PARENTS AND THEIR CHILDREN ON THE AUTISM SPECTRUM:

IDENTIFYING FACTORS THAT PREDICT HOW MUCH

THEY AGREE ON MENTAL HEALTH FACTORS

By

Camille Eastin

Submitted in partial fulfillment of the

requirements for Departmental Honors

in the Department of Psychology

Texas Christian University

Fort Worth, Texas

May 8, 2023

PARENTS AND THEIR CHILDREN ON THE AUTISM SPECTRUM:

IDENTIFYING FACTORS THAT PREDICT HOW MUCH

THEY AGREE ON MENTAL HEALTH FACTORS

Project Approved:

Supervising Professor: Naomi Ekas, Ph.D.

Department of Psychology

Ellen Broom, Ph.D.

Department of Psychology

Aesha John, Ph.D.

Department of Social Work

iii

Abstract

Anxiety and depression are highly prevalent among autistic children and adolescents, making it vital that parents accurately assess their child on the autism spectrum's mental well-being. The present study compared parent and child reports of 119 mother-autistic child dyads and father-autistic child dyads to determine whether parent mental well-being, autistic characteristics, or gender differences affected parent-child disagreement about the child's anxiety and depressive symptoms. The children were between the ages of 10 and 17 and were not diagnosed with any co-occurring intellectual disabilities. The results suggest that higher father depression was a significant predictor of higher father-child disagreement over the child's depressive symptoms. Increased autistic characteristics in fathers increased disagreement in father-child dyads regarding the child's anxiety symptoms. Finally, mothers disagreed more with their daughters than their sons about their child's anxiety symptoms. The current study identified parent-level factors that are only significant within one gender of parent, emphasizing a need for more research that includes both fathers and mothers. Future research should recruit a more diverse sample from various cultural and economic backgrounds and a higher proportion of families with autistic daughters to investigate the significant findings about mother- daughter disagreement patterns. Assessing disagreement trends in mother-autistic child and father-autistic child dyads may be expanded in novel studies to investigate future implications on childhood outcomes of parent-child disagreement in autistic samples.

Parents and Their Children on the Autism Spectrum: Identifying Factors That Predict

How Much They Agree on Mental Health Factors

The Center for Disease Control and Prevention states that approximately 5 million adults in the United States of America are diagnosed with autism spectrum disorder (CDC, 2022). As of 2018, 1 in 44 births was a child later reported to be on the autism spectrum (Autism Speaks, 2023). Approximately 1 in 4 persons on the autism spectrum experience co-occurring symptoms of depression and anxiety (Smith & White, 2020). Many children on the autism spectrum experience increased feelings of loneliness and distress; however, previous research suggests that early interventions can help reduce the prevalence of depression and anxiety among adolescents and adults on the autism spectrum (Smith & White, 2020). It is vital that caregivers are aware of a child on the autism spectrum's symptoms of depression and anxiety to be able to provide necessary mental health treatments. The goal of this study was to understand the factors that may predict the attunement and congruence of reported levels of anxiety and depression between children on the autism spectrum's self-reports and his or her parents' reports on the child's mental health symptoms.

Depression and Anxiety in Children with Autism Spectrum Disorder

Autism spectrum disorder (ASD) affects emotional and social development throughout a person's lifetime (Hedley et al., 2018). ASD is identified by an inability to develop effective social communication skills, as well as experiencing a pattern of restrictive or repetitive behaviors and interests (American Psychiatric Association, 2013). Approximately 36% of all autistic individuals experience co-occurring psychiatric illnesses, such as major depressive disorder, bipolar disorder, and/or social phobias (Munesue et al., 2008).

Depression may be harder to recognize in children on the autism spectrum because much of the symptomology of depression overlaps with common expressions of autism (Smith & White, 2020). Depression may manifest as restlessness, irritability, difficulty concentrating, weight or appetite loss, and lethargy, all of which are also considered symptoms of autism for children. Discriminatory factors – such as depressive thoughts, suicidal ideation, suicidal actions, and/or catatonia - must be present to receive a clinical diagnosis of co-occurring depression.

Anxiety occurs when a person's brain overinterprets the ambiguous surrounding environment as a threat (Beck, 2001). An overactive, anxious mindset can lead to physical effects, such as increased heart rate, as well as negative cognitive effects, such as lowered self-esteem or slower mental processing speeds (Mairean et al., 2022). Anxiety is difficult to recognize in children on the autism spectrum because of the similar expression between anxious behavior and repetitive behaviors (Kim et al., 2000). Anxiety in children on the autism spectrum often manifests in the form of obsessive-compulsive disorder (OCD) or intense social phobias (De la Inglesia & Olivar, 2015).

