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MOTHER-CHILD INFORMANT DISCREPANCIES OF CHILD
INTERNALIZING SYMPTOMS: MATERNAL DEPRESSION,
MOTHER-CHILD RELATIONSHIP QUALITY, AND
FAMILY ENVIRONMENT AS MODERATORS

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A Thesis Presented to the Graduate Faculty of the

Dedman College

Southern Methodist University

in

Partial Fulfillment of the Requirements

for the degree of

Master of Arts

with a

Major in Clinical Psychology

by

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B.A. Psychology, The University of British Columbia

August 4th, 2020

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Mother-Child Informant Discrepancies Of Child
Internalizing Symptoms: Maternal Depression,
Mother-Child Relationship Quality, And
Family Environment as Moderators

Advisor: Dr. Chrystyna Kouros

Master of Arts degree conferred August 4, 2020

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In the United States, 14.3% of adolescents have experienced an internalizing disorder. There are, however, often large discrepancies between parent and child reports of the child's symptoms, which can affect diagnoses and treatment outcomes (Hawley & Weisz, 2003; Kazdin, 1989). Maternal depressive symptoms have been associated with mother-child informant discrepancies of child internalizing symptoms (e.g., Chi & Hinshaw, 2002). Other characteristics of the parent-child relationship and family environment that may predict informant discrepancies have only been examined limitedly (e.g., Treutler & Epkins, 2003). The purpose of the present study was to test the extent to which maternal, family, and child characteristics predict mother-child informant discrepancies about children's internalizing symptoms. Participants were 129 mother-child dyads (M age = 13.6 years; 52.7% were female) from two independent studies on family relationships and child mental health. Mothers and children completed questionnaires during a lab visit.

We hypothesized that lower levels of maternal depressive symptoms, more maternal warmth and acceptance, and less stressful family environments would be associated with fewer

mother-child informant discrepancies on child internalizing symptoms. We also hypothesized that greater informant discrepancies would predict mothers' poorer attitudes toward seeking treatment for their child's mental health. We did not find evidence of moderation by maternal, family, or child characteristics in our primary analyses. Supplemental, post-hoc analyses using another measure of children's depressive symptoms and with participants only from Sample 2 revealed that mother-child information discrepancies were lower at (a) lower levels of maternal warmth and acceptance and (b) higher levels of a stressful family environment. Both of these findings were in the opposite direction of hypotheses. Potential methodological considerations that may have accounted for the null interaction findings are discussed.

TABLE OF CONTENTS

LIST OF TABLES	ix
LIST OF FIGURES	xi
ACKNOWLEDGMENTS	xii
CHAPTER 1: INTRODUCTION	1
1.1 Maternal Depressive Symptoms	5
1.2 Parent-Child Relationship Quality	7
1.3 Family Environment	8
1.4 Child Age and Sex	9
1.5 Present Study	10
CHAPTER 2: METHOD	14
2.1 Participants.....	14
2.2 Procedures.....	15
2.3 Measures	16
a. Child Internalizing Symptoms.	16
b. Maternal Depressive Symptoms.	18
c. Mother-Child Relationship Quality.....	18
d. Family Environment.	19
e. Mother's Attitude Towards Seeking Help.	20

2.4 Analysis Plan	20
2.5 Power and Sensitivity Analyses.....	23
CHAPTER 3: RESULTS.....	25
3.1 Preliminary Analyses	25
a. Outliers.....	25
b. Missing Data.	25
c. Informant Discrepancies.	26
d. Child Age and Sex.	27
e. Mothers' Marital Status.....	28
f. Race/Ethnicity Differences.....	28
3.2 Mothers' Depressive Symptoms as a Moderator of Mother-Child Informant Discrepancies	29
3.3 Mother-Child Relationship Quality as a Moderator of Mother-Child Informant Discrepancies	30
3.4 Family Environment as a Moderator of Mother-Child Informant Discrepancies	31
3.5 Child Age and Child Sex as Moderators of Mother-Child Informant Discrepancies.....	32
3.6 Mother-Child Informant Discrepancies as Predictor of Mothers' Attitudes toward Mental Health Help	33
3.7 Children's Depression Inventory as Measure of Internalizing Symptoms	34
3.8 Mother-Child Relationship Quality as a Moderator of Mother-Child Informant Discrepancies on the CDI	34
3.9 Post-Hoc, Exploratory Analyses.....	35

a. Post-Hoc Analyses Controlling for Race.	35
b. Combining Mother and Child Reports of Maternal Warmth and Acceptance.	35
c. Internalizing Symptoms Composite.	36
d. Removing Covariates.	36
e. Sample 2 Only.	37
CHAPTER 4: DISCUSSION.	38
4.1 Maternal Depressive Symptoms	40
4.2 Mother-Child Relationship Quality	41
4.3 Family Environment	43
4.4 Child Age and Sex	44
4.5 Mothers' Attitudes Toward Seeking Mental Health Treatment for their Child	45
4.6 Limitations	46
4.7 Individual and Cultural Diversity	51
4.8 Ethical Considerations	52
4.9 Summary, Future Directions, and Practical Implications	52
APPENDIX.	55
BIBLIOGRAPHY.	74

LIST OF TABLES

Table 1. Demographic Information and Means and Standard Deviations of Study Variables By Samples	56
Table 2. Study Constructs and Measures Used.....	58
Table 3. Inter-Correlations Among Study Variables.	59
Table 4. Multiple Regressions Testing Mothers' Depressive Symptoms as a Moderator between Mother and Child Internalizing Symptoms (SDQ and SCARED)	61
Table 5. Multiple Regressions Testing Mothers' Self-Reports of Warmth and Acceptance as a Moderator between Mother and Child Internalizing Symptoms (SDQ and SCARED) for Sample 2.....	62
Table 6. Multiple Regressions Testing Children's Report of Mothers' Warmth and Acceptance as a Moderator of between Mother and Child Reports of Child Internalizing Symptoms (SDQ and SCARED) for Sample 2	63
Table 7. Multiple Regressions Testing Family Environment as a Moderator between Mother and Child Reports of Child Internalizing Symptoms (SDQ and SCARED)	64
Table 8. Multiple Regressions Testing Child Age as a Moderator between Mother and Child Reports of Child Internalizing Symptoms (SDQ and SCARED)	65
Table 9. Multiple Regressions Testing Child Sex as a Moderator between Mother and Child Reports of Child Internalizing Symptoms (SDQ and SCARED)	66
Table 10. Multiple Regressions Testing Mother-Child Informant Discrepancies on the SDQ and SCARED as a Predictor of Mothers' Attitudes Towards Mental Health Treatment for Sample 2.....	67
Table 11. Multiple Regressions Testing Mothers' Warmth and Acceptance (Mother-Report) as a Moderator between Mother and Child Reports of Child Depressive Symptoms (CDI) for Sample 2.....	68
Table 12. Family Environment as a Moderator between Mother and Child Reports of Child Anxiety Symptoms (SCARED)	69

Table 13. Family Environment as a Moderator between Mother and Child Reports of Child Anxiety Symptoms (SCARED) for Sample 2 Only	70
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LIST OF FIGURES

- Figure 1. Association between children's report of their depressive symptoms and mother-reported child depressive symptoms as moderated by mothers' report of maternal warmth and acceptance (Sample 2 only) 71
- Figure 2. Association between children's report of their anxiety symptoms and mother-reported child anxiety symptoms as moderated by stressful family environment 72
- Figure 1. Association between children's report of their anxiety symptoms and mother-reported child anxiety symptoms as moderated by stressful family environment (Sample 2 only) 73

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CHAPTER 1:

INTRODUCTION

Fourteen percent of children in the United States have a diagnosable internalizing disorder in their lifetime (Merikangas et al., 2010). Child psychopathology is a risk factor for developing problems in other developmental domains in adolescence and into adulthood, such as academic difficulties, substance abuse, physical health problems, and risk for adult psychopathology (e.g., American Psychological Association, 2019; Hinshaw, 1992; Hofstra, Van Der Ende, & Verhulst, 2003). Therefore, receiving the best treatment for psychological problems and intervening before such symptoms reach clinical levels is vital for children.

The literature has consistently shown that parents and their children, however, often disagree about the level of children's behaviors and symptoms. This disagreement between parents' and children's ratings is known as "informant discrepancies" (Achenbach, McConaughy, & Howell, 1987; De Los Reyes & Kazdin, 2005). Achenbach and colleagues' seminal meta-analysis on informant discrepancies between parent and children's reports of children's behavioral and emotional symptoms found a mean correlation of $r = .25$. A more recent meta-analysis by De Los Reyes and colleagues (2015) found a similar correlation of $r = .26$ between parents' and children's reports of children's internalizing symptoms.

Informant discrepancies can significantly impact whether parents seek treatment for their child, the nature of the treatment itself, and treatment outcomes, such as contributing to poor therapeutic alliances and treatment planning (Hawley & Weisz, 2003). The purpose of the present study was to identify maternal, family-level, and child characteristics that predict mother-child informant discrepancies for child internalizing symptoms.

Informant discrepancies have been associated with a variety of negative outcomes in mental health treatment, such as delaying treatment. For example, Yeh and Weisz (2001) examined 381 parent-child dyads who were referred to outpatient community mental health clinics and found that 63% of the parent-child dyads could not agree on a single problem for which treatment was sought. Similarly, Hawley and Weisz (2003) found that only 38.1% of parents and children agreed on a target problem or goal in therapy, whereas 76.2% of parents and therapists agreed on a specific target problem. These parent-child disagreements on target problem behaviors could negatively impact treatment planning because attaining agreement on therapy goals is a pivotal first step in engaging clients in the therapeutic process, motivating the client in therapy, and ultimately, working towards desired outcomes (Bordin, 1979; Haynes, 1993; Horvath & Luborksy, 1993; Karoly, 1993; Liddle, 1995; Nezu & Nezu, 1993). Informant discrepancies can also result in misdiagnoses depending on which informant (parent or child) is asked to provide reports of symptoms of depression and cognitive processes (Kazdin, 1989).

Moreover, emerging research has suggested that informant discrepancies have greater implications for children's mental and behavioral outcomes. For example, greater parent-youth informant discrepancies of youth's behavioral and emotional problems predicted greater increases in negative youth outcomes such as anxiety and depressive symptoms, aggressive and

oppositional behaviors, and police/judicial contacts in young adulthood (Ferdinand, van der Ende, & Verhulst, 2004; Goolsby et al., 2018).

Parents who report lower levels of emotional and behavioral problems than their children may be unaware of the necessity for seeking help for their children. As a result, children who feel that they need help, but do not actually receive professional help, may withdraw from their family and have a tendency not to seek help from their family members (Ferdinand et al., 2004). These behaviors adversely affect their emotional development and they may seek out negative ways of socializing and coping with their problems, such as deliberate self-harm (Ferdinand et al., 2004).

When parents reported higher levels of symptomology than their children, this predicted negative consequences as well. Children whose parents reported higher levels of symptomology than their children self-reported at the beginning of treatment showed the least improvement in their symptoms at post-therapy. This suggests that when children disagree on the need for treatment, they may not be a willing or active participant in therapy, and as a result, show poorer treatment outcomes than children who agree with their parents on levels of symptomology pre-treatment (Goolsby et al., 2018).

Informant discrepancies may also be associated with parents' perception of how much their child needs mental healthcare (Weisz & Weiss, 1991). A parent's intention or action to seek out mental health help (help-seeking behavior) is the most important factor as to whether a child receives mental health treatment (Dempster, Davis, Jones, Keating, & Wildman, 2015). Help-seeking behavior has been related to parents' perception of need and this perception of need is greatly influenced by the type and severity of problems parents recognize (Weisz & Weiss, 1991). Indeed, Thurston and colleagues (2015) found that when parents recognize their

children's emotional and behavioral problems, they report greater intentions to seek help for their children.

De Los Reyes and Kazdin (2005) proposed a model to explain processes by which informant discrepancies may arise. The attribution-bias-context (ABC) model suggests informants differ in three major ways that contribute to informant discrepancies: (1) their attributions of the cause of the child's behavior (internal/inherent characteristic such as personality vs. external/environmental factors such as negative influence from peers); (2) the extent to which being asked to report on negative behavior can lead to negative memory bias, such as perceiving a child's behavior as more annoying when being asked to rate the child's problematic behavior; and (3) the contexts in which they observe the problem behavior and participate in the assessment process.

Another hypothesized reason for informant discrepancies is that some symptoms are less observable than others; therefore, allowing greater potential for parents and children to disagree. Several studies have found that child externalizing problems show greater reporter agreement compared to internalizing problems, which seems to suggest that if problems are more evident and observable, informant discrepancies may be lower (Achenbach et al., 1987; Bajoux et al., 2018; Duhig, Renk, Epstein, & Phares, 2000; Rothen, et al., 2009; Salbach-Andrae, Klinkowski, Lenz, & Lehmkuhl, 2009; Sourander, Helstelä, & Helenius, 1999; Van der Meer, Dixon, & Rose, 2008).

Other studies, however, have found no significant difference in informant discrepancies between internalizing and externalizing problems (Jensen, Xenakis, Davis, & Degroot, 1988; Kolko & Kazdin, 1993; Verhulst & van der Ende, 1992; Vierhaus, Rueth, & Lohaus, 2018). Vierhaus and colleagues (2018) employed a novel approach to examine this phenomenon. They

recruited two independent samples of mother-child dyads; one sample was used to test informant discrepancies and the second sample was used to rate how observable they thought children's specific behaviors were. They found that mothers and adolescents disagreed on what types of behaviors were observable; moreover, there was no evidence to suggest that internalizing or externalizing symptoms, in general, were more observable than the other. For example, the three behaviors rated as most observable and the three rated least observable were related to externalizing behavior.

Vierhaus and colleagues (2018) noted that researchers and clinicians should focus on understanding the impact of differences in perceived observability between parents and children; that is, when a parent perceives a specific behavior as less observable, clinicians/researchers should be cognizant of the possible lower validity of this informant's report on that specific behavior. Additional factors such as maternal depression, qualities of the parent-child relationship or family environment, as well as characteristics of the child have also been proposed and studied as factors that may predict mother-child informant discrepancies about child internalizing symptoms (De Los Reyes & Kazdin, 2005).

