLE QUESTIONNAIRE

Please rate how often you engage in the different parenting practices, listed below. Scores range from "Never" to "Always" on a 5-point scale. At the end of each section, add up the scores and divide it by the number of questions in that section. The calculated score is your total score for that category. The highest score indicates your preferred parenting style.

Never						Always
1	2	3	4	5		6

1. I am responsive to my child's feelings and needs
2. I take my child's wishes into consideration before I ask him/her to do something
3. I explain to my child how I feel about his/her good/bad behavior
4. I encourage my child to talk about his/her feelings and problems
5. I encourage my child to freely "speak his/her mind", even if he/she disagrees with me
6. I explain the reasons behind my expectations
7. I provide comfort and understanding when my child is
8. I compliment my child
9. I consider my child's preferences when I make plans for the family (e.g., weekends away and holidays)
10. I respect my child's opinion and encourage him/her to express them
11. I treat my child as an equal member of the family
12. I provide my child reasons for the expectations I have for him/her
13. I have warm and intimate times together with my child
14. When my child asks me why he/she has to do something I tell him/her it is because I said so, I am your parent, or because that is what I want
15. I punish my child by taking privileges away from him/her (e.g., TV, games, visiting friends)
16. I yell when I disapprove of my child's behavior
17. I explode in anger towards my child
18. I spank my child when I don't like what he/she does or says
19. I use criticism to make my child improve his/her behavior
20. I use threats as a form of punishment with little or no justification
21. I punish my child by withholding emotional expressions (e.g., kisses and cuddles)
22. I openly criticize my child when his/her behavior does not meet my expectations
23. I find myself struggling to try to change how my child thinks or feels about things
24. I feel the need to point out my child's past behavioral problems to make sure he/she will not do them again
25. I remind my child that I am his/her parent
26. I remind my child of all the things I am doing and I have done for him/her
27. I find it difficult to discipline my child
28. I give into my child when he/she causes a commotion about something
29. I spoil my child
30. I ignore my child's bad behavior

Appendix C

Child Behavior Checklist

CHILD BEHAVIOR CHECKLIST FOR AGES 1½ - 5

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Checked in by: _____

Date Checked in: _____

Subject ID# _____

Date of Birth: ____/____/____

Date Completed: ____/____/____

Gender: M F

Please fill out this form to reflect *your* view of the child's behavior even if other people might not agree. Feel free to write additional comments beside each item and in the space provided on page 2. **Please print. Be sure to answer all items.**

Below is a list of items that describe children. For each item that describes the child *now of within the past 2 months*, please circle the **2** if the item is *very true or often true* of the child. Circle the **1** if the item is *somewhat or sometimes true* of the child. If the item is *not true* of the child, circle the **0**. Please answer all items as well as you can, even if some do not seem to apply to the child.

0 = Not True (as far as you know)**1 = Somewhat or Sometimes True****2 = Very True or Often True**

0	1	2	1. Aches or pains (without medical cause; <i>do not</i> include stomach or headaches)	0	1	2	30. Easily jealous
0	1	2	2. Acts too young for age	0	1	2	31. Eats or drinks things that are not food— <i>don't</i> include sweets (describe): _____
0	1	2	3. Afraid to try new things				_____
0	1	2	4. Avoids looking others in the eye	0	1	2	32. Fears certain animals, situations, or places (describe): _____
0	1	2	5. Can't concentrate, can't pay attention for long				_____
0	1	2	6. Can't sit still, restless, or hyperactive	0	1	2	33. Feelings are easily hurt
0	1	2	7. Can't stand having things out of place	0	1	2	34. Gets hurt a lot, accident-prone
0	1	2	8. Can't stand waiting; wants everything now	0	1	2	35. Gets in many fights
0	1	2	9. Chews on things that aren't edible	0	1	2	36. Gets into everything
0	1	2	10. Clings to adults or too dependent	0	1	2	37. Gets too upset when separated from parents
0	1	2	11. Constantly seeks help	0	1	2	38. Has trouble getting to sleep
0	1	2	12. Constipated, doesn't move bowels (when not sick)	0	1	2	39. Headaches (without medical cause)
0	1	2	13. Cries a lot	0	1	2	40. Hits others
0	1	2	14. Cruel to animals	0	1	2	41. Holds his/her breath
0	1	2	15. Defiant	0	1	2	42. Hurts animals or people without meaning to
0	1	2	16. Demands must be met immediately	0	1	2	43. Looks unhappy without good reason
0	1	2	17. Destroys his/her own things	0	1	2	44. Angry moods
0	1	2	18. Destroys things belonging to his/her family or other children	0	1	2	45. Nausea, feels sick (without medical cause)
0	1	2	19. Diarrhea or loose bowels (when not sick)	0	1	2	46. Nervous movements or twitching (describe): _____
0	1	2	20. Disobedient				_____
0	1	2	21. Disturbed by any change in routine	0	1	2	47. Nervous, highstrung, or tense
0	1	2	22. Doesn't want to sleep alone	0	1	2	48. Nightmares
0	1	2	23. Doesn't answer when people talk to him/her	0	1	2	49. Overeating
0	1	2	24. Doesn't eat well (describe): _____	0	1	2	50. Overtired
			_____	0	1	2	51. Shows panic for no good reason
0	1	2	25. Doesn't get along with other children	0	1	2	52. Painful bowel movements (without medical cause)
0	1	2	26. Doesn't know how to have fun; acts like a little adult	0	1	2	53. Physically attacks people
0	1	2	27. Doesn't seem to feel guilty after misbehaving	0	1	2	54. Picks nose, skin, or other parts of the body (describe): _____
0	1	2	28. Doesn't want to go out of home				_____
0	1	2	29. Easily frustrated				

