

Discrepancies in Ratings of Child Behavior between Mothers and Fathers of Autistic
Children: Associations with Parent and Family Functioning

by

SARAH MADISON

Bachelor of Science, 2017
California State University, Fresno
Fresno, California

Submitted to the Graduate Faculty of the
College of Science and Engineering
Texas Christian University
in partial fulfillment of the requirements for the degree of

Master of Science

May 2022

ACKNOWLEDGEMENTS

I would like to thank Naomi Ekas for her time, help, and guidance throughout the research and writing process. Her support and expertise has been invaluable to me. Her mentorship has facilitated my growth as a researcher, professional, and psychologist.

I would like to thank my committee members Cathy Cox and Danica Knight for their time, feedback, and willingness to serve on my committee.

I am deeply grateful for the support from the faculty members who mentored and guided me during my time as an undergraduate. These individuals include, but are not limited to Candice Skrapec, Peter English, and Paul Price. They inspired my interest in research and influenced my decision to pursue a graduate degree. I continuously strive to be worthy of the support they have given me.

This study would not be possible without the work of our dedicated research assistants who aided in the collection and coding of the data used in this study. These individuals never cease to inspire me and I am proud to guide their work.

This study would also not be possible without the families who participated in this research. These wonderful families were willing to make time in their busy lives, travel to a testing site, and allow us insight into their worlds. This research would not be possible without them.

Finally, I thank my family, colleagues, and friends who have supported me throughout my graduate journey thus far. Their support has helped shape the experience I have had during these past two years of graduate school.

TABLE OF CONTENTS

Acknowledgements.....	ii
List of Figures.....	v
List of Tables.....	vi
Family Systems Theory.....	2
Family Systems and Autism Spectrum Disorder.....	3
Discrepancies in Parent Report of Child Behavior.....	7
Measuring Informant Discrepancies.....	11
The Current Study.....	12
Method.....	14
Participants.....	14
Procedure.....	14
Measures.....	15
Child Behavior.....	15
Parent Depressive Symptoms.....	16
Relationship Satisfaction.....	16
Family Functioning.....	16
Analysis Plan.....	17
Results.....	19
Assumptions and Covariate Tests.....	19
Discrepancies.....	21
Polynomial Regression.....	22
Discussion.....	31

Discrepancies Do and Do Not Predict Parent and Marital Outcomes.....	32
Limitations and Future Directions.....	35
Conclusions.....	38
References.....	39
Vita	
Abstract	

LIST OF FIGURES

1. Discrepancies in Internalizing Behaviors Predicting Mother Depressive Symptoms.....	25
2. Discrepancies in Internalizing Behaviors Predicting Father Depressive Symptoms.....	26
3. Discrepancies in Externalizing Behaviors Predicting Mother Depressive Symptoms.....	27
4. Discrepancies in Externalizing Behaviors Predicting Father Depressive Symptoms.....	29
5. Discrepancies in Externalizing Behaviors Predicting Father Couple Satisfaction.....	30

LIST OF TABLES

1. Variables Significantly Correlated with Outcome Variables.....	21
2. Discrepancies in Sample.....	22
3. Overall Regression Model Values.....	23
4. Unstandardized Beta and Surface Test Values for Significant Regression Equations.....	24

Discrepancies in Ratings of Child Behavior between Mothers and Fathers of Autistic Children: Associations with Parent and Family Functioning

Autism spectrum disorder (ASD) is a neurodevelopmental disorder that causes deficits in reciprocal social communication and restricted and repetitive patterns of behaviors, interests, and activities (APA, 2013). Around 1 in 54 children are diagnosed with ASD and while boys are four times more likely to be diagnosed than girls, ASD occurs across all racial, ethnic, and socioeconomic groups (CDC, 2020). Symptom presentation and symptom severity ranges broadly across autistic individuals (Gulsrud & Renno, 2021). Approximately 70% of children with ASD also experience comorbid mental health problems, such as depression and anxiety (Pezzimenti et al., 2019; Tonge & Einfeld, 2003).

Parents of children with ASD may face unique challenges and circumstances related to their child's disorder (Serrata, 2012) and the family system may also be negatively impacted. For example, Sim et al. (2016) found evidence of lower relationship satisfaction in parents of autistic children than parents of neurotypical (NT) children. Parents of autistic children also reported more frequent, severe, and unresolved conflict, and less cooperative problem-solving than parents with NT children (Hartley et al., 2017). One source of conflict for these parents is their child (Sim et al., 2017). For example, parents may disagree about the presence and/or severity of their child's behavior. Research with NT parents consistently demonstrates that interparental conflict spills over and impacts other members of the family system (e.g., Kouros et al., 2014). To date, there is little empirical research examining whether and how disagreements between mothers and fathers about their child with ASD impacts the family system.

Family Systems Theory

There is an established body of research exploring the effects of an autism diagnosis on the child, the individual parents, the parents' relationship, and the parent-child relationship (Chan & Leung, 2020; Hickey et al., 2020a; Valicenti-McDermott et al., 2015). To fully understand the impact of autism on members of the family, however, every aspect of the family must be considered. According to family systems theory (Cox & Paley, 1997), the family is conceptualized as the system and the individual relationships between its members (i.e., mother-father, mother-child, father-child, or between siblings) are referred to as the subsystems. The relationship between two family members is referred to as a dyad whereas the relationship between three family members is referred to as a triad.

The overall family system, its numerous subsystems, and the individual family members are interrelated and influence each other bidirectionally. For example, characteristics of a mother influence her relationship with her child as well as with her spouse. Research shows that mothers' personality traits affect the amount of stress in the mother-child dyad and levels of marital satisfaction (Fisher & McNulty, 2008; Mash & Johnston, 1990). Further, the relationship between the mother and her spouse also affects the child as well as the relationship between the mother and child. In their meta-analysis, Grych and Fincham (1990) found evidence that marital conflict negatively affects child adjustment and Owen et al. (1997) found that marital conflict affects infant-parent attachment. Moreover, factors affecting the family system as a whole influence individual dyads and characteristics of individual dyads influence individual family members. Thus, changes to, or characteristics of, the family system, any subsystem, or individual family member affects all other members, subsystems, and the family system. Consequently, each individual family

member plays an important role in the family system. It is important to note that family systems theory is often related to the observation of various family dynamics or relationship dynamics. For the purposes of this study, a dynamic is any characteristic pertaining to the relationship between two or more family members.

While family system theory shows that every member of the family has influence over the system and other members, fathers are underrepresented in studies of families and child development (Cassano et al., 2006). This is especially true of research focusing on autistic children and their families (Braunstein et al., 2013). Failing to include fathers in research not only prevents possible differences between mothers and fathers to be detected, but also prohibits the examination of whether there are differences in the mother-child and father-child relationship. Further, because every member of the family plays a unique and significant role in the family, neither the family system nor the individual family members can be fully understood without inclusion of all family members.

Family Systems and Autism Spectrum Disorder

Family systems theory is important to consider in relation to families of autistic children. The autistic child, for example, will be affected by their ASD symptoms. These symptoms will also have an impact on the child's parents which may affect the way they parent their child. Valicenti-McDermott et al. (2015) exemplify the effect of the child's symptoms on the parents, finding that increased stress in parents of autistic children related to their child's autism symptoms (e.g. irritability & sleep disturbance). Hickey et al. (2020), in turn, found that parenting stress and depression affected the quality of parent-child relationship. Consequently, the child with autism will be affected not only by their own

symptoms and behaviors, but also by the way their symptoms and behaviors affect their parents.

Through a family systems framework, parents of autistic children differ from parents of NT children or parents of children with other disabilities due to unique factors related to their child's autism diagnosis. Previous work, for example, found that parents of autistic children experience more stress than parents of NT children and parents of children with another disability (Dumas et al., 1999; Estes et al., 2013; Hayes & Watson, 2013; Sanders & Morgan, 1997). Parents of autistic children were also found to experience higher burden, more psychological distress, and less social support (Picardi et al., 2018) and more dysphoria (Dumas et al., 1991) than other parents. Because characteristics of the autistic child may affect the parental dyad as well as the parents individually, findings from parenting literature using parents of NT children may not generalize to parents of autistic children. When the family system is not considered, differences between parents of NT children and parents of autistic children may not be acknowledged and consequently may not be explored.

There is a growing body of research examining the impact of raising a child with ASD on the larger family system. Most research in this area focuses on how children's ASD symptoms impact parents and finds that children's social delays and comorbid behavior problems are associated with increased maternal and paternal stress and depression (Davis & Carter, 2008; Meltzer, 2011). Other work has found bidirectional links between parenting stress and child behavior problems in families with autistic children (Lecavalier et al., 2006; Zaidman-Zait et al., 2014). While these studies show that parents' level of stress is impacted by their child's behaviors, recent research shows that this extends to impacting the ways that parents interact with their autistic child. For example, Hickey et al. (2020b) found that

parenting stress was positively associated with criticism and negatively associated with warmth towards the autistic child and Xu et al. (2014) found associations between parental depression and child problem behavior. These studies exemplify family systems theory by showing that behaviors associated with autism may impact parents by increasing parental stress and depression and that these increases may, in turn, impact the way parents interact with their child.

In addition to impacting the individual parent, raising a child with ASD can also impact relationships between family members, specifically between mothers and fathers. The divorce rate of parents of autistic children is twice that of parents with NT children, suggesting that the parent relationship is also affected by raising an autistic child (Hartley et al., 2010). Perhaps a contributing factor to the higher divorce rate is that parents of autistic children consistently report lower levels of relationship satisfaction than couples with NT children and couples with children with another disability (Brobst et al., 2009; Sim et al., 2016). Previous longitudinal work shows that the relationship satisfaction of these parents tends to decrease during time periods known for increased relationship satisfaction in parents of NT children, suggesting that relationship dynamics for parents of children with ASD do not follow the same patterns of development (Gorchoff et al., 2008; Hartley et al., 2012). While there is a growing body of literature supporting the negative impact on parents' relationship satisfaction, it is important to note that most studies only include the perspective of mothers or combine the scores of mothers and fathers together (Sim et al., 2016). This is problematic because some factors affecting marital quality may influence mothers differently than fathers. For example, one study found that marital quality predicted maternal depression and well-being in mothers of autistic children (Benson & Kersh, 2011). Further, maternal

stress has been found to correlate with marital satisfaction for mothers, but not for fathers of children with ASD (Brobst et al., 2009). Research adopting a family systems perspective, where both mothers and fathers are included, is needed to understand the parent relationship and its effects on the family system. Relationship satisfaction levels and the factors that affect those levels may be different for each parent in the dyad. Research using only one parent's perspective prohibits exploration of the differences between parents' individual satisfaction levels.

In addition to experiencing less satisfaction than NT couples, couples of autistic children reported having more frequent conflict and were observed to have less engaged and cooperative couple conflict interactions than NT parents; but they did show more positive affect and sensitivity towards each other (Hartley et al., 2017). Parents of autistic children also reported having more conflict in front of their child than NT parents (Papp & Hartley, 2019). Other work with parents with autistic children found that parents with more relationship uncertainty were more likely to take conflict with their spouse personally (Brisini & Solomon, 2020).

Marital quality affects, and is affected by, dynamics relating to the child's autism symptoms. Autism symptom severity has been shown to increase conflict about parenting, and such increases in parenting conflict are related to increased marital conflict and decreased parental love (Chan & Leung, 2020). Additionally, Lickenbrock et al. (2011) evaluated parent perceptions of the autistic child, marital adjustment, and maternal well-being and found that positive perceptions of the child were related to marital adjustment and marital adjustment was positively related to maternal well-being. These results underscore the importance of the family systems perspective by linking maternal perceptions of the child

to characteristics of the mother (i.e., maternal well-being) and the parental dyad (i.e., marital adjustment).