1.1 Maternal Depressive Symptoms

Maternal levels of depression have been significantly related to informant discrepancies of child internalizing and externalizing symptoms, such that depressed mothers tend to report more behavioral and emotional symptoms in their children than their children report of themselves (Berg-Nielsen, Vika, & Dahl, 2003; Breslau, Davis, & Prabucki, 1987; Briggs-Gowan, Carter, & Schwab-Stone, 1996; Chi & Hinshaw, 2002; Chilcoat & Breslau, 1997; Najman et al., 2000; Renouf & Kovacs, 1994; Youngstrom, Loeber, & Stouthamer-Loeber, 2000). This relation is generally consistent with the depression-distortion hypothesis (Richters &

Pellegrini, 1989), which suggests that depressed mothers have a negative cognitive bias that distorts or inflates their perceptions of their children's emotional and behavioral problems. For example, in one study, mothers who had more depressive symptoms reported more internalizing symptoms in their adolescent children than their children self-reported, and maternal depression accounted for 41% of the variance predicting mother-child informant discrepancies on internalizing disorders (Berg-Nielsen et al., 2003).

More recent research, however, has revealed different patterns of findings that seem to suggest that maternal depression decreases or is unrelated to informant discrepancies. Affrunti and Woodruff-Borden (2015) examined maternal worry, depression, and anxiety symptoms as predictors of mother-child informant discrepancies on child anxiety symptoms. Results showed that maternal worry and depression predicted significantly lower levels of child anxiety symptoms reported by mothers, and greater mother-child informant discrepancies. Conversely, maternal anxiety predicted higher levels of mother-reported child anxiety symptoms, and lower mother-child informant discrepancies.

The authors posit that maternal depression and worry increase informant discrepancies due to parents' reduction in accuracy because they tend to be preoccupied with their own internal worries and rumination and hence, are unaware of their child's distress. Anxious mothers, however, tend to agree more with their children's reports of anxiety because they are hypervigilant to their child's anxiety symptoms, or are more familiar with their symptoms, having experienced it themselves (Affrunti & Woodruff-Borden, 2015).

Interestingly, another study found that depressed parents may be accurate reporters of their children's internalizing symptoms because their baseline reports of their children's depressive symptoms predicted their children's future internalizing disorders, especially for

children below the age of 12 (Lewis et al., 2012). In a recent study, Makol and Polo (2018) found that children's previous mental health service use and higher child externalizing problems were associated with lower parent-child informant discrepancies about child internalizing symptoms. The authors posit that this pattern may be due to parent's increased awareness of internalizing symptoms through their exposure to mental health services for their child. Overall, it appears that the relation between maternal psychopathology and informant discrepancies depends on what maternal symptoms are being assessed, the specific symptoms being reported about the child, and children's past mental health experiences.

1.2 Parent-Child Relationship Quality

There is some evidence to suggest that parent-child relationship quality and aspects of parenting may predict informant discrepancies. One study found that a greater number of parent-child conflict topics discussed (e.g., household chores, academics and school) was associated with mothers reporting lower levels child internalizing symptoms than children self-reported (Treutler & Epkins, 2003). In this same study, the intensity of mother-child discussions (rated from 1 - *calm* to 5 - *angry*) was also significantly related to mother-child informant discrepancies for child externalizing behaviors only.

In general, good parent-child communication has been related to lower mother-child informant discrepancies of internalizing symptoms (Van Roy, Groholt, Heyerdahl, & Clench-aas, 2010). Time spent with their children and parental engagement have also been associated with lower mother-child informant discrepancies for child internalizing symptoms (Treutler & Epkins, 2003; Van Roy et al., 2010). This may be because parents who spend more time with their children become more cognizant of their child's problem behaviors. Similarly, good

communication between mothers and children may lead to a greater likelihood that children communicate their emotional and behavioral problems to their parents (Van Roy et al., 2010).

Among fathers, Treutler and Epkins (2003) found that greater parental acceptance was related to lower father-child informant discrepancies about children's internalizing symptoms. On the other hand, low parental acceptance of the child (i.e., love, affection, care, comfort, concern, support; Rohner, 1986, 2004) has been associated with higher parent-child discrepancies in reports of externalizing symptoms but not internalizing symptoms (Kolko & Kazdin, 1993). Thus, among the handful of studies that have tested the quality of the parent-child relationship as a predictor of informant discrepancies, significant findings are not consistently found with regard to mother-child discrepancies of child internalizing symptoms. In addition, these past studies have relied only on the parent's report of the parent-child relationship without taking into account the child's perspective and experience of that relationship.

1.3 Family Environment

Preliminary evidence also suggests that the quality of the family environment as a whole may predict informant discrepancies. Jensen and colleagues (1988) found in a nonclinical sample that higher levels of mother-reported family stress – life events that were stressors to the family or the child over the past year – were associated with greater informant discrepancies between mothers and sons on internalizing symptoms, such that mothers reported more internalizing symptoms than their sons self-reported. Conversely, greater family stressors were related to lower informant discrepancies between parents and daughters on internalizing symptoms in this study. The findings from this study suggest that mothers may project the impact of the family stressors onto their sons and underestimate the impact of family stressors on their daughters' mental health (Jensen et al., 1988). The authors also speculated that perhaps under conditions of

stress, parents and daughters may tend to agree about the daughter's internalizing symptoms. The authors also posited that sons may exhibit more problem behaviors in the midst of family stressors that are noticeable to parents but sons do not identify these problems in themselves.

Kolko and Kazdin (1993) found in both clinical and nonclinical samples that recent family stress experienced in the past 12 months (e.g., failing grade, death of a parent) was related to greater informant discrepancies between parents and children on both internalizing and externalizing symptoms. The authors hypothesized that when there is a lot of stress experienced in the home, parents may be less likely to notice their child's internalizing and externalizing symptoms, or that children do not communicate or show these symptoms to their parents. A limitation of these studies, however, is that they have only examined family stress in terms of recent events or number of stressful events. This does not capture other aspects of the quality of the family environment, such as level of conflict between family members.

1.4 Child Age and Sex

The age of the child has also been related to the extent of parent-child informant discrepancies about the child's symptoms, but the results have been mixed. Achenbach and colleagues' (1987) meta-analysis found that reporters had greater agreement on symptoms of younger children ages 6–11 years old compared to adolescents 12–19 years of age. The more recent meta-analysis by De Los Reyes and colleagues (2015), however, did not find this age effect when comparing parent and child reports of internalizing symptoms among younger children (10 years and younger) versus older children (11 years and older). The authors purport that the lack of age differences may be a consequence of changes in assessing child mental health symptoms in the last three decades. Specifically, evidence-based assessments and systems have been established, and emphasis on including children's self-reports has been increased.

Achenbach and colleagues' (1987) meta-analysis only consisted of a small proportion of studies that compared parent and teacher reports to children's self-reports, whereas De Los Reyes and colleagues' 2015 meta-analysis included at least 50% of studies that compared child self-reports with parents or teachers.

Child sex has also been a consideration in relation to informant discrepancies. In the United States, girls have a twofold higher rate of mood disorders than boys (Merikangas et al., 2010). The finding, however, on whether informant discrepancies differ for boys as compared to girls is mixed, and the pattern of findings most likely depends on the specific population being studied (De Los Reyes & Kazdin, 2005). It has been posited that boys self-report lower levels of problems, whereas girls tend to self-report more problems that go unnoticed by their parents (Van der Meer et al., 2008). Some studies have found greater parent-child discrepancies for boys (Salbach-Andrae et al., 2009), while other studies have observed more parent-child disagreements for girls, in particular for internalizing problems (Grills & Ollendick, 2002; Sourander et al., 1999). Several studies, however, have not found any sex effects (e.g., Choudhury, Pimentel, & Kendall, 2003; Engel, Rodrigue, & Geffken, 1994; Verhulst, Althaus, & Berden, 1987).

1.5 Present Study

The purpose of this study was to identify maternal, family, and child characteristics that predict mother-child informant discrepancies for child internalizing symptoms. First, we aimed to examine mother's depressive symptoms as a moderator of mother-child informant discrepancies. Our first hypothesis was that higher levels of maternal depressive symptoms would be related to greater informant discrepancies between mothers and children, with mothers

with more depressive symptoms reporting greater levels of internalizing symptoms than their child, consistent with the depression-distortion hypothesis (Richters & Pellegrini, 1989).

Second, we aimed to test mother-child relationship quality as a predictor of mother-child informant discrepancies for child internalizing symptoms. Based on the findings by Kolko and Kazdin (1993) and Treutler and Epkins (2003), our second hypothesis was that mother-child relationships that are lower in warmth and acceptance would have higher mother-child informant discrepancies on child internalizing symptoms with mothers reporting greater internalizing symptoms than their child.

Third, we aimed to examine the quality of the family environment as a predictor of mother-child informant discrepancies for child internalizing symptoms. Our third hypothesis was that mother-child informant discrepancies about child internalizing symptoms would be greater in the context of a more stressful family environment (higher levels of conflict, unsupportive relationships). Based on the findings from Kolko and Kazdin (1993) showing that parents in stressful family environments may be less likely to notice their child's symptoms, we expected that mothers will report fewer internalizing symptoms than their children self-report.

Fourth, given the mixed findings in the literature related to child sex and age on the informant discrepancies of mother-child reports of children's internalizing symptoms (e.g., Achenbach et al., 1987; De Los Reyes et al., 2015), we were interested in exploring any differences in informant discrepancies between male and female children, and older and younger children, but we did not have any a priori hypothesis.

A secondary aim of this study was to explore the extent to which informant discrepancies predict mothers' help-seeking behavior and attitudes toward children's mental health. As research on help-seeking behavior and need perception has suggested, the perception of need is

associated with the type and severity of child problems that parents recognize (Weisz & Weiss, 1991). Since parents' subjective appraisals have been demonstrated to be a significant indicator of help-seeking behavior and thus, good indicators of whether parents believe their child needs treatment (Harrison, McKay, & Bannon, 2004), we hypothesized that greater mother-child informant discrepancies on internalizing symptoms would be related to poorer attitudes towards child mental health and seeking professional mental health help. Specifically, mothers who report lower levels symptoms than their child would endorse lower levels of help-seeking behavior and more negative attitudes toward child mental health and mental health treatment.

Altogether, our study aimed to address the gaps in the literature on mother-child informant discrepancies by identifying potential maternal, family, and child characteristics that predict the extent to which mothers and children agree about the child's internalizing symptoms. Extending previous research that has relied on parents' reports of the parent-child relationship quality or stressful family events, the current study included children's perception of their relationship quality with their mother and their family environment. As researchers such as Jensen and colleagues (1988) have speculated in the literature, informant discrepancies may arise in part because children do not share their problems with their parents.

Assessing children's perceptions about their relationship with their mother and their family may provide insight into why children may not be sharing their problems with their mothers. For example, perhaps children who do not feel secure enough about their relationship with their mothers are less likely to express their feelings openly. Examining the child's perceptions may also give us more information about the contexts under which mother-child informant discrepancies are more pronounced. In addition, this study extended previous work by testing implications of informant discrepancies; namely, how it may predict mothers' perceptions

and attitudes toward seeking mental health treatment for their children. By examining these maternal, family, and child specific characteristics, we aimed to identify potential factors underlying mother-child informant discrepancies, which ultimately may help improve mental health treatment seeking and outcomes for children.

CHAPTER 2:

METHOD

2.1 Participants

The sample included 129 mother-child dyads across two independent studies. The first sample included 55 families recruited to participate in a study about family relationships and mental health. Eligibility criteria for these participants were that parents had to be living together for at least two years and children were between the ages of 10 and 16. The second sample included 74 mother-child dyads (out of a total of 81 parent-child dyads; the 7 father-child dyads were not included in the present study), recruited to participate in a multi-site study about parent and child attitudes about mental health. Eligibility criteria was that children were between the ages of 9 and 17 and lived the majority of the time with their parent.

The university's Institutional Review Board (IRB) approved both independent studies and there were no known risks posed to participants. In addition, minority families were recruited at a rate consistent with the current ethnic demographics of Dallas County (U. S. Census Bureau, 2018) to ensure ethnic and racial diversity. For both samples, families were recruited from the community through letters sent to families in local school districts and flyers posted in the community and online (e.g., Facebook, Craigslist).

In the combined sample of 129 mother-child dyads, the average child age was 13.6 years ($SD = 2.2$) and 52.7% were female. The children were racially diverse: 38.8% were White, 31% African American, 22.5% were Latino/Hispanic, and 10% reported another race or more than one race. Mothers were on average 41.5 years old ($SD = 7.28$) and 74.2% of mothers were married. The median yearly household income, reported by mothers, was between US\$60,001 and US\$80,000 (13.2% of families). The percentage of families reporting other yearly household income were: 3.1% between US\$10,001 and US\$15,000, 0.8% between US\$15,001-\$20,000, 7% between US\$20,001 and US\$30,000, 15.5% between US\$30,001 and US\$40,000, 6.2% between US \$40,001 and US\$50,000, 10.1% between US\$50,001 and US\$60,000, 0.8% between US\$60,001 and US\$10,000, 17.8% between US\$80,001 and US\$100,000, 17.1% between US\$100,001 and US\$150,000, while 8.5% earned greater than US\$150,000. Table 1 shows the demographic information for children and mothers for each individual sample. The percentage of mothers who were married significantly differed between the samples, $\chi^2(1, 127) = 6.36, p = .012$. Approximately 85.5% of mothers in sample 1 were married whereas 65.8% of mothers in sample 2 were married.

2.2 Procedures

In both studies, children and mothers completed all measures during a laboratory visit (Sample 1: 4-hour laboratory visit; Sample 2: 2.5-hour laboratory visit). Children and mothers completed questionnaires about the child's internalizing symptoms. Children completed a measure of family functioning and mothers provided self-reports of their own depressive symptoms. Mothers and children in Sample 2 also completed questionnaires about mother-child relationship quality, mothers' attitudes toward seeking professional mental health help for their children, and completed an additional measure of children's internalizing symptoms. Table 2

shows the study variables and the measures used for each variable, as well as the corresponding reporter(s) and sample size(s).

2.3 Measures

a. Child Internalizing Symptoms. Children and mothers in both samples completed the internalizing symptoms subscale of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 2001). The SDQ consists of 10 items that assess a variety of internalizing symptoms such as worry and sadness. Respondents rated statements such as “I /my child worry(ies) a lot” on a scale of 0 (*not true*) to 2 (*certainly true*). Items were summed to create a total internalizing symptoms score, with higher scores reflecting higher levels of symptoms.