Be sure you have answered all items. Then see other side.

Please print your answers. Be sure to answer all items.

0 = Not True (as far as you know)

1 = Somewhat or Sometimes True

2 = Very True or Often True

0	1	2	55.	Plays with own sex parts too much	0	1	2	79.	Rapid shifts between sadness and excitement
0	1	2	56.	Poorly coordinated or clumsy	0	1	2	80.	Strange behavior (describe): _____
0	1	2	57.	Problems with eyes (without medical cause) (describe): _____	0	1	2	81.	Stubborn, sullen, or irritable
0	1	2	58.	Punishment doesn't change his/her behavior	0	1	2	82.	Sudden changes in mood or feelings
0	1	2	59.	Quickly shifts from one activity to another	0	1	2	83.	Sulks a lot
0	1	2	60.	Rashes or other skin problems (without medical cause)	0	1	2	84.	Talks or cries out in sleep
0	1	2	61.	Refuses to eat	0	1	2	85.	Temper tantrums or hot temper
0	1	2	62.	Refuses to play active games	0	1	2	86.	Too concerned with neatness or cleanliness
0	1	2	63.	Repeatedly rocks head or body	0	1	2	87.	Too fearful or anxious
0	1	2	64.	Resists going to bed at night	0	1	2	88.	Uncooperative
0	1	2	65.	Resists toilet training (describe): _____	0	1	2	89.	Underactive, slow moving, or lacks energy
0	1	2	66.	Screams a lot	0	1	2	90.	Unhappy, sad, or depressed
0	1	2	67.	Seems unresponsive to affection	0	1	2	91.	Usually loud
0	1	2	68.	Self-conscious or easily embarrassed	0	1	2	92.	Upset by new people or situations (describe): _____
0	1	2	69.	Selfish or won't share	0	1	2	93.	Vomiting, throwing up (without medical cause)
0	1	2	70.	Shows little affection toward people	0	1	2	94.	Wakes up often at night
0	1	2	71.	Shows little interest in things around him/her	0	1	2	95.	Wanders away
0	1	2	72.	Shows too little fear of getting hurt	0	1	2	96.	Wants a lot of attention
0	1	2	73.	Too shy or timid	0	1	2	97.	Whining
0	1	2	74.	Sleeps less than most children during the day and/or night (describe): _____	0	1	2	98.	Withdrawn, doesn't get involved with others
0	1	2	75.	Smears or plays with bowel movements	0	1	2	99.	Worries
0	1	2	76.	Speech problem (describe): _____	0	1	2	100.	Please write in any problems the child has that were not listed above.
0	1	2	77.	Stares into space or seems preoccupied	0	1	2		
0	1	2	78.	Stomachaches or cramps (without medical cause)	0	1	2		

Please be sure you have answered all items.

Underline any you are concerned about.

Does the child have any illness or disability (either physical or mental)? No / Yes – Please describe:

What concerns you most about the child?

Please describe the best things about the child:

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