The interparental relationship is particularly important to examine as previous research finds that interparental conflict can negatively impact children's development (e.g., Sturge-Apple et al., 2006). Not only is it possible that parents of children with ASD experience conflict differently than NT parents, but it is also possible that children with ASD are affected by parental conflict differently than NT children. Ekas and Kouros (2021) found that autistic children reported more negative emotions following parental conflict than NT children. Consequently, marital conflict may have a differential impact on the child with ASD than NT children. Greenlee et al. (2021) found that lower marital satisfaction predicted child externalizing behavior through a more authoritarian parenting style. This study suggests that satisfaction in the marriage affects characteristics of parenting which affects the child.

Characteristics of the family members and dyads will also affect the functioning of the family system. For example, Walton (2019) found that parent dissatisfaction with quality of leisure time, rather than amount of leisure time predicted poor family communication. This, in turn, predicted lower family functioning in families of autistic children. This study suggests that family communication plays an important role in family functioning. Nuske et al. (2018) found that child externalizing behaviors were negatively related to quality of life for both NT and ASD families. One study found that parents of children with ASD reported lower family functioning than parents of NT children. (Pisula, & Porębowicz-Dörsmann, 2017).

Discrepancies in Parent Report of Child Behavior

The extent to which parents agree with one another about their child may be an

important reflection of the underlying dynamics of their relationship and the family system. Parents of children with ASD may not always agree about the severity of their child's symptoms, behaviors, and treatment decisions. However, prior research often reports only one parent's perspective (i.e., mother; Timmons et al., 2016), and does not include the other parent. Failing to include both parents is problematic for several reasons. First, researchers are unable to ascertain the extent to which parents agree/disagree on the construct of interest and how that predicts outcomes of interest. Second, any single reporter will be affected by a personal bias. Achenbach et al. (1987) measured the degree of consistency between different informants' reports of children's behavior and found significant differences between the reports of different types of informants. These differences have been termed informant discrepancies or rater discrepancies. Achenbach et al. (1987)'s results have been replicated extensively and informant discrepancies have been found in every method of assessment of child behavior (De Los Reyes & Kazdin, 2005).

The aforementioned studies focused on informant discrepancies as barriers to achieving accurate reports of child behavior (Achenbach et al., 1987; De Los Reyes & Kazdin, 2005). A growing body of research in the general population, however, is now citing informant discrepancies, not as barriers, but as predictors of phenomena within the family (Ohannesian et al., 2016). Lohaus et al. (2019), for example, found that discrepancies between mothers' and NT children's reports of the child's externalizing behaviors were related to maternal parenting stress and negative maternal evaluations of the parent-child relationship. This study's results lend support to family systems theory by showing that characteristics of the mother-child dyad (level of agreement about the child's externalizing behavior) are related to characteristics of an individual family member (maternal stress).

Research using informant discrepancies has expanded beyond discrepancies between parent and child regarding child behavior and now includes discrepancies regarding other family-related phenomena (Cross et al., 2021; Laird & De Los Reyes, 2013). Cross et al. (2021) analyzed discrepancies between parents in their perceptions of each other's responsiveness to their child and found that perception of partner responsiveness was related to perception of one's own responsiveness; perceiving a partner to be less responsive predicted reduced family connection during family interactions and more family chaos one year later.

While the majority of research involving informant discrepancies examines discrepancies between parent and child, the literature has expanded to include discrepancies between parents. For example, Langberg et al. (2010) measured discrepancies between parents on perceptions of their child's symptoms of ADHD and found that parent ratings were significantly associated, but mothers rated symptoms higher than fathers. Other work has found that mothers rate NT children's behavior problems higher than fathers and that discrepancies were positively associated with family distress levels (Christensen et al., 1992). A meta-analysis conducted by Duhig et al. (2000) found that research comparing parental discrepancies on internalizing versus externalizing behaviors has yielded mixed results regarding the degree of parent agreement. In addition to assessing discrepancies between parents, researchers have also begun to examine predictors of the level of disagreement. In one study, Harvey et al. (2013) measured discrepancies between mother, father, and teacher ratings of a child's aggression, hyperactivity, and attention problems and found that characteristics of the family (e.g., ethnicity, number of children) predicted discrepancies between mothers and fathers. Whiffen (1990) found that maternal depression was related to greater discrepancies between mothers' and fathers' perception of child temperament with

more depressed mothers reporting a more difficult temperament style. These studies highlight family systems theory by connecting characteristics of the dyad (level of agreement between family members) to outcomes for the child and the family.

Existing research utilizing informant discrepancies regarding NT children or children with a non-ASD disability may not generalize to families of children with ASD. While several studies in the ASD literature have examined parent-teacher (Hurtig et al., 2009; Lerner et al., 2017) and parent-child (Dekker et al., 2020; Hurtig et al., 2009; Jordan et al., 2019; Kalvin et al., 2020) discrepancies, there are few studies that examine discrepancies between mothers and fathers regarding characteristics of their autistic child. Stratis and Lecavalier (2015) conducted a meta-analysis analyzing informant discrepancies about children with ASD and found only three studies measuring parent agreement on child characteristics. Kalyva (2010) and Matson et al. (2013) found agreement between parents on measures of their child's social skills. Van Steensel et al. (2013) found significant associations between parents' reports of their child's anxiety. Bebko et al. (1987) measured agreement between mothers, fathers, and clinicians on perceptions of the child's symptom severity and on level of stress associated with each symptom and found agreement between mothers and fathers on perceptions of symptom severity and degree of parent stress. In sum, the limited research suggests that parents generally agree about the severity of their child's symptoms. However, there is a paucity of research examining discrepancies in comorbid behaviors. This is important to examine since many autistic children experience internalizing and externalizing problems. If parents disagree about these behaviors, children may not receive the treatment they need.

Informant discrepancies are important because they have been shown to predict characteristics at every level of the family system including individual members (maternal depression; Lohaus et al., 2019), dyads (mother-child conflict; De Los Reyes & Kazdin, 2006), and the family itself (SES; Duhig et al., 2000). It is possible that informant discrepancies are capturing underlying conflict between dyads within the family system. Unfortunately, to my knowledge, there are no studies examining the extent to which discrepancies between parents about their autistic child's comorbid behaviors predict outcomes. Consistent with family systems theory, the dynamics of a dyad may impact other members of the family and the overall quality of the family system.

Measuring Informant Discrepancies

Informant discrepancies have traditionally been measured using difference scores including raw differences, standardized differences, and residual difference scores (De Los Reyes & Kazdin, 2004). However, Laird and De Los Reyes (2013) published a study arguing that all varieties of difference scores are invalid, and instead recommending polynomial regression. This is because difference scores cannot capture both the degree and direction of the discrepancy. For example, when scores are equal distance apart, but a different rater has the higher score, equivalence is not captured when using raw difference scores. This problem, however, can be remedied by taking the absolute value of the difference score. When the absolute value of the score is taken, the same score will be produced regardless of which rater has the higher score. While this allows us to utilize the size of the discrepancy in analyses, it prevents us from looking at which rater had the higher score.

As a result of the problems associated with using difference scores, Laird and De Los Reyes (2013) and Edwards (2002) recommend using polynomial regression when evaluating

rater discrepancies. Polynomial regression allows for testing different types of discrepancies such as when both raters rate high, both raters rate low, rater 1 rates high and rater 2 rates low, and when rater 2 rates high and rater 1 rates low. This allows for comprehensive and simultaneous discrepancy testing. Additionally, when using polynomial regression, interaction terms can be analyzed to determine significance at different levels for each rater (Laird & De Los Reyes, 2013).

Studies in the NT and autism literature have used polynomial regression with response surface analysis to evaluate perception discrepancies within the family. In the NT literature, discrepancies between parent and child about perception of interparental conflict, parental favoritism, family functioning predicting interparental conflict, child internalizing and externalizing behaviors, child adjustment, and maternal psychological symptoms have been examined (Holt et al., 2021, Human et al., 2016; Luo et al., 2020; Ohannesian et al., 2016). In the ASD literature, polynomial regression has been used to measure perceptions of child favoritism between parents and siblings of autistic children (Tomeny et al., 2019) and parent-child agreement on social anxiety symptoms (Burrows et al., 2018). Existing studies examining parent perception of child behavior using families of children with ASD have utilized various methods of measuring discrepancies. To my knowledge no study has used polynomial regression to evaluate discrepancies in parents' perception of their child's behavior.

The Current Study

The overall goal of the current study was to measure the level of agreement between mothers and fathers with respect to their autistic child's behavior and whether that level of

agreement predicted functioning within the family system. Specifically, I tested the following research questions:

1. What is the level of agreement or disagreement between mothers and fathers on ratings of their child's internalizing and externalizing behaviors? Based on research with NT children (Christensen et al., 1992), I predicted that mothers would report more internalizing and externalizing behaviors than fathers.
2. Does agreement or disagreement between mothers and fathers predict parental depressive symptoms, interparental relationship satisfaction, and family functioning? Consistent with prior research with NT children, I predicted that disagreement would positively predict parental depression (Whiffen, 1990). Since prior work with ASD families has found that autism symptom severity affects marital love and conflict through the pathway of increased parenting conflict (Chan & Leung, 2020), I predicted that differences in perception of the child's behavior would negatively predict marital satisfaction. Because Walton (2019) found that deficits in family communication predicted lower family functioning in families of children with ASD, I predicted that discrepancies in ratings of child behavior would positively predict family dysfunction as such differences may relate to poor communication.

Given the paucity of research in this area, I explored whether discrepancies differentially predict mother-report and father-report of outcomes. Moreover, I also explored whether the direction of discrepancy (i.e., mother higher v. father higher) predicted the outcomes of interest.

Method

Participants

Participants in this multi-site study included 119 dyads of both mothers and fathers with an autistic child between 10 and 17 years old. Families were recruited from the Dallas/Fort Worth area through community events, adolescent psychologists, pediatricians, centers providing ASD services, schools, and social media. Parents were required to be married or cohabitating for at least 1 year, to be living with their child at least 50% of the time, and to be able to read and speak English. Their children were required to have a community diagnosis of ASD and must not have a comorbid intellectual disability. Two non-heterosexual couples were excluded from analyses. One more couple was excluded from analyses due to missing data for the predictor measure (CBCL), leaving a total of 116 included participants. Mothers' average age was 43.15 years ($SD = 6.42$) and fathers' average age was 44.99 years ($SD = 6.90$). While 78.63% of mothers were White and 16.24% were Hispanic, 77.78% of fathers were White and 11.97% were Hispanic. Reports of annual family income revealed that 12.60% of families earned \$50,000 or less, 38.60% earned \$50,000 - \$100,000, and 47% earned more than \$100,000. Additionally, 64.10% of mothers had earned a college degree or higher and 26.50% had taken some college classes or had earned a vocational degree. Analyses for fathers revealed a similar pattern with 60.70% having earned a college degree or higher, 31.60% having taken some college classes or earned a vocational degree.

Procedure

Potential participants were initially screened in a phone interview by a trained graduate research assistant. Those who appeared to meet eligibility requirements were invited

to participate in an additional in-person screening to determine if their child met eligibility criteria (no intellectual disability and verbally fluent). Following this visit, qualifying families returned to the testing site to complete a battery of observed tasks and questionnaires.

During this visit, the child was separated from the parents and all three participants completed various questionnaires. Each parent completed their set of questionnaires individually but received identical questionnaires. After completion, parents were reunited with their child in an observation room where they played a game of Jenga, a multiplayer tabletop game utilizing wooden blocks, for 10 minutes. Parents were instructed to read the rules for the game, teach their child how to play, then begin playing the game. Families were informed that in the event that their game ended before the 10 minutes has elapsed, they should rebuild their tower and begin a new game. Families were left alone in the room to play the game and the game was video recorded utilizing cameras in the room.