The SDQ has shown good internal consistency ($\alpha = 0.63 - 0.77$; Bourdon, Goodman, Rae, Simpson, & Koretz, 2005) and test-retest stability (4 - 6 months period) of 0.62 (Goodman, 2001). Construct validity of the SDQ was also examined through degree of associations of high SDQ scores and the presence or absence of psychiatric disorders. High SDQ scores were associated with a significant increase in psychiatric risk (Goodman, 2001). In the current study, we obtained a Cronbach’s alpha of 0.74 for the internalizing scale on the mothers’ report of the SDQ, and a Cronbach’s alpha of 0.62 for the internalizing scale on the child report of the SDQ. Considering the low reliability of the child report of the SDQ internalizing scale, we decided to use the 5-item emotional problems scale which yielded a Cronbach’s alpha of 0.69 for the mother’s report of the SDQ emotional problems scale, and 0.67 for the child’s report of the SDQ emotional problems scale.

In both samples, children and mothers also completed the Screen for Child Anxiety Related Disorders (SCARED; Birmaher et al., 1997), a 41-item questionnaire that assesses symptoms of a variety of anxiety disorders. Individuals rated each item on a scale of 0 (*not true*

or hardly ever true) to 2 (*very true or often true*). An example item is “When I (my child) feel(s) frightened, it is hard for me (him/her) to breathe”. Items were summed to create a total anxiety score, with higher scores reflecting higher levels of anxiety symptoms. The reliability of the SCARED is excellent; in a meta-analysis of cross-cultural samples that assessed the SCARED’s psychometric properties, the average alpha was 0.91 (Hale, Crocetti, Raaijmakers, & Meeus, 2011). The 5-week test-retest reliability of the SCARED is also good ($\alpha = 0.70 - 0.90$; Birmaher et al., 1997). Construct validity was demonstrated through the ability of the SCARED to differentiate between anxiety and other disorders, as well as within specific types of anxiety disorders (Birmaher et al., 1997). In the present study, mothers’ ($\alpha = 0.93$) and children’s ($\alpha = 0.90$) reports on the SCARED showed good reliability.

Children and mothers in Sample 2 also completed the Children’s Depression Inventory (CDI; Kovacs, 1985). The child-report version consists of 27-items that assess an array of depressive symptoms such as sadness, anhedonia, and suicidal ideation. The CDI presents three alternative statements for each item (e.g., “I am sad once in a while,” “I am sad many times,” and “I am sad all the time”) and children were asked to select the statement that best described them within the past two weeks. Higher scores indicate higher levels of depressive symptoms. The CDI has shown good internal consistency ($\alpha = 0.86$; Kovacs, 1985), excellent 1-week test-retest reliability ($\alpha = 0.87$; Saylor, Finch, Spirito, & Bennett, 1984), and fair 6-week test-retest reliability ($\alpha = 0.59$; Saylor et al., 1984). The CDI has also shown good construct validity by its ability to differentiate children with general emotional distress from normal school children (Saylor et al., 1984). In the current study, the CDI showed good reliability ($\alpha = 0.78$).

The CDI parent-report version (CDI:P; Kovacs, 1997) consists of 17 statements (e.g., “My child blames himself or herself for things”). Mothers rated each statement on a scale of 0

(*not at all*) to 3 (*much or most of the time*). Higher scores indicate higher levels of depressive symptoms. The CDI:P has shown a high test-retest reliability ($\alpha = 0.75$) and internal consistency ($\alpha = 0.74$) and is strongly correlated with the CDI ($\alpha = 0.88$; Wierzbicki, 1987). In the current study, the CDI:P showed good reliability ($\alpha = 0.84$).

b. Maternal Depressive Symptoms. In both samples, mothers completed the Center for Epidemiologic Studies Depression Scale (CESD; Radloff, 1977), a 20-item self-report measure of depressive symptomology. Mothers selected how often specific feelings or behaviors applied to them in the past week on a scale from 0 (*rarely or none of the time [less than 1 day]*) to 3 (*most or all of the time [5-7 days]*). An example of a statement is, “I felt that everything I did was an effort.” The CESD has shown good internal consistency ($\alpha = 0.84 - 0.90$; Radloff, 1977). The test-retest reliability was moderate, ranging from 0.51 to 0.67 for time intervals of 2 to 8 weeks (Radloff, 1977). The authors posited that this was because of the expected variation of symptomology since the questionnaire is designed to measure symptoms over the past week (Radloff, 1977). The CESD also showed good construct validity. It discriminated well between psychiatric inpatient and general population samples; for example, inpatients scored approximately 5 to 6 standard deviations above the general population sample (Radloff, 1977). The measure showed good reliability in the current study ($\alpha = 0.79$). The percentage of mothers who self-reported at or above clinical levels (≥ 16 ; Radloff, 1977) of depressive symptoms was 11.63%.

c. Mother-Child Relationship Quality. In Sample 2, children completed the warmth and acceptance subscale of the Children’s Perception of Parental Behaviors Inventory (CRPBI; Margolies & Weintraub, 1977). The warmth and acceptance subscale includes 24-items, rated on a 3-point scale from 1 (*not like*) to 3 (*a lot like*). Individuals selected choices based on statements

that described their mother (“My mother is a person who... smiles at me often”). The CRPBI has shown good test-retest reliability (5-week retest) of 0.79 to 0.93. Cronbach’s alpha was 0.88 for the CRPBI in this current study. Items from the CRPBI warmth and acceptance subscale were reworded for parent completion on the Parental Behaviors Inventory (PBI; Margolies & Weintraub, 1977).

Mothers selected choices about their own behavior on a scale ranging from 1 (*very much unlike me*) to 5 (*very much like me*). Satisfactory 6-month test-retest reliability of 0.76 and good internal consistency ($\alpha = 0.91 - 0.95$; Almeida & Galambos, 1991) have been shown. Cronbach’s alpha was 0.81 for the mother-reported PBI in the current study. Higher scores on both the child- and mother-versions indicated higher acceptance and warmth, and therefore, better relationship quality.

d. Family Environment. In both samples, children completed the Risky Family Questionnaire (RFQ; Taylor, Lerner, Sage, Lehman, & Seeman, 2004), a 13-item measure that assesses children’s perceptions of family stress and dysfunction (e.g., conflicts between family members, unsupportive or neglectful relationships). Children were asked to rate the frequency of each item about their family ranging from 1 (*not at all*) to 5 (*very often*). An example item is, “How often did a parent or other adult swear at you, insult you, put you down, or act in a way that made you feel threatened?”. Items were summed and higher scores reflected a more stressful family environment. The RFQ has shown good internal consistency ($\alpha = 0.86$; Taylor, Eisenberger, Saxbe, Lehman, & Lieberman, 2006), and demonstrated discriminant validity from other psychosocial variables (depressive symptomology, social support, and anger-out expression) that could alter the retrospective recall accuracy of the family environment (Loucks et al., 2014). The RFQ showed good reliability in this study ($\alpha = 0.82$).

e. Mother's Attitude Towards Seeking Help. In Sample 2, mothers completed the Parental Attitudes Toward Psychological Services Inventory (PATPSI; Turner, 2012), a 21-item questionnaire that measures attitudes toward seeking professional mental health help for children. A sample item is, "I would not want others (friends, family, teachers, etc.) to know if my child had a psychological or behavior problem." Parents rated how much they agreed with each item from a scale of 0 (*strongly disagree*) to 5 (*strongly agree*). The help-seeking attitudes subscale was used in the current study (8 items); higher scores reflected more positive attitudes toward mental health treatment for children. The PATPSI showed adequate internal consistency ($\alpha = 0.70-0.90$) in a sample of 260 parents, the majority of which (81%) were from Texas (Turner, 2012). In the current study, the PATPSI help seeking attitudes subscale showed acceptable reliability ($\alpha = 0.65$).

2.4 Analysis Plan

For our preliminary analyses, we examined distributional assumptions and outliers were identified. We also tested for normality. We calculated correlations between our main study variables: children's internalizing symptoms, mothers' depressive symptoms, mother-child relationship quality, family environment, child age, child sex, and mothers' attitudes towards seeking mental health treatment. We controlled for study sample in our analyses as well.

Earlier research on informant discrepancies utilized difference scores to operationalize the discrepancy, in which the score provided by one informant was subtracted from the score provided by another informant. Difference scores, however, have been found to have questionable validity and limitations. These have been reviewed extensively by researchers such as De Los Reyes and colleagues (2011a), Edwards (1994), and Griffin, Murray, and Gonzalez (1999). Laird and De Los Reyes (2013) highlighted that the two main limitations of difference

scores are (1) difficulty separating the difference scores from the original two measures it was derived from – that is, any differences seen may be confounded with the variations of the original measures themselves and may not reflect true differences between the informants' reports; and (2) using difference scores makes the assumption that one reporter's score is positively associated with the outcome whereas the other reporter's score is negatively associated with the outcome. These difficulties do not go away by simply using squared or absolute difference scores (Laird & De Los Reyes, 2013). Instead, Edwards (1994) and Laird and De Los Reyes (2013) recommend testing the interaction between the two reporters' scores when predicting to an outcome. In our study, we were primarily interested in factors that predicted the informant discrepancy. In this case, Laird and De Los Reyes (2013) recommended testing an interaction between one informant's report and the moderator, with the other informant's report serving as the dependent variable (e.g., Laird & LaFleur, 2016).

To test our first set of hypotheses about maternal, family, and child characteristics as moderators of informant discrepancies, we used multiple regression analyses. The predictors in the model were the mothers' report of child internalizing symptoms (SDQ or SCARED) and one of the moderators (maternal depression, parent-child relationship quality, family stress, child age, or child sex). We also included the interaction between mothers' report and the moderator variable. We mean centered all variables before creating the interaction term, following the suggested best practice when testing interaction effects (Aiken & West, 1991). The model also controlled for the quadratic main effect of mothers' reports of children's internalizing symptoms and the moderator to ensure that the interactions were not capturing a quadratic main effect. Following the work of Laird and colleagues (2013), nonsignificant quadratic effects were

removed from the model when their removal did not change the results to allow for a more parsimonious model.

An example regression model for informant discrepancies on child internalizing symptoms and maternal depressive symptoms as the moderator is included below:

$$\text{Child self-reported SDQ} = b_0 + b_1 * (\text{Mother-report SDQ}) + b_2 * (\text{Mother CESD}) + b_3 * (\text{Mother-report SDQ})^2 + b_4 * (\text{Mother CESD})^2 + b_5 * (\text{Mother-report SDQ} * \text{Mother CESD}) + e.$$

In this example, the regression coefficient term b_5 indicates the extent to which maternal depressive symptoms moderate informant discrepancies between mother and child reports of child internalizing symptoms. If this interaction was significant, we plotted the interaction and calculated simple slopes at 1 standard deviation below (lower levels) and 1 standard deviation above (higher levels) the mean for the moderator variable.

To test our secondary aim of examining the extent to which mother-child informant discrepancy predicted mother's attitudes toward seeking child mental health treatment, we used multiple regression analyses. Predictors were both mothers' and children's reports of child internalizing symptoms (SDQ, SCARED, or CDI) and the two-way interaction between their reports. As before, we controlled for the squared main effects of each informants' report. A sample regression equation for SDQ is below; separate models were tested using the SDQ, the SCARED, and the CDI.

$$\text{PATPSI} = b_0 + b_1 * (\text{Child-report SDQ}) + b_2 * (\text{Mother-report SDQ}) + b_3 * (\text{Child-report SDQ})^2 + b_4 * (\text{Mother-report SDQ})^2 + b_5 * (\text{Child-report SDQ} * \text{Mother-report SDQ}) + e.$$

The interaction term, b_5 , indicates the extent to which mother-child informant discrepancies predict mothers' attitudes toward seeking child mental health treatment. If this

interaction was significant, we plotted the interaction and calculated simple slopes at 1 standard deviation below (lower levels) and 1 standard deviation above (higher levels) the mean.

2.5 Power and Sensitivity Analyses

The proposed study included 129 mother-child dyads with children between the ages of 9 and 17 years old across two independent studies. Since the two samples came from different studies, mother-child relationship quality and mothers' attitudes towards child mental health and treatment were only assessed in Sample 2. Therefore, aims relating to these variables had a smaller sample size of 74 dyads.

We ran a sensitivity power analyses using the program G*Power (Faul, Erdfelder, Buchner, & Lang, 2009) which estimated that the minimum detectable effect size was approximately $f^2 = 0.077$ (i.e., a small to medium effect size) in order to have a sufficient power of .80 with a sample size of 129. A small to medium effect size is not unreasonable based on previous research by Laird and De Los Reyes (2013) and Laird and LaFleur (2016) who used polynomial regression rather than difference scores to examine informant discrepancies. Their studies estimated small effect sizes of approximately $f^2 = .036$, although they had larger sample sizes and fewer predictors. Therefore, we assumed a small to medium effect size for our study.

For hypothesis 2 (moderation by maternal warmth and acceptance) and hypothesis 5 (predicting maternal attitudes toward treatment seeking), only the mother-child dyads in Sample 2 ($n = 74$) completed measures of mother-child relationship quality (i.e., PBI and CRPBI) and only mothers in this sample completed measures of attitudes toward seeking professional mental health help for children (PATPSI). Sensitivity power analyses revealed that our effect size would have to be approximately $f^2 = 0.137$, close to a medium effect size, in order to have a sufficient power of .80. Therefore, we expected that our analyses for hypotheses 2 and 5 would be

underpowered; results from these analyses should be considered exploratory and interpreted with caution.

CHAPTER 3:

RESULTS

3.1 Preliminary Analyses

a. Outliers. Normality and distributional assumptions were tested. Results of the Q-Q Plots indicated that all main study variables were normally distributed. Moreover, two outliers were identified on mothers' CESD (≥ 3.29 *SD* from the mean; Tabachnick & Fidell, 2012). We identified these outliers as one mother who was previously diagnosed with depression and anxiety, and another who had received professional psychological treatment in the past (but did not have an official diagnosis). Their scores were 31 and 34, respectively, and scores above 16 indicate potential clinical levels of depression on the CESD. We decided against excluding this data because including clinically significant populations adds to the variation of our sample and is informative.

b. Missing Data. Missing values analyses revealed that 8% of the data ($n = 1$) was missing for mother-reported SDQ, mother-reported SCARED, child-reported SDQ, and RFQ. The missing data from the child-reported SDQ and RFQ were from the same participant. Little's Missing Completely at Random (MCAR) test was not significant, $\chi^2(6011) = 2312.54, p = 1.00$, indicating that the data was missing completely at random. Given the small percentage of missing data, we did not impute scores for missing data.

c. Informant Discrepancies. We also examined correlations between mothers' and children's reports of internalizing symptoms on the SDQ, SCARED, and the CDI because our main study aims were about mother-child informant discrepancies. In addition, we also examined mean differences using a paired samples t-test for the SDQ and SCARED to test for informant discrepancies. We did not conduct a paired samples t-test for the CDI because the child and mother versions of the CDI contained different questions and different rating scales (see Appendix A). There was a small, positive correlation between mothers' and children's reports on the SDQ emotional problems scale ($r = .41, p < 0.001$), however, there was a significant mean difference between reporters, with mothers reporting 0.58 lower points than children self-reported, $t(126) = 2.94, p = .004, d = 0.26$. The percentage of mothers in our study sample who reported that their child exhibited emotional problems at or above clinical levels (total subscale score ≥ 4 ; Goodman, 2001) was 19.38%, while 29.46% of children in our sample self-reported at or above clinical levels of emotional problems. A McNemar chi-square test revealed the percentage of mothers and children who reported at or above clinical levels of child emotional problems were not significantly different, $\chi^2(1, 128) = 2.88, p = .09$.

On the SCARED, there was a small, positive correlation between mothers' and children's reports ($r = .37, p < .001$), and there was a significant mean difference between reporters, with mothers reporting 8.59 lower points than children self-reported, $t(127) = 7.75, p < .001, d = 0.71$. The percentage of mothers in our study who reported that their child's anxiety symptoms were at or above clinical levels (≥ 25 ; Birmaher et al., 1997) on the SCARED was 13.28%, and 28.68% of the children in our study self-reported anxiety symptoms that were at or above clinical levels. A McNemar chi-square test revealed that the proportion of children who reported clinical levels

of anxiety symptoms was significantly higher compared to mothers' reports, $\chi^2(1, 128) = 8.76, p < 0.01$.

Finally, on the CDI (sample 2 only), there was a small, positive correlation between mothers' and children's reports, $r = .24, p = .04$. The percentage of mothers in Sample 2 who reported that their children exhibited at or above clinical levels of depressive symptoms on the CDI (≥ 20 ; Kovacs, 1985) was 10.81%, while only 2.7% of the children in Sample 2 self-reported at or above clinical levels of depressive symptoms. A McNemar chi-square test revealed that the percentage of mothers and children who reported at or above clinical levels of depressive symptoms was not significantly different, $\chi^2(1, 73) = 3.13, p = .07$. Taken together, mothers underreported their children's level of emotional problems and anxiety symptoms, and underreported potentially clinical levels of children's anxiety symptoms, as compared to children's self-reports.

d. Child Age and Sex. Correlations between each of the outcomes, predictors, and covariates are presented in Table 3. Supporting our inclusion of child age and sex as covariates in the analyses, child age was positively correlated with mothers' attitudes toward seeking mental health treatment and positively correlated with child's report of the family environment on the RFQ. Child sex was also positively correlated with child report of internalizing symptoms in the SDQ and the SCARED.

Moreover, because there has been some literature showing differences between reports of internalizing symptoms in girls and boys (e.g., Grills & Ollendick, 2002), we conducted an independent samples t-test to explore any differences on reports of our outcomes, predictors, and covariates based on the child's sex. Girls ($M = 3.16, SD = 2.39$) reported significantly more emotional problems than boys ($M = 1.98, SD = 1.65$) on the SDQ, $t(126) = 3.122, p = .002$. Girls

($M = 23.4$, $SD = 12.77$) also reported significantly more anxiety symptoms than boys ($M = 17.69$, $SD = 9.96$) on the SCARED, $t(127) = 2.81$, $p = .01$.

e. Mothers' Marital Status. Since there were significant differences between the percentage of mothers married between the two samples, we conducted an independent samples t-test to explore any differences between the reports of mothers' warmth and acceptance for married and unmarried mothers. There was not a significant difference in reported maternal warmth and acceptance between married ($M = 64.04$, $SD = 4.85$) and unmarried ($M = 65.04$, $SD = 5.22$) mothers, $t(71) = 0.81$, $p = .42$, or for children's reports of mothers' warmth and acceptance for married ($M = 64.54$, $SD = 7.68$) and unmarried ($M = 64.41$, $SD = 6.51$) mothers, $t(59) = 0.07$, $p = .94$.

f. Race/Ethnicity Differences. To explore any differences between racial groups in our sample, we conducted a one-way ANOVA. Three main dummy groups were created to represent Black/African American, Hispanics, and Others/Multiracial groups, with the White group serving as the reference category. There were significant differences between racial groups in our sample on mother-reported child emotional problems on the SDQ, [$F(3, 127) = 3.53$, $p = .02$], mother-reported child depressive symptoms on the CDI, [$F(3, 73) = 3.22$, $p = .03$], as well as mothers' attitudes toward seeking child mental health treatment, [$F(3, 73) = 3.49$, $p = .02$]. Planned contrasts, with Bonferroni correction, revealed that White mothers reported significantly higher levels of child depressive symptoms on the CDI compared to African American mothers, $t(70) = 3.10$, $p = .003$. The other groups' differences did not remain significant after Bonferroni correction.

3.2 Mothers' Depressive Symptoms as a Moderator of Mother-Child Informant Discrepancies

Our first aim was to test mothers' depressive symptoms as a moderator of mother-child informant discrepancies. We ran two multiple regression models and the results are presented in Table 4. The table does not include quadratic terms because we decided to exclude nonsignificant polynomial variables from our model in an effort to have the simplest model (Cohen, Cohen, West, & Aiken, 2002; Laird & De Los Reyes, 2013). The first model included the main effects of mother-reported child emotional problems (SDQ), mothers' depressive symptoms, and the two-way interaction term between mother-reported child emotional problems and mother's depressive symptoms, in predicting child-reported emotional problems. The second model included the main effects of mother-reported child anxiety symptoms (SCARED), mothers' depressive symptoms, and the two-way interaction term between mother-reported child anxiety symptoms and mothers' depressive symptoms in predicting child-reported anxiety symptoms. Both models controlled for child age, child sex, and study sample.

The two-way interaction term in the model predicting children's emotional problems was not significant, $B = 0.01$, $SE = 0.01$, $p = .54$, $\beta = -0.05$ (Table 4), indicating that mothers' depressive symptoms did not moderate the informant discrepancies between mother- and child-reported emotional problems on the SDQ. Significant main effects, however, were found, indicating that children's self-reported emotional problems were positively associated with mothers' reports of children's emotional problems, $B = 0.44$, $SE = 0.10$, $p < .001$, $\beta = 0.40$. There was also a significant main effect of child sex, $B = 1.06$, $SE = 0.34$, $p = .002$, $\beta = 0.25$, such that girls reported higher levels of emotional problems (Table 4).

The two-way interaction term in the child anxiety symptoms model was also not significant, $B = 0.01$, $SE = 0.02$, $p = .65$, $\beta = 0.04$ (Table 4), indicating that mothers' depressive symptoms did not moderate the informant discrepancies between mother- and child-reported child anxiety symptoms. Main effects were found indicating that children's self-reported anxiety symptoms were positively associated with mothers' reports of children's anxiety symptoms, $B = 0.45$, $SE = 0.10$, $p < .001$, $\beta = 0.39$. There was also a significant main effect of child sex, $B = 5.26$, $SE = 1.93$, $p = .007$, $\beta = 0.22$, such that girls reported higher levels of anxiety symptoms (Table 4).

3.3 Mother-Child Relationship Quality as a Moderator of Mother-Child Informant Discrepancies

Our second aim was to test mother-child relationship quality as a moderator of mother-child informant discrepancies. Separate regression models were tested for informant discrepancies for emotional problems and for anxiety symptoms, and mother- and child-reported relationship quality (maternal warmth and acceptance) were tested separately as moderators, this resulted in four separate multiple regression models. The results are presented in Tables 5 and 6. As before, results from models with the nonsignificant quadratic terms removed from the model are presented.

Mother-reported maternal warmth and acceptance did not significantly moderate informant discrepancies in children's emotional problems, $B = 0.01$, $SE = 0.03$, $p = .66$, $\beta = 0.05$, or anxiety symptoms, $B = -0.03$, $SE = 0.03$, $p = .46$, $\beta = -0.10$ (Table 5). Similarly, child-reported maternal warmth and acceptance did not significantly moderate informant discrepancies in children's emotional problems, $B = 0.01$, $SE = 0.02$, $p = .62$, $\beta = 0.06$, or anxiety symptoms, $B = 0.02$, $SE = 0.03$, $p = .53$, $\beta = 0.09$ (Table 6).

Significant main effects, however, were found in the models using mother-reported maternal warmth and acceptance indicating that children's report of emotional problems and mothers' report of emotional problems were positively associated, $B = 0.56$, $SE = 0.11$, $p < .001$, $\beta = 0.51$ (Table 5). There was also a significant main effect of child sex, $B = 0.94$, $SE = 0.46$, $p = .04$, $\beta = 0.21$, such that girls reported higher levels of emotional problems. Similarly, a main effect of child sex was found for children's anxiety symptoms, $B = 6.33$, $SE = 2.48$, $p = .01$, $\beta = 0.29$, such that girls reported higher levels of anxiety symptoms (Table 5).

A significant main effect was also found in the model using child-reported maternal warmth and acceptance indicating that children's report of emotional problems and mothers' report of emotional problems were positively associated, $B = 0.57$, $SE = 0.14$, $p < .001$, $\beta = 0.48$. There was also a significant main effect of child sex, such that girls reported higher levels of anxiety symptoms than boys, $B = 6.99$, $SE = 3.06$, $p = .03$, $\beta = 0.32$ (Table 6)

3.4 Family Environment as a Moderator of Mother-Child Informant Discrepancies

Our third aim was to test stressful family environment as a moderator of mother-child informant discrepancies. Separate regression models were tested for informant discrepancies for emotional problems and for anxiety symptoms resulting in two separate multiple regression models. The results from models removing the nonsignificant quadratic terms are presented in Table 7.

Child-reported risky family environment did not significantly moderate informant discrepancies in children's emotional problems, $B = -0.00$, $SE = 0.01$, $p = .90$, $\beta = -0.01$, or anxiety symptoms, $B = 0.01$, $SE = 0.01$, $p = .12$, $\beta = 0.13$ (Table 7). Significant main effects were found indicating that child-reported emotional problems were positively associated with mother-reported emotional problems, $B = 0.40$, $SE = 0.10$, $p < .001$, $\beta = 0.36$ (Table 7). There was also a

significant main effect of sex, $B = 1.11$, $SE = 0.34$, $p = .002$, $\beta = 0.26$, such that girls reported more emotional problems. Main effects were also found indicating that child-reported anxiety symptoms were positively associated with mother-reported child anxiety symptoms, $B = 0.34$, $SE = 0.09$, $p < .001$, $\beta = 0.29$, and a riskier family environment, $B = 0.45$, $SE = 0.14$, $p = .002$, $\beta = 0.26$ (Table 7). There was also a significant main effect of sex, $B = 5.26$, $SE = 1.88$, $p = .006$, $\beta = 0.22$, such that girls reported more anxiety symptoms.

3.5 Child Age and Child Sex as Moderators of Mother-Child Informant Discrepancies

Our fourth aim was to test child age and child sex as moderators of mother-child informant discrepancies. Separate regression models were tested for informant discrepancies for emotional problems and for anxiety symptoms, and child age and child sex were tested separately as moderators; this resulted in four separate multiple regression models. Results testing age as a moderator are presented in Table 8 and results testing child sex as a moderator are presented in Table 9; results are shown after the nonsignificant quadratic main effects were removed from the model.

Child age did not significantly moderate informant discrepancies in children's emotional problems, $B = 0.03$, $SE = 0.05$, $p = .54$, $\beta = 0.05$, or anxiety symptoms, $B = 0.07$, $SE = 0.05$, $p = .16$, $\beta = 0.12$ (Table 8). Similarly, child sex did not significantly moderate informant discrepancies in children's emotional problems, $B = 0.13$, $SE = 0.18$, $p = .46$, $\beta = 0.09$, or anxiety symptoms, $B = 0.24$, $SE = 0.19$, $p = .20$, $\beta = 0.15$ (Table 9).

Significant main effects were found indicating that child-reported child emotional problems and mother-reported child emotional problems were positively associated, $B = 0.43$, $SE = 0.09$, $p < .001$, $\beta = 0.39$. A main effect of sex was also found, $B = 1.04$, $SE = 0.35$, $p = .003$, $\beta = 0.24$, such that girls self-reported more emotional problems (Table 8). Main effects were also

found indicating that child-reported anxiety symptoms and mother-reported child anxiety symptoms were positively associated, $B = 0.40$, $SE = 0.09$, $p < .001$, $\beta = 0.35$. There was also a significant main effect of sex, $B = 4.99$, $SE = 1.93$, $p = .01$, $\beta = 0.21$, such that girls self-reported more anxiety symptoms (Table 8).

Significant main effects were also found in the model testing child sex as a moderator indicating that child-reported child emotional problems and mother-reported child emotional problems were positively associated, $B = 0.36$, $SE = 0.13$, $p = .007$, $\beta = 0.32$. A main effect of child sex was also found, $B = 1.07$, $SE = 0.34$, $p = .002$, $\beta = 0.25$, such that girls self-reported more emotional problems (Table 9). Main effects were also found indicating that child-reported anxiety symptoms and mother-reported child anxiety symptoms were positively associated, $B = 0.29$, $SE = 0.14$, $p = .04$, $\beta = 0.25$. There was also a significant main effect of child sex, $B = 5.31$, $SE = 1.92$, $p = .007$, $\beta = 0.22$, such that girls self-reported more anxiety symptoms (Table 9).

3.6 Mother-Child Informant Discrepancies as Predictor of Mothers' Attitudes toward Mental Health Help

Our fifth aim was to test the extent to which informant discrepancies predict mothers' attitudes towards mental health help. Separate regression models were tested for children's emotional problems and anxiety symptoms, resulting in two separate multiple regression models. The results from this model, with nonsignificant quadratic main effects removed, are presented in Table 10.