Measures

Child Behavior. The Child Behavior Checklist (CBCL: Achenbach, 1999) measured parent perceptions of the child's internalizing and externalizing behaviors. The CBCL contains a total of 73 items and two subscales; one for internalizing behaviors (mothers, $\alpha = .87$; fathers, $\alpha = .86$) and one for externalizing behaviors (mothers, $\alpha = .92$; fathers, $\alpha = .91$). Using a three-point Likert-type scale, parents were asked whether statements about their children were not true, somewhat true, or always true in the last 2 months. While statements measuring internalizing behaviors included "[my child] feels too guilty, feels worthless or inferior, and doesn't seem to feel guilty after misbehaving," statements measuring

externalizing behaviors included “[my child] cries a lot, demands a lot of attention, and argues a lot.”

Parent Depressive Symptoms. Parent depressive symptoms was measured using the Inventory of Depression and Anxiety Symptoms (IDAS; Watson et al., 2007). This 64-item measure uses a five-point Likert-type scale (1 = *not at all*, 5 = *extremely*) to measure how true statements are of the participant in the previous two weeks. While the measure has several subscales (e.g., well-being, panic, social anxiety), the 20-item general depression subscale will be used to measure parent depressive symptoms (mothers, $\alpha = .90$; fathers, $\alpha = .88$). Examples of measure items include, “I was proud of myself, I felt depressed, and I felt inadequate.”

Relationship Satisfaction. Relationship satisfaction was measured using the Couple Satisfaction Index (CSI-16; Funk & Rogge, 2007). This 16-item questionnaire measures the degree to which the respondent is satisfied with their romantic relationship with their partner/spouse (mothers, $\alpha = .97$; fathers, $\alpha = .97$). Responses were measured using a six-point Likert-type scale. Statements associated with each point on the Likert-type scale varied based upon the question. For example responses to statements such as “My relationship with my partner makes me happy, our relationship is strong, and I have a warm and comfortable relationship with my partner” responses ranged from *never true* (1) to *completely true* (6); however, for statements such as “how often do you and your partner have minor conflicts?” responses range from *once in a while* (1) to *just about every day* (6).

Family Functioning. Family functioning during the Jenga task was evaluated using the System for Coding Interactions and Family Functioning (SCIFF, Lindahl & Malik, 1996). The SCIFF coding system evaluates characteristics of a family interaction and yields scores

for various dimensions of family functioning. For the current study, family functioning was measured using the family cohesion score. The cohesion dimension of the coding system relates to the amount of closeness, unity, and togetherness between members of the triad. Cohesion was scored using a Likert-type scale with a score of 1 indicating very low cohesion and a score of 5 indicating very high cohesion. A family with a high cohesion score interacted comfortably and members expressed warmth towards one another. Family members appeared united and connected with each other. A family with a moderate cohesion score appeared fragmented, stiff, or awkward at times. There were instances of closeness or unity in every dyad, but there were also instances of tension or distance in one or more dyads. A family with a low cohesion score appeared disengaged, awkward, or stiff most of the time. Family members struggled to work together and expressed very little warmth or affection towards each other.

Family cohesion scores were coded by four trained undergraduate research assistants. Individual undergraduate coders were trained until they achieved an intraclass correlation of .70 or greater with a gold standard coder (Lilgendahl & McAdams, 2011). When reliability was achieved, coders overlapped on 25% of the videos to ensure that reliability was maintained, and weekly meetings were held to discuss disagreements. A total of 109 videos were coded; 10 of these served as master codes for training undergraduate research assistants. Of the remaining 99 videos, 21 were overlapped for reliability (21.19%; $\alpha = .75$).

Analysis Plan

To answer my research questions, I used polynomial regression with response surface analysis (RSA) to evaluate discrepancies between parents (Shanock et al., 2010). RSA allows one to examine whether the size and direction of the discrepancy relates to the outcome

variable. To use polynomial regression with RSA, the following assumptions must be met. First, both predictor variables must be conceptually congruent. Second, both predictor variables must be measured on the same scale. Third, the assumptions of multiple regression must be met. In the current study, both parents completed the CBCL meaning that both predictors were conceptually congruent and measured on the same scale. Data was screened to determine whether the assumptions of multiple regression were met.

When using polynomial regression with RSA, the polynomial regression was conducted first. Results were not interpreted directly, but instead coefficients were plotted on a three dimensional graph and the response surface pattern was evaluated. Polynomial regression uses the following equation:

$$Z = b_0 + b_1X + b_2Y + b_3X^2 + b_4XY + b_5Y^2 + e$$

In the above equation Z represents a dependent variable, X represents the centered scores for predictor 1 (rater 1), and Y represents the centered scores for predictor 2 (rater 2). The X and Y variables will be used to determine the slope of the line of congruence and the slope of the line of incongruence. The X² and Y² variables represent the centered squared predictor variables, and XY represents the interaction between the X and Y variable. The X², Y², and XY variables are used to determine the curvature of the slope of the lines of congruence and incongruence. These variables were used to determine whether these lines are linear, convex, or concave in shape. The polynomial regression is completed using this equation.

In accordance with Shanock et al. (2010), I used the following steps to conduct my analyses. These were repeated for each of the dependent variables in the study (mother and father depression, mother and father rating of relationship satisfaction, and family

functioning) and for each independent variable (internalizing and externalizing behaviors). Thus, a total of 10 analyses were performed.

1. I analyzed my data to determine whether discrepancies exist. Scores were considered discrepant if they were more than half of a standard deviation apart. The percentage of discrepancies present as well as their direction (which parent provided the higher score) was documented.
2. I conducted several polynomial regressions to answer my second research question. The results of the polynomial regression were used in four separate surface tests (a_1 , a_2 , a_3 , and a_4) and results of the surface tests were plotted on a three-dimensional graph. Whether these values were significant was determined using an excel spreadsheet provided by Shanock et al. (2010). The results of polynomial regressions are best understood when depicted visually. Shanock et al. (2013) have provided Excel formulas to create three-dimensional graphs.

Results

Assumptions and Covariate Tests

All assumptions were tested using SPSS. The four predictor variables (mother and father report of internalizing and externalizing behaviors) were tested for multicollinearity with the variance inflation factor (VIF). Scores above five are considered multicollinear (Menard, 2002). All VIF values were equal to or less than 3.11. Outcome variables were tested for independence with a Durbin-Watson test. All values fell between one and three (Range: 2.06, 2.15), indicating that the assumption of independence had not been violated (Durbin & Watson, 1950). Skewness and kurtosis were measured for all outcome variables. An acceptable value range for skewness is between -2 and 2, while acceptable value range

for kurtosis is between -7 and 7 (Bryne, 2010). All skewness ($\leq | 1.19 |$) and kurtosis ($\leq | 1.09 |$) values fell within the acceptable range.

Analyses were conducted to identify possible covariates of the outcome variables. A series of separate analysis of variance (ANOVA) models were run testing potential categorical covariate variables (child sex, biological v. non-biological parent) and a correlation matrix was generated testing potential continuous covariate variables (child age, household income, mother and father report of marital conflict, length of parent relationship). None of the categorical variables were significantly associated with any of the outcome variables ($ps \geq .05$). Of the continuous variables, the following correlations were significant: child age positively correlated with maternal couple satisfaction ($r = .33, p = .047$), family income negatively correlated with maternal depressive symptoms ($r = -.25, p = .007$), both mother and father report of relationship conflict frequency negatively correlated with mother and father couple satisfaction ($rs \leq -.50, ps \leq .001$), and father report of relationship conflict positively correlated with paternal depressive symptoms ($r = .33, p \leq .001$) and negatively correlated with family cohesion ($r = -.29, p = .002$). Regression models with significant covariate variables were run both with and without the covariate variables. Adding covariate variables to the equation did not significantly affect the outcome for any of the regression equations. Consequently, the equations without covariates are reported below. Significant covariate variables are reported in Table 1 below.

Table 1*Variables Significantly Correlated with Outcome Variables*

<i>Covariate</i>	Outcome Variable				
	Mother depressive symptoms	Father depressive symptoms	Mother relationship satisfaction	Father relationship satisfaction	Family cohesion
Child age	-.01	-.14	.19*	.09	.12
Family income	-.25**	.15	.06	.07	-.01
Relationship conflict – mother report	.16	.08	-.50***	-.35***	-.13
Relationship conflict – father report	.18	.33***	.38***	-.48***	-.29**

Note. * $p < .05$; ** $p \leq .01$; *** $p \leq .001$

Discrepancies

Discrepancies between mothers and fathers were measured separately for internalizing and externalizing behaviors by converting raw scores into standardized Z scores. The difference between mother Z score and father Z score was determined. Differences greater than 0.50 (i.e., 0.5 standard deviations) were considered discrepant. Of those considered discrepant, frequency at which mothers rated higher than fathers and vice versa were determined (see Table 2 for results).

Table 2*Percentage of Discrepancy Type in Perception of Internalizing and Externalizing Behavior*

Internalizing Behaviors		Externalizing Behaviors	
<i>Discrepancy Type</i>	<i>%</i>	<i>Discrepancy Type</i>	<i>%</i>
In agreement	50.90	In agreement	50.90
Mothers > fathers	24.10	Mothers > fathers	24.10
Fathers > mothers	25.00	Fathers > mothers	25.00

While the percentage of participants in agreement and disagreement are the same for both internalizing and externalizing behaviors, not all participants remained in the same category for internalizing behaviors as they were in for externalizing behaviors. All

participants who were in agreement for externalizing behaviors remained in agreement when rating internalizing behaviors; however, there were four instances where fathers rated externalizing behaviors higher and mothers rated internalizing behaviors higher and four instances where mothers rated externalizing behaviors higher and fathers rated internalizing behaviors higher.

Polynomial Regression

When conducting polynomial regression with response surface analysis, it is customary to center predictor variables about the midpoint of their respective scales (Shanock et al. 2010). The internalizing and externalizing scores, however, were calculated as sum scores rather than average scores. Consequently, I divided each sum score by the total number of items included in each subscale (internalizing subscale, $N = 32$; externalizing subscale, $N = 35$), yielding an average score. I then centered each average score about the midpoint of the three-point Likert-type scale (0, 1, 2) used by subtracting one from each average score. These centered scores were used when creating squared and interaction variables and used in the polynomial regression analyses.

A total of 10 polynomial regression analyses were run in SPSS using parents' internalizing and externalizing scores as predictor variables and parent depressive symptoms, parent relationship satisfaction, and family cohesion as outcome variables. Covariance matrices were generated for each regression analysis. In accordance with Shanock et al., (2010), regression equations that yielded a significant R^2 for the overall model were analyzed using response surface analysis. These included the models for internalizing and externalizing behaviors predicting mother and father depressive symptoms as well as externalizing behaviors predicting father relationship satisfaction. Regression model values

are reported in Table 3. The unstandardized beta coefficients and standard errors from the individual variables in the regression equation were input into an excel spreadsheet (Shanock et al., 2013) that calculated $a_1 - a_4$. Covariance values were also input into the excel spreadsheet. Covariance values and $a_1 - a_4$ equations were used to generate three-dimensional surface graphs. Unstandardized betas and standard errors generated by the excel spreadsheet are reported in Table 4.