Mother-child informant discrepancies on child emotional problems did not significantly predict mothers' attitudes toward seeking mental health treatment, $B = 0.07$, $SE = 0.10$, $p = .50$, $\beta = 0.10$ (Table 10). Mother-child informant discrepancies on child anxiety symptoms also did not significantly predict mothers' attitudes toward seeking mental health treatment, $B = -0.00$, $SE =$

0.01, $p = .99$, $\beta = -0.00$ (Table 10). Significant main effects were found indicating that mothers' attitudes toward mental health treatment was positively associated with child age in the model testing child emotional problems, $B = 0.73$, $SE = 0.24$, $p = .003$, $\beta = 0.35$, and in the model testing child anxiety symptoms, $B = 0.75$, $SE = 0.24$, $p = .002$, $\beta = 0.36$ (Table 10).

3.7 Children's Depression Inventory as Measure of Internalizing Symptoms

As a supplemental analysis, we tested our hypotheses using the Children's Depression Inventory (CDI) as the measure of internalizing symptoms. Previous literature on informant discrepancies have used the CDI as the measure of internalizing symptoms (e.g., De Los Reyes, Goodman, Kliewer, & Reid-Quinones, 2008; Makol & Polo, 2018; Richters, 1992). Since only Sample 2 completed the mother-reported CDI, the sample size was smaller for these analyses ($n = 74$). The results reported below are from models that removed the nonsignificant quadratic main effects.

3.8 Mother-Child Relationship Quality as a Moderator of Mother-Child Informant Discrepancies on the CDI

Our supplementary analyses with the CDI revealed a significant interaction between mother-reported warmth and acceptance and mother-reported child depressive symptoms, $B = -0.06$, $SE = 0.02$, $p = .006$, $\beta = -0.32$ (Table 11), indicating that mother-reported warmth and acceptance significantly moderated mother-child informant discrepancies about children's depressive symptoms. Contrary to our hypothesis, however, simple slopes analysis revealed that there were significantly less informant discrepancies between children's and mothers' reports of children's depressive symptoms for children who reported lower maternal warmth and acceptance (Figure 1).

3.9 Post-Hoc, Exploratory Analyses

a. Post-Hoc Analyses Controlling for Race. Since our preliminary analyses revealed a significant mean difference in mothers' report of children's depressive symptoms on the CDI (after Bonferroni correction), we conducted post-hoc analyses including race as a covariate in the models. Specifically, three dummy coded groups were created to represent Black/African American, Hispanics, and Others/Multiracial groups, with the White group as the reference category. No significant interactions emerged in any of the models. Significant main effects in these models showed that Black mothers reported more negative attitudes toward seeking mental health help for their child than White mothers in the models testing informant discrepancies in child emotional problems on the SDQ, $B = -3.85$, $SE = 1.41$, $p = .01$, $\beta = -0.34$, and child anxiety symptoms, $B = -2.88$, $SE = 1.40$, $p = .04$, $\beta = -0.26$. Similarly, Black mothers reported more negative attitudes toward seeking mental health help for their child than White mothers, $B = -3.23$, $SE = 1.44$, $p = .03$, $\beta = -0.29$ in the model testing informant discrepancies in children's depressive symptoms using the CDI.

b. Combining Mother and Child Reports of Maternal Warmth and Acceptance. We conducted a pairwise t-test to examine if mother-reported maternal warmth and acceptance and child-reported maternal warmth and acceptance were significantly different from each other. This test revealed no significant differences between mother-reported ($M = 64.53$, $SD = 5.08$) and child-reported ($M = 64.45$, $SD = 6.89$), $t(60) = 0.07$, $p = .95$, maternal warmth and acceptance. Therefore, we decided to create a composite variable of maternal warmth and acceptance by averaging mothers' and children's scores. Multiple regression analyses using this composite variable did not reveal any significant interactions between the composite maternal

warmth and acceptance and mother-reported child emotional problems, mother-reported child anxiety symptoms, or mother-reported child depressive symptoms.

c. Internalizing Symptoms Composite. Correlation analyses revealed that mother-reported child emotional problems on the SDQ and child anxiety symptoms on the SCARED were strongly, positively correlated, $r(126) = .71, p < .001$. Similarly, child-reported child emotional problems on the SDQ and child anxiety symptoms on the SCARED were positively correlated, $r(126) = .62, p < .001$. Therefore, we created two composite variables of mother-reported child internalizing symptoms, and child-reported internalizing symptoms by standardizing and summing the SDQ and SCARED for each reporter.

Multiple regression analyses were conducted with these composite variables to test mothers' depressive symptoms, risky family environment, mother-child relationship quality, child age, and child sex as moderators of mother-child information discrepancies, and to examine the extent to which mother-child informant discrepancies on the composite variables predicted mothers' attitudes toward seeking mental health help for their child. These analyses did not reveal any significant interactions between the composite mother-reported child internalizing symptoms variable and our moderators.

d. Removing Covariates. We also conducted all the multiple regression analyses without covariates (child sex and age, study sample). One significant interaction emerged in the model predicting children's anxiety symptoms, suggesting that a risky family environment moderated mother-child informant discrepancies, $B = 0.24, SE = 0.01, p = .04, \beta = 0.17$ (Table 12). Contrary to our hypothesis, however, simple slopes analysis indicated that there were significantly less informant discrepancies between children's report of their anxiety symptoms and mothers' report

of children's anxiety symptoms for children who experienced more stressful family environments (Figure 2).

It is worth noting that simple slopes analysis also revealed the children who self-reported the highest levels of anxiety symptoms had mothers who reported higher levels of anxiety symptoms in their children, but this was only significant in the context of higher levels of risky/stressful family environment, simple slope = 0.49, $p = .001$.

e. Sample 2 Only. Finally, we re-ran analyses for the SCARED based only on Sample 2 participants because significant findings were revealed for the CDI and we wanted to test if these significant findings were simply a sample effect (because CDI was from Sample 2 only), or because the CDI was used as the measure. The results from this model are presented in Table 13.

Multiple regressions revealed a significant interaction between mother-reported anxiety symptoms and children's stressful family environment, $B = 0.04$, $SE = 0.02$, $p = .03$, $\beta = 0.24$, suggesting that information discrepancies about children's anxiety symptoms were significantly moderated by the family environment. Contrary to our hypothesis, simple slopes analysis showed that there were significantly less mother-child informant discrepancies about children's anxiety symptoms for children who reported higher levels of a stressful family environment (Figure 3). Simple slopes analysis also revealed that children who self-reported the highest levels of anxiety symptoms had mothers who reported higher anxiety symptoms in their children and children reported the highest levels of family stress, simple slope = 0.93, $p < .001$.

CHAPTER 4:

DISCUSSION

The purpose of this study was to identify maternal, family, and child characteristics that predict mother-child informant discrepancies for child internalizing symptoms. Specifically, we examined the extent to which mothers' depressive symptoms, mother-child relationship quality, a stressful family environment, child age, and child sex moderated the informant discrepancies of mothers and children on their reports of the child's internalizing symptoms. Moreover, we examined if the extent of these informant discrepancies predicted mothers' attitudes towards seeking mental health help for their child.

Whereas other studies of parent-child informant discrepancies relied on parents' reports of parent-child relationship quality or stressful family events, we included children's perception of their relationship quality with their mothers and their family environments. Moreover, this was the first study, to our knowledge, to test implications of informant discrepancies on mothers' perceptions and attitudes toward seeking mental health treatment for their children with a population that was not currently in treatment. Previous studies, in contrast, utilized parents and children already seeking treatment, and therefore did not directly measure the implications of informant discrepancies on attitudes toward seeking help. For example, Hawley and Weisz (2003) and Yeh and Weisz (2001) conducted unstructured interviews and semi-structured

interviews (using the Child Behavioral Checklist items) with children and their parents asking about the most pressing behavioral and/or psychological problems they were currently seeking treatment for the child. In addition, our study sample was ethnically diverse compared to previous research which has been predominately White.

We found significant informant discrepancies between mothers' and children's reports on child emotional problems and anxiety symptoms, with mothers reporting lower levels symptoms than their children self-reported. Moreover, a greater percentage of children self-reported potentially clinical-levels of anxiety symptoms than their mothers. The effect size of the mean difference between mother- and child-reported anxiety symptoms on the SCARED was larger than the effect size of the mean difference between mother- and child-reported emotional problems on the SDQ, suggesting greater informant discrepancies for anxiety as compared to broader emotional problems. This is surprising given that the emotional problems subscale of the SDQ included more broad, nonspecific items (e.g., often seems worried) compared to the SCARED, which included more specifically defined and context-specific anxiety symptoms (e.g., worries about going to school).

Our finding that mothers underreported children's symptoms compared to children's reports is consistent with previous informant discrepancy studies on internalizing symptoms, particularly with community samples like ours (Barker, Bornstein, Putnick, Hendricks, & Suwalsky, 2007; Rescorla et al., 2017; Makol & Polo, 2018). It has been proposed that internalizing symptoms are less observable than externalizing symptoms, and hence, parents are not able to observe internalizing symptoms and underreport it (e.g., Achenbach et al., 1987; Van der Meer, Dixon, & Rose, 2008). Vierhaus and colleagues' recent study (2018) highlighted that it is the behaviors that are *perceived* to be more observable than others that matter. Therefore, it is

possible that the behaviors asked about in the SDQ were perceived by the parents in our study to be less observable than those asked about in the SCARED. Unfortunately, we did not find any significant moderators of mother-child information discrepancies in our primary analyses, and the results that emerged from supplemental post-hoc analyses were contrary to our hypotheses. Potential explanations for our null or contrary findings are discussed below.

4.1 Maternal Depressive Symptoms

We did not find that mothers' depressive symptoms significantly moderated mother-child informant discrepancies of children's emotional problems, anxiety symptoms, or depressive symptoms. This is in contrast with previous studies that had samples with higher levels of maternal depressive symptoms than the current study's sample. These studies reported higher levels of mother-child informant discrepancies among mothers who had higher levels of depressive symptoms (Breslau et al., 1987; Briggs-Gowan et al., 1996; Chi & Hinshaw, 2002; Chilcoat & Breslau, 1997; Najman et al., 2000; Renouf & Kovacs, 1994; Youngstrom et al., 2000). For example, Berg-Nielsen and colleagues (2003) found that mothers' level of depression was related to more mother-child informant discrepancies about child anxiety symptoms; specifically, higher levels of mothers' depressive symptoms was associated greater informant discrepancies.

One possible explanation for our null finding may be that the mothers in our study did not have sufficiently high levels of depressive symptoms; only 11.63% of mothers endorsed potentially clinical levels of depression, and hence, this may have decreased our ability to detect any potential moderating effects of maternal depression on informant discrepancies. According to the depression-distortion hypothesis (Richters & Pellegrini, 1989) and what we know about the symptoms of depression (American Psychiatric Association, 2013), one way depression

affects a person's thinking is through a negative cognitive bias. Therefore, it is likely that the mothers in the current study had levels of depressive symptoms that were too low to affect their thinking and hence, they did not show a negative cognitive bias about their children's symptoms. As a result, we may not have been able to detect an effect of maternal depressive symptoms on informant discrepancies.

Future studies should consider extending prior work by testing specific depressive symptoms as moderators rather than using a general depression score. For example, Affrunti and Woodruff-Borden (2015) examined associated symptoms of maternal depression separately as moderators. They found that maternal worry was related to lower levels of child anxiety symptoms reported by mothers and greater mother-child informant discrepancies possibly because mothers were preoccupied with their own internal worries and rumination. Maternal anxiety, however, predicted higher levels of mother-reported child anxiety symptoms, and lower mother-child informant discrepancies possibly because mothers with anxiety are hypervigilant to, or better understand, their children's anxiety symptoms. Mothers experiencing more lethargy and withdrawal symptoms, in contrast, may be less cognizant of their children's symptoms. Overall, it appears that depression is multifaceted and the specific profile of symptoms mothers experience may differentially predict levels of mother-child information discrepancies.

4.2 Mother-Child Relationship Quality

In our supplemental analyses using the CDI as a measure of children's depressive symptoms and with one subsample (Sample 2), we found that maternal warmth and acceptance moderated mother-child informant discrepancies of child depressive symptoms, however, the results were in the opposite direction of our hypothesis. *Low* maternal warmth and acceptance was associated with *less* informant discrepancies. This is in contrast with previous studies which

have reported that positive aspects of mother-child relationship quality, namely, mother-child communication, parental engagement (Van Roy et al., 2010), and time spent together (Treutler & Epkins, 2003) were associated with lower mother-child informant discrepancies on child internalizing symptoms. Several methodological differences between our study and these previous studies may explain the difference in findings.

First, Van Roy et al. (2010) measured parental engagement using one question posed to children, “Someone at home cares about what I do”, with the response options of yes, a little, no, and don’t know. This question was created by the researchers and was not validated. Moreover, the children were not asked to think specifically about their parents when answering this question and hence, we do not know if their responses were about their parents or other household members. Van Roy and colleagues also measured parent-child communication by asking children with whom they spoke to most often when they were happy, when they were sad, and in general. Again, these questions were created by the researchers for their specific study and not validated.

Second, Treutler and Epkins (2003) relied on retrospective recall from parents’ reports on how much time they spent “taking care of and doing things with [their] child” on working and nonworking days (taken from Pleck, 1985) in a single week. The 6-month test-retest reliability of this question was found to be only 0.57 (Almeida & Galambos, 1991). Thus, it is unclear the extent to which these measures accurately assessed parent-child relationship quality, and the results of these previous studies should be taken with caution.

In our study, we used validated measures of parenting, the Parental Behaviors Inventory (PBI) and Children’s Perception of Parental Behaviors Inventory (CRPBI). However, we only used the warmth and acceptance scale due to study time constraints. Thus, we only captured one

dimension of the mother-child relationship in this study. It is possible that if we had used the three scales of the PBI and CRPBI (i.e., warmth and acceptance; psychological autonomy vs. psychological control; and firm control vs. lax control; Margolies & Weintraub, 1977), we could have found other possible aspects of the mother-child relationship that may have moderated mother-child informant discrepancies about children's internalizing symptoms.

4.3 Family Environment

In our post-hoc analyses, we found that a stressful family environment significantly moderated informant discrepancies between mothers' and children's report of children's anxiety symptoms; however, this, too, was in the opposite direction of what we hypothesized. We found that a *more stressful* family environment was associated with *lower* informant discrepancies between mothers and their children. Although this finding was contrary to our hypothesis, it was consistent with Jensen and colleagues (1988) who also found that parents and daughters had lower informant discrepancies during stressful times.

A potential explanation for our unexpected finding is that children in more stressful family environments may be more likely to confide in their mother; thereby, leading to lower mother-child informant discrepancy about children's internalizing symptoms. For example, Belle and Burr (1991) found that children were more likely to confide in an adult if they perceived potential benefits (e.g., emotional support and/or practical help) and low costs in doing so.

Alternatively, mothers may also be more likely to check-in with their child in the context of a stressful family environment, thereby leading to lower mother-child informant discrepancy about the child's feelings and internalizing symptoms. Supporting this potential explanation, Seiffge-Krenke and colleagues (2011) examined families over a period of four years and found that parents' coping behaviors in times of stress reciprocally affected children's coping

behaviors. Of note, mothers tended to use more active coping (i.e., psychological or behavioral coping efforts that attempt to use one's resources to deal with the problem; Zeidner & Endler, 1996) and check-in with their sons during times of family stress, especially if their sons exhibited withdrawal coping behaviors. This may have been the case as well in our study: mothers of children in stressful family environments may have checked-in with their children more, especially if their children exhibited withdrawal behavior, and this may explain the lower levels of informant discrepancies.

It is also worth noting that Jensen et al. (1998) measured a stressful family environment as parents' reports of stressful events occurring in the past 12 months, whereas in our study, we asked children to complete the Risky Family Questionnaire (RFQ), which assesses children's perceptions of overall family stress and dysfunction (e.g., conflicts between family members, unsupportive or neglectful relationships). Since the RFQ is a measure of the family environment as a whole, it does not differentiate dysfunctional behavior by family member; this may have contributed to the general lack of findings regarding the moderating role of a stressful family environment in our primary analyses. It is possible that the child may have been reporting on one specific parent's behavior, such as a father swearing at them, rather than both parents, and different results may have emerged if we asked family member-specific questions for these types of behaviors.

4.4 Child Age and Sex

We did not find that child age or child sex significantly moderated mother-child informant discrepancies about child emotional problems, anxiety symptoms, or depressive symptoms. Previous developmental studies and theories suggest that we might expect children under the age of 11 to be poorer reporters of emotions and psychological symptoms, and thus we

would expect more informant discrepancies between younger children and their mothers. For example, Larsen and colleagues (2007) found that it is difficult for children under the age of 11 to experience and understand complex and mixed emotions (e.g., feeling sad and happy at the same time). Similarly, Piaget's theory of cognitive development posited that children only develop abstract or formal operational thinking after the age of 11 (Elkind, 2002).

Achenbach and colleagues' (1987) meta-analysis, however, showed lower informant discrepancies for children ages six to 11. Moreover, other studies (e.g., Choudhury et al., 2003; Engel et al., 1994; Verhulst, et al., 1987) and De Los Reyes and colleagues' (2015) meta-analysis did not find any child age or sex effects on informant discrepancies. Therefore, it appears that there is not much support for age or sex differences and informant discrepancies may be better accounted for by characteristics of the environment. De Los Reyes and colleagues (2011b) suggest that researchers focus on characteristics that are specifically associated with the symptoms being assessed and the contexts in which informants observed the symptoms (e.g., school versus home).

4.5 Mothers' Attitudes Toward Seeking Mental Health Treatment for their Child

We did not find that informant discrepancies predicted mothers' attitudes toward seeking mental health treatment for their children. Our null finding may have been due to the fact that most of the mothers in our sample did not report clinical levels of internalizing symptoms in their children. Researchers have found that people's choices and judgments in hypothetical scenarios differ greatly from real-life scenarios. For example, FeldmanHall and colleagues (2012) found that real moral decision making greatly contradicted moral choices made in hypothetical scenarios, however, when the researchers enhanced the contextual information available to participants in the hypothetical scenarios, this discrepancy was reduced. Thus, it could have been

possible that mothers' responses on the measure about their attitudes towards mental health treatment were affected by this real life-versus-hypothetical scenario discrepancy. Perhaps it was difficult for these mothers to imagine their child requiring professional mental health help due to the child's low levels of internalizing symptoms.

Moreover, research has shown that attitudes towards seeking mental health help has been related to parents' perception of need and this perception of need is greatly influenced by the type and severity of problems parents recognize (Weisz & Weiss, 1991). It is possible that the mothers in our study did not identify high enough severity of issues in their children to warrant seeking mental health treatment, and hence, the lower symptoms reported decreased our ability to detect any effect informant discrepancies may have had on mothers' attitudes toward mental health treatment. Future studies can consider utilizing a more realistic assessment of mothers' attitudes towards mental health help through vignettes that give more contextual information about hypothetical scenarios.

4.6 Limitations

There are several limitations to the present study to consider and that may inform future research directions. First, we used the Emotional Problems subscale of the Strengths and Difficulties Questionnaire (SDQ) as a measure of internalizing symptoms in children. This subscale score is derived from only five items. The authors of the SDQ recommend using the 10-item Internalizing Problems subscale for low-risk or general population samples (Goodman, Lamping, & Ploubidis, 2010). We decided, however, not to use that subscale score because of the lower reliability of children's reports ($\alpha = 0.62$) in our sample. It is likely that the Emotional Problems subscale may not have captured the full range of internalizing symptoms parents and children may have observed. Previous studies on informant discrepancies that utilized the SDQ

used the total difficulties scores (based on 20 items) which captures both externalizing and internalizing symptoms (e.g., Bajeux et al., 2018; Vierhaus et al., 2018).

The other internalizing symptoms measure we used was the Screen for Child Anxiety Related Emotional Disorders (SCARED). This measure has been used in an informant discrepancies study by Affrunti and colleagues (2015); however, they examined informant discrepancies in mother and child reports on separate child anxiety symptom domains measured in the SCARED (e.g., social phobia, generalized anxiety) and associations with maternal symptoms beyond depression (e.g., worrying). Affrunti and colleagues (2015) found that different anxiety symptoms may have different levels of informant discrepancies. For example, they did not find a significant difference between mother and child reports on child generalized anxiety disorder symptoms, but they did find informant discrepancies for panic disorder, separation anxiety disorder, social phobia, school phobia, and total anxiety symptoms. In this present study, we did not test the effects of moderators on informant discrepancies of specific anxiety symptoms and categories because we were interested in broader internalizing symptoms and not specific diagnoses (such as generalized anxiety disorder).

Second, this study focused on mother-child information discrepancies about children's internalizing symptoms and we did not include information about informant discrepancies about children's externalizing symptoms. Kovacs (2001) found that boys and girls may exhibit internalizing symptoms differently, such that depressed boys tend to show more irritability when depressed (Kovacs, 2001). In adults, irritability, aggressiveness, and antisocial behavior are also associated more with depressed males than with depressed females (Möller-Leimkühler, Bottlender, Straub, & Rutz, 2004). These symptoms could be mistaken as externalizing rather than internalizing symptoms to observers. Therefore, if some of the boys in our sample exhibited

such symptoms, mothers would not have reported these symptoms as internalizing symptoms, and thus underreported the boys' internalizing symptoms leading to an increase in mother-son informant discrepancies. By not measuring externalizing symptoms in our study, we could have missed some of these internalizing symptoms that are often mistaken as externalizing symptoms. Future research studies should consider examining internalizing and externalizing symptoms and compare any differences in parent-child informant discrepancies moderated by child sex.

Third, our sample was relatively small and was smaller ($n = 74$) when examining information discrepancies about children's depressive symptoms, maternal warmth and acceptance as a moderator, and mothers' attitudes toward mental health treatment. For hypotheses 1, 3, and 4, we assumed a small to medium effect size based on previous research on variables similar to our moderators of interest. Most of these previous studies, however, used clinical samples (e.g., Chi & Hinshaw, 2002; Kolko & Kazdin, 1993). Therefore, it is possible that we overestimated the expected effect size for our community sample and effect sizes might be smaller in community samples. We anticipated that hypotheses 2 and 5 would be underpowered due to our smaller sample size ($n = 74$).

In spite of this, we decided to examine mother-child relationship quality as a moderator of mother-child informant discrepancies on child internalizing symptoms, and mother-child informant discrepancies predicting mothers' attitudes towards child mental health treatment given the relative lack of research in this area, and the potential contribution of this research for understanding mother-child informant discrepancies. Moreover, the present study may guide and motivate future research, such as replications with larger samples.

Fourth, the majority of our sample did not endorse clinical levels of child internalizing symptoms (between 70% to 80%); nonetheless, we did still observe informant discrepancies

between mothers and children. The lower levels of symptoms reported compared to clinical populations, however, may have decreased our ability to detect moderating effects of our main study variables on informant discrepancies. A study comparing clinical and community samples found that informant discrepancies increased in clinical samples for specific disorders (namely panic disorder and traumatic stress disorder), with larger effect sizes for those discrepant reports in children with high anxiety levels (Pereira et al., 2014).

Future studies should consider comparing clinical and community samples with respect to the factors underlying informant discrepancies in these two populations. Examining these differences may highlight potential barriers to receiving mental health treatment by showing us in what ways informant discrepancies in community samples may be preventing children who need treatment from receiving services. This may inform public education campaigns to help improve the public's awareness of typical signs and symptoms to lookout for in children that may indicate internalizing problems or when treatment should be sought.

Fifth, we did not include fathers in this study because the number of fathers who participated in the main studies from which we derived our samples was low. Treutler and colleagues (2003) examined both mother-child and father-child informant discrepancies on reports of children's internalizing and externalizing symptoms, and found differences between mother-child and father-child informant discrepancies. Mothers who spent more time with their children reported more internalizing symptoms than their children, whereas greater parental acceptance was related to lower father-child informant discrepancies about children's internalizing symptoms.

Thus, future studies should consider including fathers to examine father-child informant discrepancies. In addition, gender matching parent and child to examine the extent to which

informant discrepancies change depending on whether the gender of the parent and child match might be important to study because gender matched parent-child pairs may show different informant discrepancies than gender mismatched parent-child pairs. Perhaps boys feel more comfortable sharing their feelings and concerns with their fathers, or girls feel more comfortable sharing their feelings and concerns with their mothers. If this is the case, informant discrepancies would be expected to be lower for gender-matched parent-child pairs. For example, Youniss and Ketterlinus (1987) studied family communication patterns and found that daughters preferred to speak with their mothers about their emotions and they were also more open in conversations with their mothers than with their fathers.

More research is needed to examine gender matching parent-child pairs and informant discrepancies. Knowing whether there is an effect of gender matching parents with their child on informant discrepancies may have clinical implications. For example, if we know that fathers and sons tend to have lower informant discrepancies when reporting on the son's internalizing symptoms, clinicians can seek the father's reports on the son's behavior rather than the mother's report, or the clinician can give more weight to the father's report rather than the mother's.

Sixth, we only measured children's perceptions of their family environment. Parents and children may have different perceptions of their family environment and it is important to measure this difference and its potential effects on informant discrepancies. For example, Cavendish and colleagues (2014) measured both mothers' and adolescents' perceptions of their family environment using the Family Environment Scale (FES) to examine if they differed as a function of child sex and child risk status (at risk for emotional and/or behavioral disabilities). They found that mothers' and children's perceptions were only positively correlated on one subscale of the FES (conflict subscale), suggesting that mothers' and children's perceptions of

the family environment likely differ. If we only measure one of the reporter's perception of the family environment, we may miss out capturing on some other aspects of the family environment that may be significant moderators of informant discrepancies. Future studies should measure both parents' and children's perceptions of the family environment for a fuller picture of how stressful the family environment is and examine if the difference in perception have varied influences on informant discrepancies.

4.7 Individual and Cultural Diversity

It is worth noting that our study sample was a racially and culturally diverse one, with 38.8% identifying as White, 31% African American, 22.5% Latinx/Hispanic, and 10% another race or more than one race. Post-hoc tests revealed that African American mothers reported more negative attitudes toward seeking mental health help for their child than White mothers in the models testing informant discrepancies in all of our study's child internalizing symptom outcomes (i.e., child emotional problems, child anxiety symptoms, and children's depressive symptoms). This is surprising considering that a study with 17,705 children and their families by Banta and colleagues (2013) examining racial and ethnic differences in parent-identified emotional difficulties and mental health visits in California revealed that African American parents were the most likely to perceive emotional difficulties among their children compared to White, Latinx/Hispanic, and Asian parents. Their study also found that Asians and Latinx/Hispanic children were the least likely to receive needed mental health services, controlling for income (Banta, James, Haviland, & Andersen, 2013).

It would be worthwhile to examine racial, cultural, and ethnic differences related to informant discrepancies and parent's attitudes toward child mental health treatment. Teasing apart factors related to informant discrepancies for diverse groups of children will inform us on

their barriers to receiving mental health treatment, which may differ from the dominant racial/cultural group. This may in turn inform outreach efforts about mental health treatment for minority children. Future studies should consider recruiting a greater number of minority groups that are still under-represented in research (e.g., Asians) so that a comparison can be made on factors that affect informant discrepancies and parent's attitudes toward child mental health treatment.

4.8 Ethical Considerations

Ethical issues warrant consideration as well. The current study and previous research on informant discrepancies have found that children often report more internalizing symptoms than their parents report. Parents may not recognize the symptoms or realize that their children require mental health treatment. A possible ethical dilemma is when a child reports clinical-levels of internalizing symptoms but their parents do not, and a clinician has to decide how to suggest parents seek treatment for their child without breaking confidentiality with the child. Clinicians, and other professionals who often work directly with children (e.g., teachers and school counselors) need to be mindful of this. One possible way around this issue is the clinician discuss with the child the extent to which they can reveal the child's issues with their parents so that the parents take the child to receive treatment, but not revealing all that the child has shared with them.