Table 3*Overall Regression Model Values*

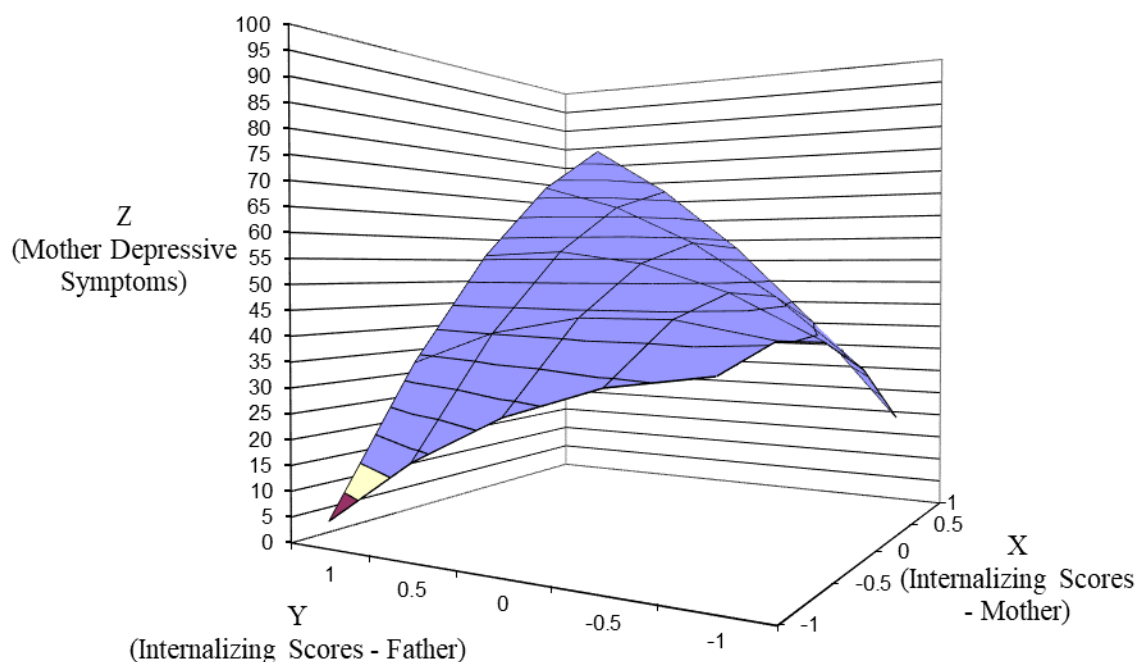
Predictor	Outcome	<i>F</i>	<i>df</i>	<i>p</i>	<i>R</i> ²
<u>Internalizing Behaviors</u>					
	Mother Depressive Symptoms**	3.232	(5, 115)	.009	.128
	Father Depressive Symptoms*	2.389	(5, 115)	.042	.098
	Mother Relationship Satisfaction	.983	(5, 115)	.431	.043
	Father Relationship Satisfaction	1.347	(5, 114)	.250	.058
	Family Cohesion	.928	(5, 109)	.466	.043
<u>Externalizing Behaviors</u>					
	Mother Depressive Symptoms**	3.452	(5, 115)	.006	.136
	Father Depressive Symptoms*	2.315	(5, 115)	.048	.095
	Mother Relationship Satisfaction	1.975	(5, 115)	.088	.082
	Father Relationship Satisfaction**	3.490	(5, 114)	.006	.138
	Family Cohesion	.930	(5, 109)	.465	.043

Note. Bold denotes a significant model. * $p < .05$; ** $p < .01$;

Perceptions of Child Internalizing Symptoms Predicting Mother Depressive Symptoms. Since the overall regression equation using mothers' and fathers' perception of internalizing symptoms to predict maternal depressive symptoms was significant, surface values were calculated and a response surface graph was created. The response surface graph is depicted in Figure 1.

Table 4*Unstandardized Beta Values and Surface Test Values for Significant Regression Equations*

<i>Variable</i>	<u>Internalizing Symptoms</u>				<u>Externalizing Symptoms</u>					
	Maternal Depressive Symptoms		Paternal Depressive Symptoms		Maternal Depressive Symptoms		Paternal Depressive Symptoms		Father Relationship Satisfaction	
	<i>b</i>	(<i>SE</i>)	<i>b</i>	(<i>SE</i>)	<i>b</i>	(<i>SE</i>)	<i>b</i>	(<i>SE</i>)	<i>b</i>	(<i>SE</i>)
Intercept	54.03		44.26		51.89		41.84		54.50	
Mother score	15.19	(11.76)	-5.35	(10.81)	23.84	(15.17)	-13.88	(14.03)	23.87	(20.50)
Father score	8.49	(14.09)	9.99	(12.95)	-17.60	(16.81)	-0.56	(15.55)	-32.91	(22.76)
Mother score squared	-11.24	(16.39)	9.54	(15.07)	0.27	(18.38)	-20.93	(17.00)	-19.58	(24.92)
Mother x father interaction	24.12	(25.66)	-29.72	(23.60)	23.68	(37.35)	23.51	(34.55)	55.06	(50.58)
Father score squared	-6.62	(19.59)	12.56	(18.02)	-33.94	(27.46)	-24.92	(25.40)	-29.87	(37.21)
<i>Surface test</i>										
a ₁	23.68	(14.80)	4.65	(13.61)	6.24	(15.65)	-14.44	(14.48)	-9.04	(21.21)
a ₂	6.26	(14.89)	-7.63	(13.69)	-10.00	(14.28)	-22.34	(13.21)	5.61	(19.37)
a ₃	6.70	(21.31)	-15.35	(19.60)	41.44	(27.93)	-13.32	(25.84)	56.79	(37.77)
a ₄	-41.97	(52.60)	51.82	(48.37)	-57.35	(75.97)	-69.37	(70.28)	-104.50	(102.99)

Figure 1*Discrepancies in Internalizing Behaviors Predicting Mother Depressive Symptoms*

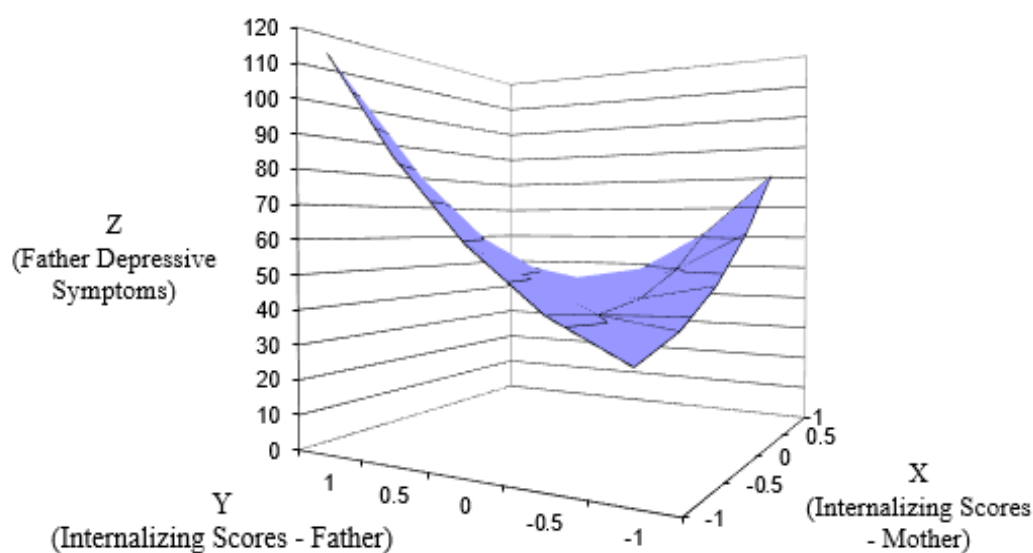
The value for a_1 (slope of the line of congruence) was positive, but not significant, indicating that mother depressive symptoms did not increase significantly as congruent scores between parents increased. The value for a_2 (shape of the line of congruence) was also positive and non-significant indicating that the slope of the line of congruence was not significantly nonlinear. The value for a_3 (slope of the line of incongruence) was positive but non-significant, indicating that mother depressive symptoms did not increase when mothers rated higher than fathers or vice versa. Finally, a_4 (shape of the line of incongruence) was negative, but non-significant indicating that mother depressive symptoms did not decrease more dramatically as distance between parent scores increased. Overall, while the regression equation showed that discrepancies in ratings of internalizing behavior significantly predicted mother depressive symptoms, the response surface tests indicated that neither differences in

congruent scores, which parent rated higher than the other, nor the degree of the discrepancy between incongruent scores significantly predicted depressive symptoms.

Perceptions of Child Internalizing Symptoms Predicting Father Depressive Symptoms. Because the overall regression equation using mothers' and fathers' perception of internalizing symptoms to predict paternal depressive symptoms was significant, surface values were calculated and a response surface graph was created. The response surface graph is depicted in Figure 2.

Figure 2

Discrepancies in Internalizing Behaviors Predicting Father Depressive Symptoms



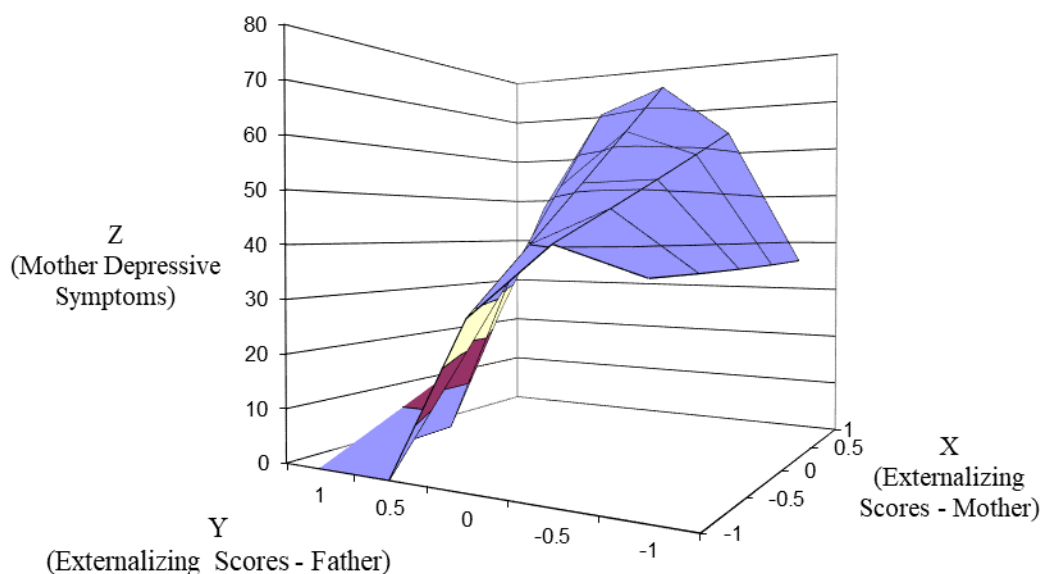
The value for a_1 (slope of the line of congruence) was positive, but not significant, indicating that father depressive symptoms did not increase significantly as congruent scores between parents increased. The value for a_2 (shape of the line of congruence) was negative, but non-significant indicating that the slope of the line of congruence was not significantly nonlinear. The value for a_3 (slope of the line of incongruence) was negative but non-significant, indicating that father depressive symptoms did not increase when one when

mothers rated higher than fathers or vice versa. Lastly, a_4 (shape of the line of incongruence) was positive, but non-significant indicating that father depressive symptoms did not increase more dramatically as distance between parent scores increased. Overall, while the regression equation showed that discrepancies in ratings of internalizing behavior significantly predicted father depressive symptoms, the response surface tests indicated that neither differences in congruent scores, which parent rated higher than the other, nor the degree of the discrepancy between incongruent scores significantly predicted depressive symptoms.

Perceptions of Child Externalizing Symptoms Predicting Mother Depressive Symptoms. Because the overall regression equation using mothers' and fathers' perception of externalizing symptoms to predict maternal depressive symptoms was significant, surface values were calculated and a response surface graph was created. The response surface graph is depicted in Figure 3.