4.9 Summary, Future Directions, and Practical Implications

Even though our study did not find significant results with respect to our hypotheses, these findings provide guidance to researchers for future studies aimed at understanding parent-child informant discrepancies of children's psychological and behavioral symptoms. Our null findings highlight that it may be important to examine various facets of maternal depression –

specifically, how symptoms of depression, or associated symptoms such as anxiety and worry, can influence informant discrepancies differently. Our findings that were contrary to our hypotheses about mother-child relationship quality and risky family environments show that there may be other facets of mother-child relationship quality and risky family environments that we have not examined that could potentially influence informant discrepancies. For example, perhaps risky family environments motivate children to confide in a supportive figure in their family, and this may decrease informant discrepancies. The present study underscores the need to examine other potential factors that might account for informant discrepancies.

Future research should focus on examining specific symptoms associated with depression (e.g., worry and anxiety) as moderators of mother-child informant discrepancies of child internalizing symptoms. This will help delineate aspects of maternal depression that contribute to informant discrepancies. Research also needs to examine the role parents' genders play in parent-child informant discrepancies; specifically, whether the informant discrepancies of gender-matched parent-child pairs differ from gender-mismatched parent-child pairs. This may shed light on facets of the parent-child relationship and communication that may be associated with informant discrepancies. Finally, future research should explore the sources of stress in the family environment; that is, whether there are differential effects on parent-child informant discrepancies of child internalizing symptoms depending on who the source of the stress is. For example, it will be interesting to examine family stress as a moderator of informant discrepancies when the source of the stress is the parent.

In summary, we may not be able to eradicate informant discrepancies, however, researchers and clinicians alike should heed Vierhaus and colleagues' (2018) advice on the importance of avoiding seeing one informant as a "gold standard" reporter of a child's

psychological symptoms and behaviors. Instead, it is pivotal to get multiple reports of children's psychological symptoms and behaviors so that a fuller picture of the child's issues is attained. We may not be able to make reporters agree on their reports of children's symptoms, however, De Los Reyes and colleagues (2011b) suggest that we can turn these informant discrepancies into a positive and use it for good – that is, we can learn from the discrepancies to interpret assessments and improve treatment and patient care. Informant discrepancies can show researchers and clinicians important information about the settings in which children express emotional and behavioral problems (e.g., school versus home environment). Informant discrepancies may be a prime opportunity for clinicians and researchers to understand how each informant views the child's problems differently, and this, in turn, may inform how to intervene to alleviate the child's internalizing symptoms.

APPENDIX

Table 1. Demographic Information and Means and Standard Deviations of Study Variables by Samples

	Sample 1 <i>N</i> = 55	Sample 2 <i>N</i> = 74	Tests of Sample Differences
Child Age	13.5 (<i>SD</i> = 1.80)	13.7 (<i>SD</i> = 2.47)	$t(127) = 0.61, p = .54$
Child Sex	52.7% Female	52.7% Female	$\chi^2(1, 128) = 0.00, p = 1.00$
Child Race	30.9% White, 32.7% Black, 25.5% Hispanic, 10.9% Other	44.6% White, 29.7% Black, 20.3% Hispanic, 5.5% Other	$\chi^2(5, 123) = 4.86, p = .43$
Mother's Marital Status	85.5% Married	65.8% Married	$\chi^2(1, 127) = 6.36, p = .012$
Median Household Income	\$60,001 – \$80,000	\$60,001 – \$80,000	$\chi^2(10, 119) = 16.77,$ $p = .08$
Child Age	$M = 13.50,$ $SD = 1.80$	$M = 13.72,$ $SD = 2.47$	$t(127) = 0.59, p = .56$
Mother-report SDQ	$M = 1.70,$ $SD = 1.68$	$M = 2.30,$ $SD = 2.07$	$t(126) = 1.73, p = .09$
Child-report SDQ	$M = 2.38,$ $SD = 1.94$	$M = 2.77,$ $SD = 2.29$	$t(126) = 1.01, p = .32$
Mother-report SCA	$M = 12.89,$ $SD = 11.10$	$M = 11.50,$ $SD = 9.72$	$t(126) = .75, p = .45$
Child-report SCA	$M = 20.40,$ $SD = 13.08$	$M = 20.92,$ $SD = 10.91$	$t(127) = .25, p = .81$
Mother-report CDI	--	$M = 10.26,$ $SD = 6.64$	--
Child-report CDI	--	$M = 9.23, S$ $D = 5.11$	--
Mother Depressive Symptoms (CESD)	$M = 8.82,$ $SD = 6.87$	$M = 7.48,$ $SD = 5.25$	$t(127) = 1.26, p = .21$

Table 1 (continued)

Mother-report PBI	--	$M = 64.41,$ $SD = 4.94$	--
Child-report CRPBI	--	$M = 64.46,$ $SD = 4.94$	--
RFQ	$M = 22.51,$ $SD = 7.09$	$M = 22.90,$ $SD = 6.60$	$t(127) = 0.33, p = .75$
Mother's Attitude Toward Seeking Help (PATPSI)	--	$M = 31.78,$ $SD = 5.20$	--

Note. SDQ = Strengths and Difficulties Questionnaire; SCA= Screen for Child Anxiety Related Disorders; CDI = Child Depression Inventory; CESD = Center for Epidemiological Studies Depression; PATPSI = Parental Attitudes Toward Psychological Services Inventory; PBI = Parental Behavior Inventory; RFQ = Risky Family Questionnaire; CRPBI = Child Report of Parental Behavior Inventory.

Table 2. Study Constructs and Measures Used

Construct	Mother's Report	Child's Report	<i>N</i>
Child Internalizing Symptoms	Strengths and Difficulties Questionnaire (SDQ)	SDQ	129 dyads
	Screen for Anxiety and Related Emotional Disorders (SCARED)	SCARED	129 dyads
	Child Depression Inventory (CDI)	CDI	74 dyads
Mother Depressive Symptoms	Center for Epidemiologic Studies Depression Scale (CESD)	--	129
Mother-Child Relationship Quality	Parents' Reports of Parental Behaviors Inventory (PBI): Warmth and Acceptance Scale	Children's Perception of Parental Behaviors Inventory (CRPBI): Warmth and Acceptance Scale	74 dyads
Family Environment	--	Risky Family Questionnaire (RFQ)	129
Mother's Attitude Towards Seeking Help	Parental Attitudes Toward Psychological Services Inventory (PATPSI)	--	74

Table 3. Inter-Correlations Among Study Variables

Variable	<i>M(SD)</i>	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Mother-reported SDQ	2.04 (1.93)	--											
2. Mother-reported SCARED	12.09 (10.3)	.71**	--										
3. Mother-reported CDI†	10.26 (6.64)	.59**	.43**	--									
4. Mother Depressive Symptoms CESD	8.05 (6.01)	.19*	.32**	.31**	--								
5. Mother-reported Parent Acceptance PBI	64.41 (4.94)	-.13	-.15	-.42**	-.42**	--							
6. Mother Help Seeking Attitudes PATPSI†	31.78 (5.20)	.13	.17	-.16	-.01	-.06	--						
7. Child-reported SDQ	2.60 (2.15)	.41**	.32**	.25*	-.07	.08	-.04	--					
8. Child-reported SCARED	20.7 (11.84)	.27**	.37**	.16	.00	.07	-.12	.62**					

Table 3 (continued)

Variable	<i>M(SD)</i>	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
9. Child-reported CDI†	9.23 (5.11)	.22	.23*	.24*	-.08	.03	.01	.48**	.59**	--			
10. RFQ	22.73 (6.79)	.20*	.12	.28*	.11	-.13	.04	.21**	.26**	.53**	--		
11. Child-reported Parent Acceptance CRPBI	64.46 (6.89)	-.12	.06	-.30*	-.18	.20	-.01	.11	.13	-.18	-.36**	--	
12. Child Age	13.63 (2.20)	.10	-.02	-.06	-.07	.12	.35**	-.00	-.06	.14	.27**	-.05	--
13 Child Sex	--	.03	.07	.07	.04	.06	-.13	.28**	.24**	.05	-.03	.13	.01

Note. SDQ = Strengths and Difficulties Questionnaire; SCARED = Screen for Child Anxiety Related Disorders; CDI = Child Depression Inventory; CESD = Center for Epidemiological Studies Depression; PATPSI = Parental Attitudes Toward Psychological Services Inventory; PBI = Parental Behavior Inventory; RFQ = Risky Family Questionnaire; CRPBI = Child Report of Parental Behavior Inventory.

†Correlations from Sample 2 only.

**p<.01, *p<.05

Table 4. Multiple Regressions Testing Mothers' Depressive Symptoms as a Moderator between Mother and Child Reports of Child Internalizing Symptoms (SDQ and SCARED)

	Model 1: SDQ Emotional Problems			Model 2: SCARED		
	Child Self-report			Child Self-report		
	<i>B</i> (<i>SE</i>)	β	<i>p</i>	<i>B</i> (<i>SE</i>)	β	<i>p</i>
Intercept	2.50 (1.20)	--	.039	21.13 (6.74)	--	.002
Child Age	-.04 (0.08)	-0.04	.54	-0.37 (0.44)	-0.07	.40
Child Sex	1.06 (0.34)	0.25	.002	5.26 (1.93)	0.22	.007
Study Sample	0.04 (0.35)	0.01	.90	1.06 (1.96)	0.04	.59
Mother-report of Child (SDQ or SCARED)	0.44 (0.10)	0.40	<.001	0.45 (0.10)	0.39	<.001
Mother's Depressive Symptoms	-0.06 (0.03)	-0.16	.06	-0.26 (0.17)	-0.13	.12
Mother-report of Child (SDQ or SCARED) X Mother's Depressive Symptoms	0.01 (0.01)	0.05	.54	0.01 (0.02)	0.04	.65
	<i>R</i> ²					
				.25		
				.21		

Note. Child Sex coded as 0 = male, 1 = female; SDQ = Strengths and Difficulties Questionnaire; SCARED = Screen for Child Anxiety Related Disorders.

Table 5. Multiple Regressions Testing Mothers' Self-Reports of Warmth and Acceptance as a Moderator between Mother and Child Reports of Child Internalizing Symptoms (SDQ and SCARED) for Sample 2

	Model 1: SDQ Emotional Problems			Model 2: SCARED		
	Child Self-report			Child Self-report		
	<i>B</i> (<i>SE</i>)	β	<i>p</i>	<i>B</i> (<i>SE</i>)	β	<i>p</i>
Intercept	2.71 (1.33)	--	.05	19.44 (7.22)	--	.009
Child Age	-0.04 (0.10)	-0.04	.67	-0.14 (0.51)	-0.03	.79
Child Sex	0.94 (0.46)	0.21	.04	6.33 (2.48)	0.29	.013
Mother-report of Child (SDQ or SCARED)	0.56 (0.11)	0.51	<.001	0.24 (0.13)	0.21	.07
Mother's Warmth and Acceptance (PBI)	0.07 (0.05)	0.14	.19	0.12 (0.28)	0.06	.66
Mother-report of Child (SDQ or SCARED) X Mother-report Warmth and Acceptance	0.01 (0.03)	0.05	.66	-0.03 (0.03)	-0.10	.46
	<i>R</i> ²					
						.14

Note. Child Sex coded as 0 = male, 1 = female; SDQ = Strengths and Difficulties Questionnaire; SCARED = Screen for Child Anxiety Related Disorders. PBI = Parental Behavior Inventory.

Table 7. Multiple Regressions Testing Family Environment as a Moderator between Mother and Child Reports of Child Internalizing Symptoms (SDQ and SCARED)

	Model 1: SDQ Emotional Problems			Model 2: SCARED		
	Child Self-report			Child Self-report		
	<i>B</i> (<i>SE</i>)	β	<i>p</i>	<i>B</i> (<i>SE</i>)	β	<i>p</i>
Intercept	2.77 (1.22)	--	.025	26.19 (6.64)	--	<.001
Child Age	-0.07 (0.08)	-0.07	.37	-0.76 (0.44)	-0.14	.08
Child Sex	1.11 (0.34)	0.26	.002	5.26 (1.88)	0.22	.006
Study Sample	0.15 (0.35)	0.04	.66	1.24 (1.88)	0.05	.51
Mother-report of Child (SDQ or SCARED)	0.40 (0.10)	0.36	<.001	0.34 (0.09)	0.29	<.001
Risky Family Environment (RFQ)	0.05 (0.03)	0.17	.052	0.45 (0.14)	0.26	.002
Mother-report of Child (SDQ or SCARED) X Risky Family Environment	-0.00 (0.01)	-0.01	.90	0.01 (0.01)	0.13	.12
<i>R</i> ²		.25			.27	

Note. Child Sex coded as 0 = male, 1 = female; SDQ = Strengths and Difficulties Questionnaire; SCARED = Screen for Child Anxiety Related Disorders. RFQ = Risky Family Questionnaire.

Table 8. Multiple Regressions Testing Child Age as a Moderator between Mother and Child Reports of Child Internalizing Symptoms (SDQ and SCARED)

	Model 1: SDQ Emotional Problems			Model 2: SCARED		
	Child Self-report			Child Self-report		
	<i>B</i> (<i>SE</i>)	β	<i>p</i>	<i>B</i> (<i>SE</i>)	β	<i>p</i>
Intercept	1.87 (0.61)	--	.003	16.22 (3.39)	--	<.001
Mother-report of Child (SDQ or SCARED)	0.43 (0.09)	0.39	<.001	0.40 (0.09)	0.35	<.001
Child Age	-0.20 (0.08)	-0.02	.80	-0.26 (0.44)	-0.05	.56
Child Sex	1.04 (0.35)	0.24	.003	4.99 (1.93)	0.21	.011
Study Sample	0.28 (0.37)	0.06	.45	1.16 (1.94)	0.05	.55
Mother-report of Child (SDQ or SCARED) X Child Age	0.03 (0.05)	0.05	.54	0.07 (0.05)	0.12	.16
		<i>R</i> ²	.23			.20

Note. Child Sex coded as 0 = male, 1 = female; SDQ = Strengths and Difficulties Questionnaire; SCARED = Screen for Child Anxiety Related Disorders.