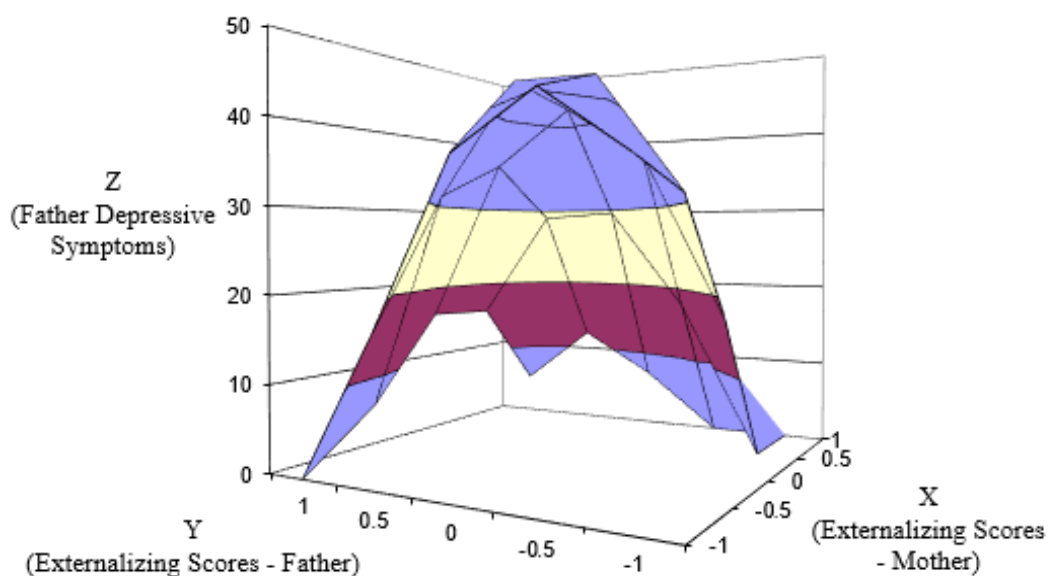
Figure 3

Discrepancies in Externalizing Behaviors Predicting Mother Depressive Symptoms



The value for a_1 (slope of the line of congruence) was positive, but not significant, indicating that mother depressive symptoms did not increase significantly as congruent scores between parents increased. The value for a_2 (shape of the line of congruence) was negative, but non-significant indicating that the slope of the line of congruence was not significantly nonlinear. The value for a_3 (slope of the line of incongruence) was positive but non-significant, indicating that mother depressive symptoms did not increase when one when mothers rated higher than fathers or vice versa. Lastly, a_4 (shape of the line of incongruence) was negative, but non-significant indicating that mother depressive symptoms did not increase more dramatically as distance between parent scores increased. Overall, while the regression equation showed that discrepancies in ratings of externalizing behavior significantly predicted mother depressive symptoms, the response surface tests indicated that neither differences in congruent scores, which parent rated higher than the other, nor the degree of the discrepancy between incongruent scores significantly predicted depressive symptoms.

Perceptions of Child Externalizing Symptoms Predicting Father Depressive Symptoms. Because the overall regression equation using mothers' and fathers' perception of externalizing symptoms to predict paternal depressive symptoms was significant, surface values were calculated and a response surface graph was created. The response surface graph is depicted in Figure 4.

Figure 4*Discrepancies in Externalizing Behavior Predicting Father Depressive Symptoms*

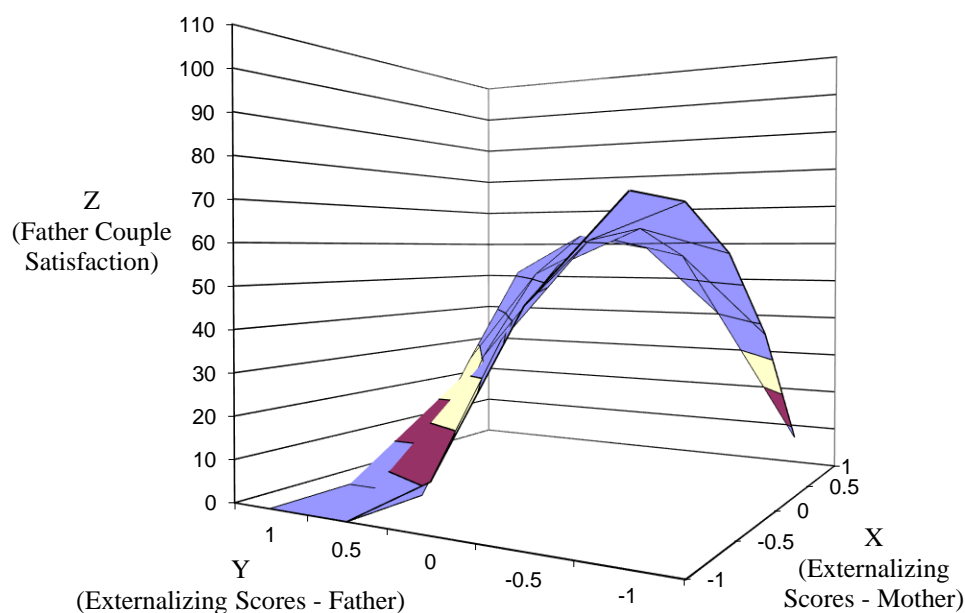
The value for a_1 (slope of the line of congruence) was negative, but not significant, indicating that father depressive symptoms did not decrease significantly as congruent scores between parents increased. The value for a_2 (shape of the line of congruence) was negative, but non-significant indicating that the slope of the line of congruence was not significantly nonlinear. The value for a_3 (slope of the line of incongruence) was positive but non-significant, indicating that father depressive symptoms did not increase when one when mothers rated higher than fathers or vice versa. Lastly, a_4 (shape of the line of incongruence) was negative, but non-significant indicating that father depressive symptoms did not decrease more dramatically as distance between parent scores increased. Overall, while the regression equation showed that discrepancies in ratings of externalizing behavior significantly predicted father depressive symptoms, the response surface tests indicated that neither differences in congruent scores, which parent rated higher than the other, nor the degree of the discrepancy between incongruent scores significantly predicted depressive symptoms.

Perceptions of Child Externalizing Symptoms Predicting Father Relationship

Satisfaction. Because the overall regression equation using mothers' and fathers' perception of externalizing symptoms to predict paternal depressive symptoms was significant, surface values were calculated and a response surface graph was created. The response surface graph is depicted in Figure 5.

Figure 5

Discrepancies in Externalizing Behaviors Predicting Father Couple Satisfaction



The value for a_1 (slope of the line of congruence) was negative, but not significant, indicating that fathers' couple satisfaction did not decrease significantly as congruent scores between parents increased. The value for a_2 (shape of the line of congruence) was positive, but non-significant indicating that the slope of the line of congruence was not significantly nonlinear. The value for a_3 (slope of the line of incongruence) was positive but non-significant, indicating that fathers' couple satisfaction did not increase when one when

mothers rated higher than fathers or vice versa. Lastly, a_4 (shape of the line of incongruence) was negative, but non-significant indicating that fathers' couple satisfaction did not decrease more dramatically as distance between parent scores increased. Overall, while the regression equation showed that discrepancies in ratings of externalizing behavior significantly predicted father couple satisfaction, the response surface tests indicated that neither differences in congruent scores, which parent rated higher than the other, nor the degree of the discrepancy between incongruent scores significantly predicted father couple satisfaction.

Discussion

The current study examined whether discrepancies between parents' ratings of their autistic child's internalizing and externalizing behaviors predicted parent- and family-level outcomes. Analyses revealed discrepancies in ratings of both internalizing and externalizing behavior. In addition, both discrepancies in internalizing and externalizing behavior predicted maternal and paternal depressive symptoms and discrepancies in externalizing behavior predicted paternal couple satisfaction; however, contrary to hypotheses, the patterns of discrepancies captured in response surface graphs did not significantly predict outcomes. Implications of the study findings and future directions are discussed below.

The first goal of the study was to examine whether mothers and fathers of autistic children differed in their reporting of child internalizing and externalizing problems. Approximately half of the couples agreed about both their child's internalizing and externalizing symptoms. When couples did disagree, the mother rated behaviors as more severe about half of the time for both internalizing and externalizing behaviors. While I did find discrepancies in the sample, the findings contradicted my hypothesis, as well as previous research with families of NT children, that mothers would rate internalizing and externalizing

behavior as more severe than fathers (Christensen et al., 1992; Duhig et al., 2000). There are several possible reasons for these findings. First, it is possible that parent knowledge of or involvement in their child's treatment therapies, medical appointments, and specialized school programs leads both parents to monitor their child's behavior more closely in families with autistic children. Additionally, research shows that the percentage of dual income households in the United States has increased in the last decades (Raley et al., 2006). Consequently, it is possible that discrepancies found in previous work (i.e., conducted prior to the year 2000) reflected a stronger tendency for mothers to take responsibility of childcare while fathers take responsibility for providing income. Moreover, it is also possible that fathers are taking a more active role in parenting because of the increased demands of raising a child on the autism spectrum and, thus, are more aware of their child's behaviors, contributing to greater agreement in behavior ratings between parents.

Discrepancies Do and Do Not Predict Parent and Marital Outcomes

The primary aim of the study was to examine the extent to which parent discrepancies in ratings of child internalizing and externalizing behaviors predicted parent-, marital-, and family-level outcomes. The initial model showed that discrepancies in ratings of child internalizing and externalizing behaviors predicted maternal and paternal depressive symptoms. It is possible that the parent depressive symptoms are contributing to the discrepancies themselves. A parent experiencing depressive symptoms may have a distorted view of their child's behavior and such distortion may contribute to the discrepancies (Gartstein et al., 2009). Conversely, the discrepancies between parents may be contributing to the depressive symptoms. Previous longitudinal work found that parent depressive symptoms increased during times of relationship conflict (Whitton et al., 2008). Discrepancies in

perception of the child's behaviors may contribute to disagreements between parents regarding the child and parenting and this conflict then leads to increased depressive symptoms. It is important to note that previous work has predominantly focused on maternal outcomes, finding relationships between informant discrepancies about the child and maternal depressive symptoms (Lohaus et al., 2019). Thus, the findings of the current study suggest that this relationship may generalize to fathers as well.

Results of the initial models indicated that neither discrepancies in internalizing nor externalizing behaviors related to mothers' relationship satisfaction. However, discrepancies in externalizing, but not internalizing behaviors, related to fathers' relationship satisfaction. I had expected there to be robust associations because previous research shows that the quality of the co-parenting relationship, which may be reflected in greater agreement about the child's behavior, is positively associated with marital satisfaction (Pedro et al., 2012). In this study, the mixed findings may be because the discrepancies in perceptions of child internalizing and externalizing behaviors did not necessarily affect the co-parenting relationship. Previous research with families of children on the autism spectrum found that negative co-parenting relationships were impacted by diagnosis related family stress, proximity to medical facilities, and strained relationships with other siblings in the family (Sim et al., 2015). Unfortunately, these were not measured in the current study and it is possible that these other factors were suppressing some of the effects of discrepant perceptions of the child on relationship satisfaction.

As previously mentioned, discrepancies in child externalizing, but not internalizing behaviors related to relationship satisfaction for fathers. Since externalizing behaviors involve overt actions, such as physical aggression, while internalizing behaviors involve

processes within the child, such as negative thoughts, fathers may be more affected by their child's externalizing behaviors than internalizing behaviors. For example, when parents disagree about the severity of their child's aggressive behaviors, the parent perceiving more aggression may be more likely to feel a greater parenting burden or feel unsupported than when parents disagree about the severity of the child's negative thoughts. These feelings of lack of support or parent burden could, in turn, affect levels of relationship satisfaction.

Differences in the nature of externalizing and internalizing behaviors, however, do not explain why discrepancies in externalizing behaviors predicted relationship satisfaction for fathers, but not for mothers. Previous research found that mothers of autistic children felt closer relationships with their child than fathers; that fathers' but not mothers' closeness decreased as the health of the child decreased; and that father but not mother marital satisfaction affected closeness with the child (Hartley et al., 2011). It is possible that in the current study, mother relationship satisfaction was unrelated to how severe she perceived her child's behaviors to be, but that father relationship satisfaction decreased as his perception of his child's externalizing behaviors increased. From a family systems perspective, this pattern of results would suggest that mothers' closeness with the child and with her husband were less affected by her perception of the child's health severity, but that fathers' closeness with the child and his wife is negatively affected by his perception of the child's health severity. It is possible that mothers are better able to compartmentalize child and partner relationships than fathers.

While the preliminary models found significant associations between discrepancies and parent- and marital-level outcomes, the *patterns* of discrepancies did not predict study outcomes. RSA, a tool utilized to comprehensively unpack significant relationships between

discrepancies and outcome variables, was conducted to aid in exploring how and why discrepancies related to maternal and paternal depressive symptoms and father relationship satisfaction. Specifically, RSA analyses tested whether the degree of disagreement, the parent giving the higher rating (mothers vs. fathers), or the severity of behavior (low vs. high) when parents are in agreement related to the depressive symptoms or paternal relationship satisfaction. RSA analyses, however, revealed that none of these explained the relationship between the discrepancies and the outcome of depressive symptoms or relationship satisfaction. An investigation of why RSA analyses of significant models did not reveal significant explanations unpacking significant relationships lead to the discovery of recent work identifying errors in the method of conducting RSA analyses that I used (Humberg et al., 2019). Consequently, I was unable to statistically unpack the relationships found. This is discussed in more detail below.

Limitations and Future Directions

The current study has several limitations that warrant discussion. First, an error in the analysis method used (Shanock et al., 2010) prevented me from successfully using RSA to explain the significant relationships found between discrepancies and the outcome variables of interest. As soon as feasible, analyses will be conducted with the statistical package ‘R’ utilizing the corrected RSA method (Edwards, 2002; Humberg et al., 2019). One aim of this study was to explore the differential impact of discrepancies on mothers and fathers and because this study found that discrepancies predicted depressive symptoms for mothers and fathers, it is important to unpack these results to determine whether there is consistency in the way that mothers’ and fathers’ depressive symptoms are impacted by discrepancies in perceptions of their child. For example, successful RSA analyses may reveal that mother

depressive symptoms are impacted by the degree of the discrepancy between perceptions while father depressive symptoms are not. Another limitation related to the statistical analyses is the measure of child internalizing and externalizing behaviors. The measure used a three-point Likert type scale whereas much of the previous work using the polynomial regression with response surface analysis method used five-point scales or greater (Shanock et al. 2010). A three-point scale may have limited the variability and contributed to the lack of findings in the response surface graphs.

The findings of the current study may not generalize to the population of families of children on the autism spectrum. The current study used a sample of higher functioning children (i.e., no co-occurring intellectual disability) and the same results may not be found with families with lower functioning children. Additionally, the current sample utilized predominantly White, high income families and the majority of child participants were male. Consequently, results may not generalize to non-White or low income families, or families with autistic daughters. Cultural differences between White and non-White parents may influence parent communication, gender-related parent expectation for their partner, and parent relationship with their child. Low income families may have additional income-related stressors in their lives. These additional stressors could lead to spillover effects exacerbating discrepancies between parents; or, they could preoccupy parents' time and energy, reducing the discrepancies' power to predict parent-level outcomes. Finally, research using parent report from one of the child's parents found that autistic daughters, but not sons, make attempts to mask their autism symptoms (Sutherland et al., 2017). These results showed that at least one parent is able to identify and report their daughters' attempts to mask autistic symptoms, but it is possible that their spouse is less able to identify masking attempts,

leading them to perceive their daughter to have fewer or less severe autism symptoms.

Differences in parent ability to identify masking behavior may contribute to more discrepancies between parents of autistic daughters than parents of autistic sons. Further, differences in parent ability to identify masking attempts may be gender specific.

Another limitation is that the current study used cross-sectional methods where the outcome measures were gathered at the same time as data measuring discrepancies in parent ratings of behavior. It is possible that discrepancies in parent ratings of behavior predict these outcomes at a later time point, but it is also possible that parent-, marital-, and family-level variables predict later discrepancies. Longitudinal research is needed to disentangle the direction of effects. Further, because discrepancies between parents were only measured at one time point, it is not possible to determine how long parents have disagreed with one another. Duration of discrepant perceptions may potentiate the relationship between the discrepancies and outcome variables such that acute discrepancies may have little effect on the parent relationship, but chronic discrepancies may strongly affect the parent relationship and spillover into the marital relationship.

Finally, the current study is limited by the variables selected for analysis. Future analyses should test for discrepancies perception of other constructs related to the child. For example, it is possible that discrepancies in perceptions of core autism symptoms are better predictors of parent, dyad, and family level phenomena because these symptoms may be the primary focus of parents' parenting communication and efforts. Additionally, future studies should examine the degree to which discrepancies in perceptions of child behavior relate to phenomena other than what was tested in the current study, such as parent efficacy, self-esteem and confidence. While I predicted that disagreement in perception of the child would

relate to decreased relationship satisfaction, it is possible that effects of discrepant perceptions are internalized by individuals rather than manifested in the parent relationship. For example, when parents disagree with their partner, they may be more likely to question their own competence, feel insecure, or feel judged by their partner leading to less satisfaction with themselves rather than less satisfaction with their relationship. The finding that discrepancies related to both maternal and paternal depression highlight the need to continue to explore ways in which discrepancies affect parents individually. There may also be differential gender effects where either mothers or fathers are more likely to internalize negative effects of discrepant perceptions of the child.

Conclusion

This study sought to identify discrepancies between parents in perceptions of their autistic child's behavior, to explore those discrepancies' relationships to phenomena within the family, and to examine differences between mothers and fathers. Discrepancies were detected and found to relate to parent depressive symptoms; however, few differences between mothers and fathers were observed. Future work needs to further investigate the relationship between discrepant parent perceptions and parent depression as interventions targeting perception discrepancies may positively influence parent mental health. Finally, researchers need to continue to explore differences between mothers and fathers in autism and family research. The lack of research involving fathers makes it difficult to validate and understand findings from the limited number of studies that do include fathers. Without an understanding of the similarities and differences between mothers and fathers, individual parents, parent relationship, and family relationship of families with children with autism cannot be fully understood.

References

- Achenbach, T. M. (1999). The Child Behavior Checklist and related instruments. In M. E. Maruish (Ed.), *The use of psychological testing for treatment planning and outcomes assessment., 2nd ed.* (pp. 429–466). Lawrence Erlbaum Associates Publishers.
- Achenbach, T. M., McConaughy, S. H., & Howell, C. T. (1987). Child/adolescent behavioral and emotional problems: Implications of cross-informant correlations for situational specificity. *Psychological Bulletin, 101*(2), 213–232. <https://doi.org/10.1037/0033-2909.101.2.213>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.
- Bebko, J. M., Konstantareas, M. M., & Springer, J. (1987). Parent and professional evaluations of family stress associated with characteristics of autism. *Journal of Autism and Developmental Disorders, 17*, 565–576. <https://doi.org/10.1007/BF01486971>
- Benson, P.R. & Kersh, J. (2011). Marital quality and psychological adjustment among mothers of children with ASD: Cross-sectional and longitudinal relationships. *Journal of Autism and Developmental Disorders 41*, 1675–1685. <https://doi.org/10.1007/s10803-011-1198-9>
- Brisini, K. S. C., & Solomon, D. H. (2020). Relational uncertainty and taking conflict personally: Comparing parents of children with and without autism spectrum disorder. *Journal of Autism and Developmental Disorders, 50*(12), 4401–4411. <https://doi.org/10.1007/s10803-020-04492-6>

- Braunstein, V. L., Peniston, N., Perelman, A., & Cassano, M. C. (2013). The inclusion of fathers in investigations of autistic spectrum disorders. *Research in Autism Spectrum Disorders*, 7(7), 858–865. <https://doi.org/10.1016/j.rasd.2013.03.005>
- Brobst, J. B., Clopton, J. R., & Hendrick, S. S. (2009). Parenting children with autism spectrum disorders: The couple's relationship. *Focus on Autism and Other Developmental Disabilities*, 24(1), 38–49. <https://doi.org/10.1177/1088357608323699>
- Burrows, C. A., Usher, L. V., Becker-Haimes, E. M., McMahon, C. M., Mundy, P. C., Jensen-Doss, A., & Henderson, H. A. (2018). Profiles and correlates of parent–child agreement on social anxiety symptoms in youth with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 48(6), 2023–2037. <https://doi.org/10.1007/s10803-018-3461-9>
- Byrne, B. M. (2010). *Structural equation modeling with AMOS: Basic concepts, applications, and programming* (2nd ed.). New York: Routledge.
- Cassano, M., Adrian, M., Veits, G., & Zeman, J. (2006). The Inclusion of fathers in the empirical investigation of child psychopathology: An update. *Journal of Clinical Child and Adolescent Psychology*, 35(4), 583–589. https://doi.org/10.1207/s15374424jccp3504_10
- Centers for Disease Control and Prevention. (2020, September 25). *Data & Statistics on Autism Spectrum Disorder*. Centers for Disease Control and Prevention. <https://www.cdc.gov/ncbddd/autism/data.html>.

- Chan, K. K. S., & Leung, D. C. K. (2020). The impact of child autistic symptoms on parental marital relationship: Parenting and coparenting processes as mediating mechanisms. *Autism Research, 13*, 1516-1526. <https://doi.org/10.1002/aur.2297>
- Christensen, A., Margolin, G., & Sullaway, M. (1992). Interparental agreement on child behavior problems. *Psychological Assessment, 4*, 419–425.
- Cox, M. J., & Paley, B. (1997). Families as systems. *Annual Review of Psychology, 48*, 243–267. <https://doi.org/10.1146/annurev.psych.48.1.243>
- Cross, E. J., Overall, N. C., Low, R. S. T., & Henderson, A. M. E. (2021). Relationship problems, agreement and bias in perceptions of partners' parental responsiveness, and family functioning. *Journal of Family Psychology, 35*(4), 510-522. <https://doi.org/10.1037/fam0000812>
- Davis, N. O., & Carter, A. S. (2008). Parenting stress in mothers and fathers of toddlers with autism spectrum disorders: Associations with child characteristics. *Journal of Autism and Developmental Disorders, 38*(7), 1278–1291. <https://doi.org/10.1007/s10803-007-0512-z>
- De Los Reyes, A., & Kazdin, A. E. (2004). Measuring informant discrepancies in clinical child research. *Psychological Assessment, 16*(3), 330–334. <https://doi.org/10.1037/1040-3590.16.3.330>
- De Los Reyes, A., & Kazdin, A. E. (2005). Informant discrepancies in the assessment of childhood psychopathology: A critical review, theoretical framework, and recommendations for further study. *Psychological Bulletin, 131*(4), 483–509. <https://doi.org/10.1037/0033-2909.131.4.483>

- De Los Reyes, A., & Kazdin, A. E. (2006). Informant discrepancies in assessing child dysfunction relate to dysfunction within mother-child interactions. *Journal of Child and Family Studies, 15*(5), 645–663. <https://doi.org/10.1007/s10826-006-9031-3>
- Dekker, L. P., Visser, K., van der Vegt, E. J. M., Maras, A., van der Ende, J., Tick, N. T., Verhulst, F. C., & Greaves, L. K. (2020). Insight into informant discrepancies regarding psychosexual functioning of adolescents with and without autism spectrum disorder. *Journal of Research on Adolescence, 30*(2), 487–501. <https://doi.org/10.1111/jora.12539>
- Dumas, J. E., Wolf, L. C., Fisman, S. N., & Culligan, A. (1991). Parenting stress, child behavior problems, and dysphoria in parents of children with autism, Down syndrome, behavior disorders, and normal development. *Exceptionality, 2*(2), 97–110. <https://doi.org/10.1080/09362839109524770>
- Duhig, A. M., Renk, K., Epstein, M. K., & Phares, V. (2000). Interparental agreement on internalizing, externalizing, and total behavior problems: A meta-analysis. *Clinical Psychology: Science and Practice, 7*(4), 435–453. <https://doi.org/10.1093/clipsy.7.4.435>
- Durbin, J. & Watson, G. S. (1950). Testing for serial correlation in least squares regression. *Biometrika. 37* (3–4), 409–428. doi:10.1093/biomet/37.3-4.409
- Edwards, J. R. (2002). Alternatives to difference scores: Polynomial regression analysis and response surface methodology. In F. Drasgow & N. Schmitt (Eds.), *Measuring and analyzing behavior in organizations: Advances in measurement and data analysis* (pp. 350–400). San Francisco: Jossey-Bass.