Table 9. Multiple Regressions Testing Child Sex as a Moderator between Mother and Child Reports of Child Internalizing Symptoms (SDQ and SCARED)

	Model 1: SDQ Emotional Problems Child Self-report			Model 2: SCARED Child Self-report		
	B(SE)	β	p	B (SE)	β	p
Intercept	2.30 (1.20)	--	.06	20.81 (6.67)	--	.002
Mother-report of Child (SDQ or SCARED)	0.36 (0.13)	0.32	.007	0.29 (0.14)	0.25	.036
Child Sex	1.07 (0.34)	0.25	.002	5.31 (1.92)	0.22	.007
Child Age	-0.03 (0.08)	-0.04	.66	-0.40 (0.44)	-0.08	.36
Study Sample	0.14 (0.35)	0.03	.70	1.54 (1.96)	0.06	.43
Mother-report of Child (SDQ or SCARED) X Child Sex	0.13 (0.18)	0.09	.46	0.24 (0.19)	0.15	.20
	R^2				.23	.20

Note. Child Sex coded as 0 = male, 1 = female; SDQ = Strengths and Difficulties Questionnaire; SCARED = Screen for Child Anxiety Related Disorders.

Table 10. Multiple Regressions Testing Mother-Child Informant Discrepancies on the SDQ and SCARED as a Predictor of Mothers' Attitudes Towards Mental Health Treatment for Sample 2

	Model 1 (SDQ): Mother's Attitude Towards Mental Health Treatment			Model 2 (SCARED): Mother's Attitude Towards Mental Health Treatment		
	<i>B</i> (<i>SE</i>)	β	<i>p</i>	<i>B</i> (<i>SE</i>)	β	<i>p</i>
Intercept	22.32 (3.29)	--	<.001	22.15 (3.27)	--	<.001
Child Age	0.73 (0.24)	0.35	.003	0.75 (0.24)	0.36	.002
Child Sex	-1.60 (1.19)	-0.15	.19	-1.19 (1.18)	-0.12	.32
Mother-report of Child (SDQ or SCARED)	0.27 (0.35)	0.11	.45	0.11 (0.06)	0.20	.09
Child Self-report (SDQ or SCARED)	-0.26 (0.35)	-0.12	.42	-0.06 (0.06)	-0.13	.20
Mother-report of Child (SDQ or SCARED) X Child Self-report (SDQ or SCARED)	0.07 (0.10)	0.10	.50	-0.00 (0.01)	-0.00	.99
	<i>R</i> ²					
			.17			.19

Note. Child Sex coded as 0 = male, 1 = female; SDQ = Strengths and Difficulties Questionnaire; SCARED = Screen for Child Anxiety Related Disorders.

Table 11. Multiple Regressions Testing Mothers' Warmth and Acceptance (Mother-Report) as a Moderator between Mother and Child Reports of Child Depressive Symptoms (CDI) for Sample 2

	Child Self-report of Depressive Symptoms (CDI)	
	<i>B</i> (<i>SE</i>)	<i>p</i>
Intercept	3.67 (3.36)	.28
Child Age	0.32 (0.23)	.18
Child Sex	0.69 (1.14)	.55
Mother-report of Child Depressive Symptoms (CDI)	0.20 (0.09)	.039
Mother-report Warmth and Acceptance (PBI)	0.17 (0.13)	.19
Mother-report Child Depressive Symptoms (CDI) X Mother-report Warmth and Acceptance (PBI)	-0.06 (0.02)	.006
	<i>R</i> ²	.19

Note. Child Sex coded as 0 = male, 1 = female; CDI = Child Depression Inventory; PBI = Parental Behavior Inventory.

Table 12. Family Environment as a Moderator between Mother and Child Reports of Child Anxiety Symptoms (SCARED)

	Child Self-report of Anxiety Symptoms (SCARED)		
	<i>B(SE)</i>	β	<i>p</i>
Intercept	30.20 (6.17)	--	<.001
Mother-report of Child Anxiety Symptoms (SCARED)	0.34 (0.10)	0.29	.001
Risky Family Environment (RFQ)	0.43 (0.15)	0.24	.005
Mother-report of Child Anxiety Symptoms X Risky Family Environment (RFQ)	0.24 (0.01)	0.17	.043
		<i>R</i> ²	.23

Note. Child Sex coded as 0 = male, 1 = female; SCARED= Screen For Child Anxiety Related Disorders; RFQ = Risky

Family Questionnaire.

Table 13. Family Environment as a Moderator between Mother and Child Reports of Child Anxiety Symptoms (SCARED) for Sample 2 Only

	Child-report of Anxiety Symptoms (SCARED)		
	<i>B</i> (<i>SE</i>)	β	<i>p</i>
Intercept	26.56 (6.62)	--	<.001
Mother-report of Child Anxiety Symptoms (SCARED)	0.13 (0.12)	0.12	.28
Risky Family Environment (RFQ)	0.57 (0.18)	0.35	.002
Mother-report of Child Anxiety Symptoms (SCARED) X Risky Family Environment (RFQ)	0.04 (0.02)	0.24	.033
		<i>R</i> ²	.29

Note. Child Sex coded as 0 = male, 1 = female; SCARED= Screen For Child Anxiety Related Disorders; RFQ = Risky Family Questionnaire.

Figure 1. Association between children's report of their depressive symptoms and mother-reported child depressive symptoms as moderated by mothers' report of maternal warmth and acceptance (Sample 2 only).

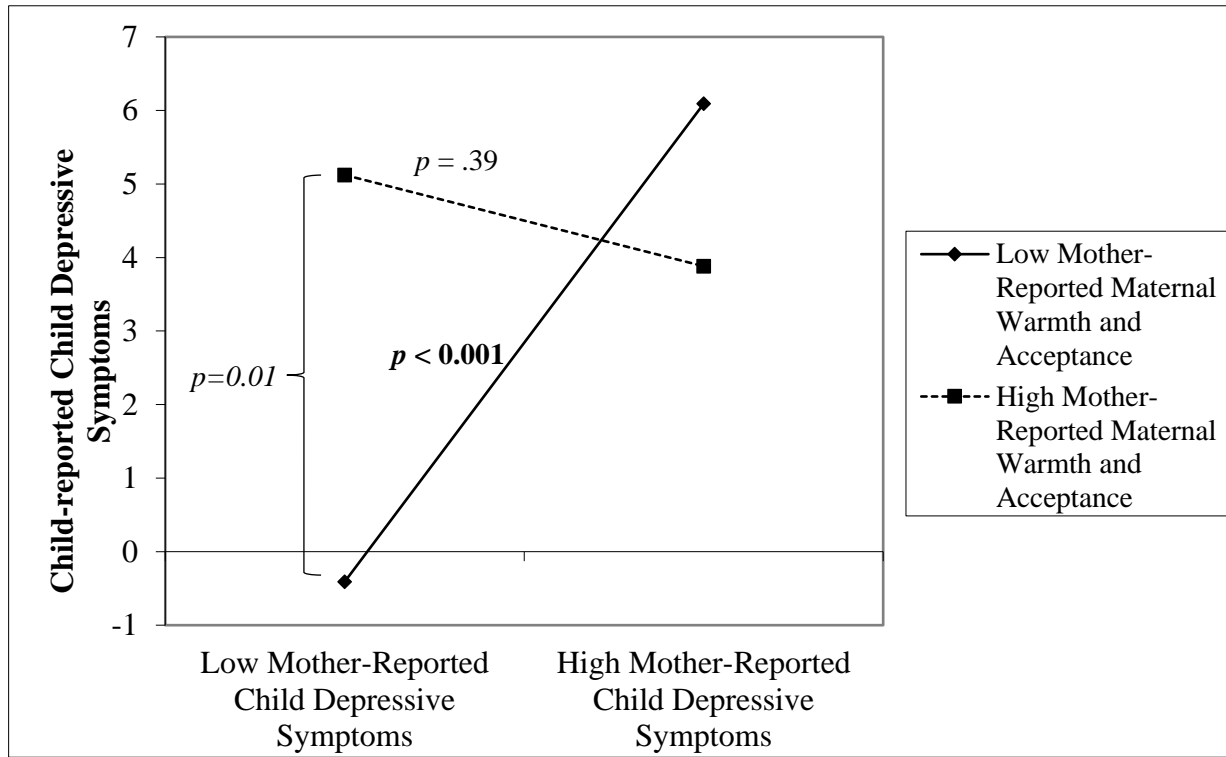


Figure 2. Association between children's report of their anxiety symptoms and mother-reported child anxiety symptoms as moderated by stressful family environment.

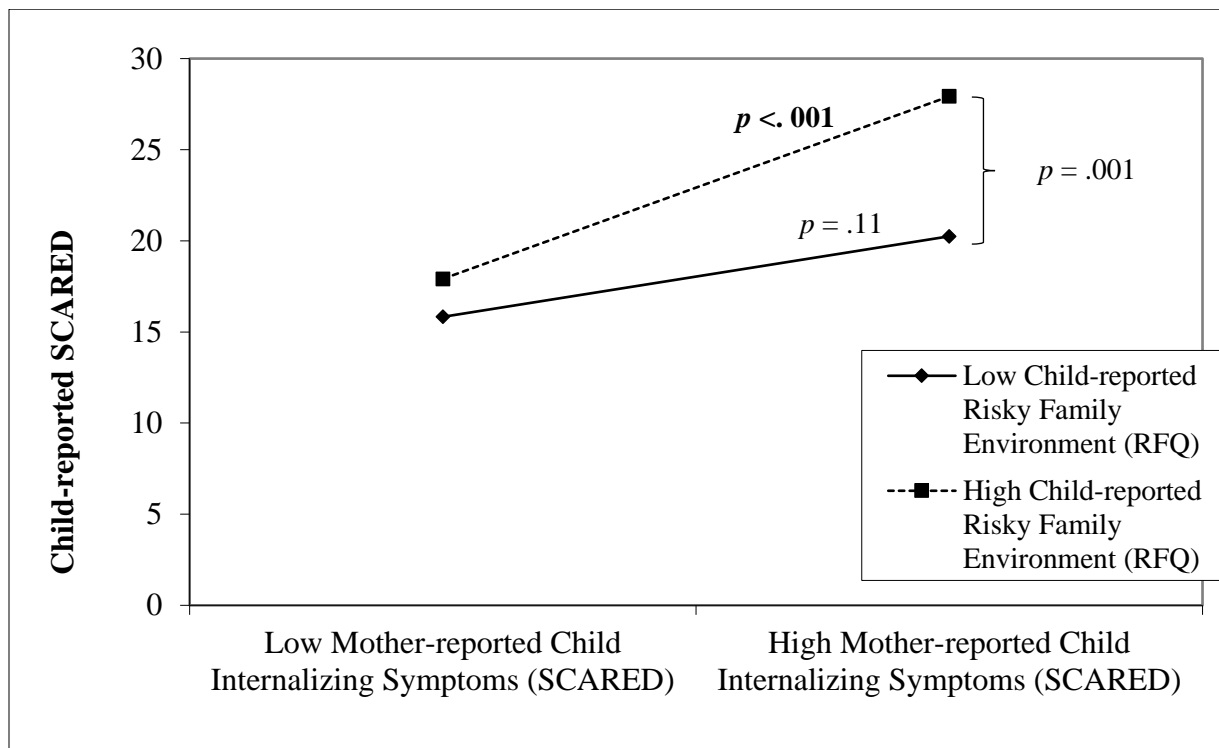
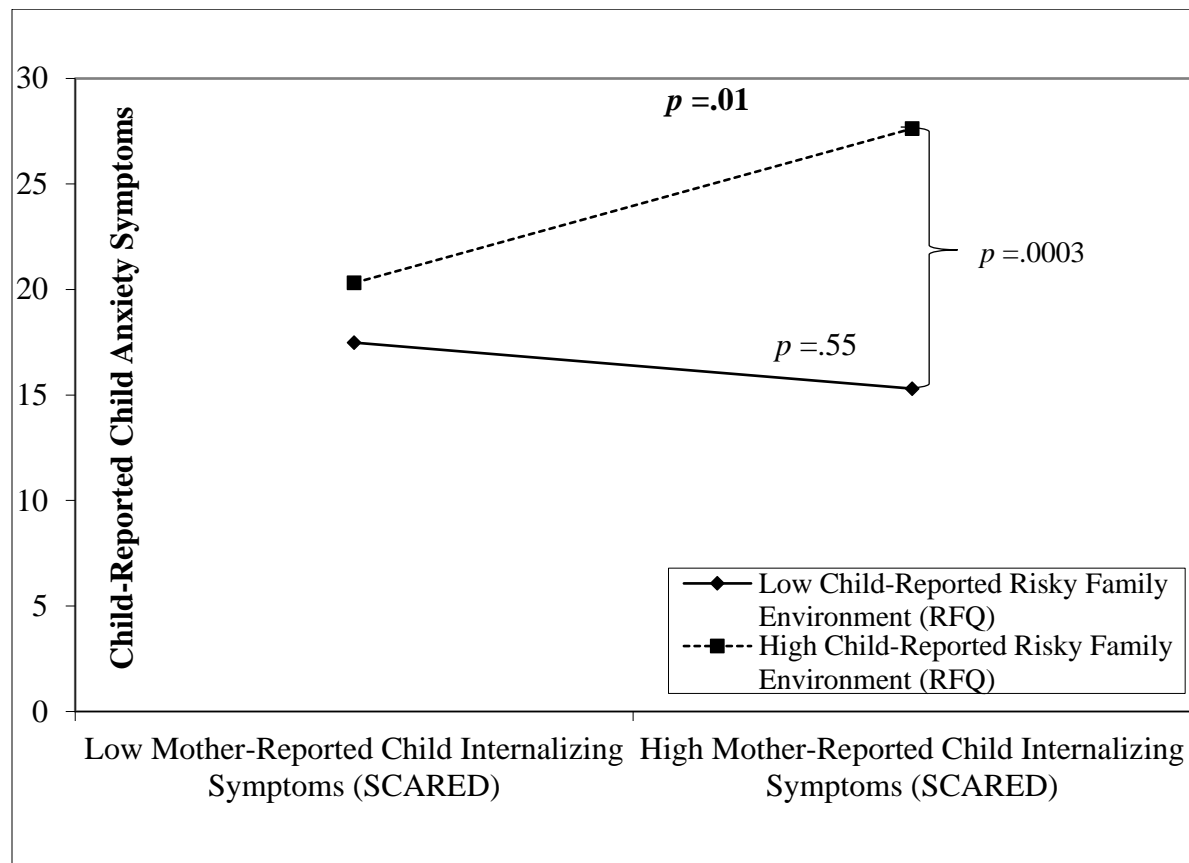


Figure 3. Association between children's report of their anxiety symptoms and mother-reported child anxiety symptoms as moderated by stressful family environment (Sample 2 only).



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