- Ekas, N. V., & Kouros, C. D. (2021). A pilot study of responses to interparental conflict in children with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 51*(9), 3280–3290. <https://doi.org/10.1007/s10803-020-04802-y>
- Estes, A., Olson, E., Sullivan, K., Greenson, J., Winter, J., Dawson, G., & Munson, J. (2013). Parenting-related stress and psychological distress in mothers of toddlers with autism spectrum disorders. *Brain & Development, 35*(2), 133–138. <https://doi.org/10.1016/j.braindev.2012.10.004>
- Fisher, T. D., & McNulty, J. K. (2008). Neuroticism and marital satisfaction: The mediating role played by the sexual relationship. *Journal of Family Psychology, 22*(1), 112–122. <https://doi.org/10.1037/0893-3200.22.1.112>
- Funk, J. L., & Rogge, R. D. (2007). Testing the ruler with item response theory: Increasing precision of measurement for relationship satisfaction with the Couples Satisfaction Index. *Journal of Family Psychology, 21*(4), 572–583. <https://doi.org/10.1037/0893-3200.21.4.572>
- Gartstein, M. A., Bridgett, D. J., Dishion, T. J., & Kaufman, N. K. (2009). Depressed mood and maternal report of child behavior problems: Another look at the depression–distortion hypothesis. *Journal of Applied Developmental Psychology, 30*(2), 149–160. <https://doi.org/10.1016/j.appdev.2008.12.001>
- Gorchoff, S. M., John, O. P., & Helson, R. (2008). Contextualizing change in marital satisfaction during middle age: an 18-year longitudinal study. *Psychological Science, 19*(11), 1194–1200. <https://doi.org/10.1111/j.1467-9280.2008.02222.x>

- Grych, J. H., & Fincham, F. D. (1990). Marital conflict and children's adjustment: A cognitive-contextual framework. *Psychological Bulletin*, *108*(2), 267–290.
<https://doi.org/10.1037/0033-2909.108.2.267>
- Greenlee, J. L., Piro, G. B., Putney, J., Papp, L. M., & Hartley, S. L. (in press). Marital satisfaction, parenting styles, and child outcomes in families of autistic children. *Family Process*. <https://doi.org/10.1111/famp.12708>
- Gulsrud, A. C., & Renno, P. (2021). The autism spectrum: Intervention, treatment, and services. In L. M. Glidden, L. Abbeduto, L. L. McIntyre, & M. J. Tassé (Eds.), *APA handbook of intellectual and developmental disabilities: Clinical and educational implications: Prevention, intervention, and treatment., Vol. 2.* (pp. 131–152). American Psychological Association. <https://doi.org/10.1037/0000195-006>
- Hartley, S. L., Barker, E. T., Seltzer, M. M., Greenberg, J. S., & Floyd, F. J. (2011). Marital satisfaction and parenting experiences of mothers and fathers of adolescents and adults with autism. *American Journal on Intellectual and Developmental Disabilities*, *116*(1), 81-95. <https://doi.org/10.1352/1944-7558-116.1.81>
- Hartley, S. L., Barker, E. T., Baker, J. K., Seltzer, M. M., & Greenberg, J. S. (2012). Marital satisfaction and life circumstances of grown children with autism across 7 years. *Journal of Family Psychology*, *26*(5), 688–697. <https://doi.org/10.1037/a0029354>
- Hartley, S. L., Barker, E. T., Seltzer, M. M., Greenberg, J., Bolt, D., Floyd, F., & Orsmond, G. (2010). The relative risk and timing of divorce in families of children with an autism spectrum disorder. *Journal of Family Psychology*, *24*(4), 449 – 457 .
 doi: 10.1037/a0019847

- Hartley, S. L., Papp, L. M., Mihaila, I., Bussanich, P. M., Goetz, G., & Hickey, E. J. (2017). Couple conflict in parents of children with versus without autism: Self-reported and observed findings. *Journal of Child and Family Studies*, 26, 2152–2165. <https://doi.org/10.1007/s10826-017-0737-1>
- Harvey, E. A., Fischer, C., Weieneth, J. L., Hurwitz, S. D., & Sayer, A. G. (2013). Predictors of discrepancies between informants' ratings of preschool-aged children's behavior: An examination of ethnicity, child characteristics, and family functioning. *Early Childhood Research Quarterly*, 28(4), 668–682. <https://doi.org/10.1016/j.ecresq.2013.05.002>
- Hayes, S. A., & Watson, S. L. (2013). The impact of parenting stress: A meta-analysis of studies comparing the experience of parenting stress in parents of children with and without autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 43(3), 629–642. doi:10.1007/s10803-012-1604-y.
- Hickey, E. J., Bolt, D., Rodriguez, G., & Hartley, S. L. (2020a). Bidirectional relations between parent warmth and criticism and the symptoms and behavior problems of children with autism. *Journal of Abnormal Child Psychology*, 48(6), 865–879. <https://doi.org/10.1007/s10802-020-00628-5>
- Hickey, E.J., Hartley, S.L. and Papp, L. (2020b), Psychological well-being and parent-child relationship quality in relation to child autism: An actor-partner modeling approach. *Fam. Proc.*, 59, 636-650. <https://doi.org/10.1111/famp.12432>
- Holt, T., Sand Helland, M., Morbech, M., Larsen, L., Gustavson, K., Ha, A., & Cummings, E. M. (2021). Agreement between child and parent reports of children's reactions to

- interparental conflict. *Journal of Family Psychology*. Advance online publication. <https://doi.org/10.1037/fam0000861>
- Human, L. J., Dirks, M. A., DeLongis, A., & Chen, E. (2016). Congruence and incongruence in adolescents' and parents' perceptions of the family: Using response surface analysis to examine links with adolescents' psychological adjustment. *Journal of Youth and Adolescence*, 45(10), 2022–2035. <https://doi.org/10.1007/s10964-016-0517-z>
- Humberg, S., Nestler, S., & Back, M. D. (2019). Response surface analysis in personality and social psychology: Checklist and clarifications for the case of congruence hypotheses. *Social Psychological and Personality Science*, 10(3), 409–419. <https://doi.org/10.1177/1948550618757600>
- Hurtig, T., Kuusikko, S., Mattila, M.-L., Haapsamo, H., Ebeling, H., Jussila, K., Joskitt, L., Pauls, D., & Moilanen, I. (2009). Multi-informant reports of psychiatric symptoms among high-functioning adolescents with Asperger syndrome or autism. *Autism*, 13(6), 583–598. <https://doi.org/10.1177/1362361309335719>
- Jordan, A. K., Thomeer, M. L., Lopata, C., Donnelly, J. P., Rodgers, J. D., & McDonald, C. A. (2019). Informant discrepancies in the assessment of adaptive behavior of children with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 49(5), 2024–2034. <https://doi.org/10.1007/s10803-018-03876-z>
- Kalyva, E. (2010). Multirater congruence on the social skills assessment of children with Asperger Syndrome: Self, mother, father, and teacher ratings. *Journal of Autism and*

- Developmental Disorders*, 40(10), 1202–1208. <https://doi.org/10.1007/s10803-010-0978-y>
- Kalvin, C. B., Marsh, C. L., Ibrahim, K., Gladstone, T. R., Woodward, D., Grantz, H., Ventola, P., & Sukhodolsky, D. G. (2020). Discrepancies between parent and child ratings of anxiety in children with autism spectrum disorder. *Autism Research*, 13(1), 93–103. <https://doi.org/10.1002/aur.2220>
- Kouros, C. D., Papp, L. M., Goeke-Morey, M. C., & Cummings, E. M. (2014). Spillover between marital quality and parent–child relationship quality: Parental depressive symptoms as moderators. *Journal of Family Psychology*, 28(3), 315–325. <https://doi.org/10.1037/a0036804.supp> (Supplemental)
- Laird, R. D., & De Los Reyes, A. (2013). Testing informant discrepancies as predictors of early adolescent psychopathology: Why difference scores cannot tell you what you want to know and how polynomial regression may. *Journal of Abnormal Child Psychology*, 41(1), 1–14. <https://doi.org/10.1007/s10802-012-9659-y>
- Lecavalier, L., Leone, S., Wiltz, J. (2006). The impact of behaviour problems on caregiver stress in young people with autism spectrum disorders. *Journal of Intellectual Disability Research*, 50, 172–183. doi:[10.1111/j.1365-2788.2005.00732.x](https://doi.org/10.1111/j.1365-2788.2005.00732.x)
- Langberg, J. M., Epstein, J. N., Simon, J. O., Loren, R. E. A., Arnold, L. E., Hechtman, L., Hinshaw, S. P., Hoza, B., Jensen, P. S., Pelham, W. E., Swanson, J. M., & Wigal, T. (2010). Parent agreement on ratings of children’s Attention Deficit/Hyperactivity Disorder and broadband externalizing behaviors. *Journal of Emotional and Behavioral Disorders*, 18(1), 41–50. <https://doi.org/10.1177/1063426608330792>

- Lerner, M. D., De Los Reyes, A., Drabick, D. A. G., Gerber, A. H., & Gadow, K. D. (2017). Informant discrepancy defines discrete, clinically useful autism spectrum disorder subgroups. *Journal of Child Psychology and Psychiatry*, *58*(7), 829–839.
<https://doi.org/10.1111/jcpp.12730>
- Lickenbrock, D. M., Ekas, N. V., & Whitman, T. L. (2011). Feeling good, feeling bad: Influences of maternal perceptions of the child and marital adjustment on well-being in mothers of children with an autism spectrum disorder. *Journal of Autism and Developmental Disorders*, *41*, 848–858.
- Lindahl, K. M., & Malik, N. M. (2001). The System for Coding Interactions and Family Functioning. In P. K. Kerig & K. M. Lindahl (Eds.), *Family observational coding systems: Resources for systemic research* (pp. 77–91). Lawrence Erlbaum Associates Publishers.
- Lohaus, A., Rueth, J. E., & Vierhaus, M. (2019). Cross-informant discrepancies and their association with maternal depression, maternal parenting stress, and mother-child relationship. *Journal of Child and Family Studies* *29*, 867–879.
<https://doi.org/10.1007/s10826-019-01625-z>
- Lilgendahl, J. P., & McAdams, D. P. (2011). Constructing stories of self-growth: How individual differences in patterns of autobiographical reasoning relate to well-being in midlife. *Journal of Personality*, *79*, 391–428.
- Luo, R., Chen, F., Yuan, C., Ma, X., & Zhang, C. (2020). Parent-child discrepancies in perceived parental favoritism: Associations with children's internalizing and externalizing problems in Chinese families. *Journal of Youth and Adolescence*, *49*(1), 60–73. <https://doi.org/10.1007/s10964-019-01148-2>

- Mash, E. J., & Johnston, C. (1990). Determinants of parenting stress: illustrations from families of hyperactive children and families of physically abused children. *Journal of Clinical Child Psychology, 19*, 313–328.
http://dx.doi.org/10.1207/s15374424jccp1904_3
- Matson, J. L., Horovitz, M., Mahan, S., & Fodstad, J. (2013). Reliability of the Matson Evaluation of Social Skills with Youngsters (MESSY) for children with autism spectrum disorders. *Research in Autism Spectrum Disorders, 7*(2), 405–410.
<https://doi.org/10.1016/j.rasd.2012.10.005>
- Meltzer, L. J. (2011). Factors associated with depressive symptoms in parents of children with autism spectrum disorders. *Research in Autism Spectrum Disorders, 5*, 361-367.
doi:10.1016/j.rasd.2010.05.001
- Menard, S. (2002). Applied logistic regression analysis (2nd ed.). SAGE Publications, Inc.
<https://dx.doi.org/10.4135/9781412983433>
- Nuske, H. J., Hedley, D., Tseng, C. H., Begeer, S., & Dissanayake, C. (2018). Emotion regulation strategies in preschoolers with autism: Associations with parent quality of life and family functioning. *Journal of Autism and Developmental Disorders, 48*(4), 1287–1300. <https://doi.org/10.1007/s10803-017-3391-y>
- Ohannessian, C. M., Laird, R., & De Los Reyes, A. (2016). Discrepancies in adolescents' and mothers' perceptions of the family and mothers' psychological symptomatology. *Journal of Youth and Adolescence, 45*(10), 2011–2021.
<https://doi.org/10.1007/s10964-016-0477-3>

- Owen, M. T., & Cox, M. J. (1997). Marital conflict and the development of infant-parent attachment relationships. *Journal of Family Psychology, 11*(2), 152-164.
<https://doi.org/10.1037/0893-3200.11.2.152>
- Papp, L. M., & Hartley, S. L. (2019). Child-present and child-themed marital conflict in daily life of parents of children with and without autism spectrum disorder. *Developmental Psychology, 55*(1), 148–156. <https://doi.org/10.1037/dev0000631>
- Pedro, M. F., Ribeiro, T., & Shelton, K. H. (2012). Marital satisfaction and partners' parenting practices: The mediating role of coparenting behavior. *Journal of Family Psychology, 26*(4), 509–522. <https://doi.org/10.1037/a0029121>
- Pezzimenti, F., Han, G. T., Vasa, R. A., & Gotham, K. (2019). Depression in youth with autism spectrum disorder. *Child and Adolescent Psychiatric Clinics of North America, 28*(3), 397–409. <https://doi.org/10.1016/j.chc.2019.02.009>
- Picardi, A., Gigantesco, A., Tarolla, E., Stoppioni, V., Cerbo, R., Cremonte, M., Alessandri, G., Lega, I., & Nardocci, F. (2018). Parental burden and its correlates in families of children with autism spectrum disorder: A multicentre study with two comparison groups. *Clinical Practice and Epidemiology in Mental Health: CP & EMH, 14*, 143–176. <https://doi.org/10.2174/1745017901814010143>
- Pisula, E., & Porębowicz-Dörsmann, A. (2017). Family functioning, parenting stress and quality of life in mothers and fathers of Polish children with high functioning autism or Asperger syndrome. *PLoS One, 12*, e0186536. <https://doi.org/10.1371/journal.pone.0186536>

- Raley, S. B., Mattingly, M. J., & Bianchi, S. M. (2006). How dual are dual-income couples? documenting change from 1970 to 2001. *Journal of Marriage and Family*, 68(1), 11-28. <https://doi.org/10.1111/j.1741-3737.2006.00230.x>
- Sanders J. L. & Morgan, S. B. (1997). Family stress and adjustment as perceived by parents of children with autism or down syndrome: Implications for intervention, *Child & Family Behavior Therapy*, 19(4), 15-32. DOI: [10.1300/J019v19n04_02](https://doi.org/10.1300/J019v19n04_02)
- Shanock, L. R., Baran, B. E., Gentry, W. A., Pattison, S. C., & Heggestad, E. D. (2010). Polynomial regression with response surface analysis: A powerful approach for examining moderation and overcoming limitations of difference scores. *Journal of Business and Psychology*, 25(4), 543–554. <https://doi.org/10.1007/s10869-010-9183-4>
- Schönbrodt, F. D., Humberg, S., Nestler, S., & Carlson, E. (2018). Testing similarity effects with dyadic response surface analysis. *European Journal of Personality*, 32(6), 627–641. <https://doi.org/10.1002/per.2169>
- Serrata, C. A. (2012). Psychosocial aspects of parenting a child with autism. *Journal of Applied Rehabilitation Counseling*, 43(4), 29–35.
- Shanock, L. R., Baran, B. E., Gentry, W. A., Pattison, S. C., & Heggestad, E. D. (2014). Erratum to: Polynomial regression with response surface analysis: A powerful approach for examining moderation and overcoming limitations of difference scores. *Journal of Business and Psychology*, 29(1), 161–161.
<http://www.jstor.org/stable/24709914>
- Sim, A., Cordier, R., Vaz, S., & Falkmer, T. (2016). Relationship satisfaction in couples raising a child with autism spectrum disorder: A systematic review of the

- literature. *Research in Autism Spectrum Disorders*, 31, 30–52.
[10.1016/j.rasd.2016.07.004](https://doi.org/10.1016/j.rasd.2016.07.004)
- Sim, A., Cordier, R., Vaz, S., Netto, J., & Falkmer, T. (2017). Factors associated with negative co-parenting experiences in families of a child with autism spectrum disorder. *Developmental Neurorehabilitation*, 20(2), 83–91.
<https://doi.org/10.3109/17518423.2015.1069414>
- Stratis, E. A., & Lecavalier, L. (2015). Informant agreement for youth with autism spectrum disorder or intellectual disability: A meta-analysis. *Journal of Autism and Developmental Disorders*, 45(4), 1026–1041. <https://doi.org/10.1007/s10803-014-2258-8>
- Sturge-Apple, M. L., Davies, P. T., & Cummings, E. M. (2006). Impact of hostility and withdrawal in interparental conflict on parental emotional unavailability and children's adjustment difficulties. *Child Development*, 77(6), 1623–1641.
<https://doi.org/10.1111/j.1467-8624.2006.00963.x>
- Sutherland, R., Hodge, A., Bruck, S., Costley, D., & Klieve, H. (2017). Parent-reported differences between school-aged girls and boys on the autism spectrum. *Autism*, 21(6), 785–794. <https://doi.org/10.1177/1362361316668653>
- Timmons, L., Willis, K. D., Pruitt, M. M., & Ekas, N. V. (2016). Predictors of daily relationship quality in mothers of children with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 46, 2573–2586.
<https://doi.org/10.1007/s10803-016-2799-0>
- Tomeny, T. S., Rankin, J. A., Baker, L. K., Eldred, S. W., & Barry, T. D. (2019). Discrepancy in perceived social support among typically developing siblings of youth

- with autism spectrum disorder. *Autism*, 23(3), 594–606.
<https://doi.org/10.1177/1362361318763973>
- Tonge, B., & Einfeld, S. (2003). Psychopathology and intellectual disability: The Australian Child to Adult Longitudinal Study. In L. M. Glidden (Ed.), *International review of research in mental retardation* (Vol. 26, pp. 61–91). San Diego, CA: Academic Press.
- Valicenti-McDermott, M., Lawson, K., Hottinger, K., Seijo, R., Schechtman, M., Shulman, L. et al. (2015). Parental stress in families of children with autism and other developmental disabilities. *Journal of Child Neurology*, 30, 1728–1735.
<https://doi.org/10.1177/0883073815579705>.
- van Steensel, F. J. A., Deutschman, A. A. C. G., & Bögels, S. M. (2013). Examining the Screen for Child Anxiety-Related Emotional Disorder-71 as an assessment tool for anxiety in children with high-functioning autism spectrum disorders. *Autism*, 17(6), 681–692. <https://doi.org/10.1177/1362361312455875>
- Walton, K. M. (2019). Leisure time and family functioning in families living with autism spectrum disorder. *Autism*, 23(6), 1384–1397.
<https://doi.org/10.1177/1362361318812434>
- Watson, D., O'Hara, M. W., Simms, L. J., Kotov, R., Chmielewski, M., McDade-Montez, E. A., & Stuart, S. (2007). Development and validation of the Inventory of Depression and Anxiety Symptoms (IDAS). *Psychological assessment*, 19(3), 253-268.
- Whiffen, V. E. (1990). Maternal depressed mood and perceptions of child temperament. *The Journal of Genetic Psychology: Research and Theory on Human Development*, 151(3), 329–339. <https://doi.org/10.1080/00221325.1990.9914621>

Whitton, S. W., Stanley, S. M., Markman, H. J., & Baucom, B. R. (2008). Women's weekly relationship functioning and depressive symptoms. *Personal Relationships, 15*(4), 533-550. <https://doi.org/10.1111/j.1475-6811.2008.00214.x>

Xu, Y., Neece, C. L., & Parker, K. H. (2014). Parental depression and child behavior problems: A pilot study examining pathways of influence. *Journal of Mental Health Research in Intellectual Disabilities, 7*(2), 126–142.

<https://doi.org/10.1080/19315864.2013.787479>

Zaidman-Zait, A., Mirenda, P., Duku, E., Szatmari, P., Georgiades, S., Volden, J., Zwaigenbaum, L., Valliancourt, T., Bryson, S., Smith, I., Fombonne, E., Roberts, W., Waddell, C., & Thompson, A. (2014). Examination of bidirectional relationships between parent stress and two types of problem behavior in children with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 44*, 1908–1917. doi:[10.1007/s10803-014-2064-3](https://doi.org/10.1007/s10803-014-2064-3)

VITA

Sarah Madison was born in Salinas, California. She received her Bachelor of Science degree with a major in Criminology with an emphasis in forensic behavioral science from California State University, Fresno in 2017. She enrolled in Texas Christian University in 2020 and is currently a graduate student working in the Families, Autism, and Child Emotion Studies research laboratory.

ABSTRACT

DISCREPANCIES IN RATINGS OF CHILD BEHAVIOR BETWEEN MOTHERS AND FATHERS OF AUTISTIC CHILDREN: ASSOCIATIONS WITH PARENT AND FAMILY FUNCTIONING

by Sarah Madison
Department of Psychology
Texas Christian University

Thesis Advisor: Naomi Ekas, Professor of Psychology

Autism is a neurodevelopmental disorder impairing social communication and causing restricted and repetitive behaviors, interests, and activities. Through a family systems framework, the child, family members, and family dyads impact each other bidirectionally. Relationships have been found between levels of parent agreement about their child's behavior and family-related variables. There is a paucity of research examining discrepancies between parents of autistic children. This study used polynomial regression with response surface analysis to examine discrepancies in ratings of internalizing and externalizing child behavior between 119 parents of autistic children and assessed whether discrepancies predicted family outcomes. Results revealed discrepant ratings in half of the sample with equal instances of mother rating higher as father rating higher. Discrepancies in ratings of internalizing and externalizing behavior predicted depressive symptoms for both parents and discrepancies in ratings of externalizing behaviors predicted father relationship satisfaction. Results have implications for interventions targeting parents with autistic children.