Depression and anxiety have numerous maladaptive effects on the social and emotional development of children on the autism spectrum. Negative impacts on education, employment, and overall quality of life have been reported for individuals on the autism spectrum who also have co-occurring depression and anxiety (White & Smith, 2020). Additionally, depression and anxiety can interrupt the development of social skills. This is particularly problematic in autistic children with higher IQs because many have a desire for sincere, social and emotional connections with their peers (White & Smith, 2020). As a result, these autistic children are more susceptible to anxiety and depression as they better understand and recognize social isolation and rejection (De La Ingelsia & Olivar, 2015).

Children on the autism spectrum with co-occurring symptoms of depression and anxiety often do not receive the appropriate support or treatment because these co-occurring conditions often go undiagnosed. Many autistic individuals report increased feelings of isolation, and emotional dysregulation (White & Smith, 2020). Consequentially, 47% of autistic children experience suicidal ideation and/or attempts; making suicide the most prevalent cause of premature death among autistic adolescents (Hedley et al., 2018). A lack of social support is the best predictor of suicidal ideation in autistic adolescents (Hedley et al., 2018). It is critical for all children, but especially those on the autism spectrum, to have an informed support system that offers access to treatment for their mental health disorders.

Child-Parent Attunement and Congruence

Parents and guardians are many autistic children's best resources for access to mental health treatment. It is vital that parents be able to distinguish between symptoms of autism and co-occurring disorders that lead to maladaptive behaviors so that a parent can recognize atypical emotions in their autistic child and help their child gain access to appropriate support services. One way to accomplish this is by ensuring that parents are attuned to their child's emotions and behaviors. Attunement refers to the reciprocal relationship between a parent and child to regulate a certain state (Di Lorenzo et al., 2022). In infancy and childhood, children rely on their caregivers to help regulate their own emotions (Posada et al., 2007). Children's caregivers, in turn, scaffold the development of coping mechanisms and emotional regulation. As development progresses, parents and children must use successful communication skills to coregulate.

Attunement includes both emotional and physiological alignment between a parent and child. Research shows that both parents and children are physiologically affected by the reciprocal interaction with each other's emotional states. In a study by Hendrix et al. (2018),

researchers found a strong bidirectional association between a rise in cortisol of the mother and her infant. When one member of the dyad became stressed and began releasing increased amounts of cortisol, the other became stressed and had a similar hormonal reaction.

In research studies, attunement between members of a dyad is often captured using congruence, which refers to the level of agreement between a parent and child on various measures (Lee et al., 2022). Previous research has examined parent-child congruence on a variety of child outcomes. For example, recent research with neurotypical children has focused on parent-child congruence as it relates to children's aspiration, achievement, and life satisfaction. Typically, high congruence between a child's perception of aspiration and achievement with a parent's interpretation of their child's attitudes towards aspiration and achievement, resulted in higher child satisfaction (Lee et al., 2022). Consequentially, high parent-child congruence is associated with better childhood development. Children with misaligned self-concepts compared to their parents' perceptions of the child are at a higher risk to suffer from depression because of dysfunctional interpersonal relationships, a lack of social support, and overwhelming feelings of isolation (White & Smith, 2020).

Further research supports that parent-child congruence is related to mental wellbeing and the development of coping strategies to manage stress (Loman & Jarvis, 2000). Families with high levels of congruence tended to have children with less psychological turmoil as well as highly adaptive coping mechanisms and resilience against stressful stimuli (Loman &Jarvis, 2000). Adolescents with parents who could identify their child's top three stressors displayed better coping skills than similar adolescents with less attuned parents. Specifically, mother-child congruence is associated to less avoidant behaviors. Father-child congruence is associated with

better emotional processing and fewer physical health problems. Although this study included fathers, most research on parent-child congruence focusses on mothers.

Mothers tend to be better attuned to children's emotional wellbeing; however, many researchers believe this is because mothers are often the primary caregiver and spend more time with their children compared to fathers (Jansen et al., 2017). Because mothers and fathers tend to focus their parenting efforts on different constructs, mothers and fathers may observe different forms of anxiety, therefore influencing attunement. Mothers tend to be more focused on the feelings and internal states of a child, so she is likely more attuned to factors like experiencing stress over low self-esteem. Fathers' parenting tends to focus on competition and risk (Jansen et al., 2017). Fathers may be better attuned to a child's anxiety over social exposure or external phobias. It is important to include fathers while studying parent-child congruence as fathers may have varied exposure to mothers on different components of the child's mental wellbeing and personality. For this reason, the current study examined both mother-child congruence and father-child congruence.

Although parent-child congruence has been studied as a predictor of child outcomes, there is less research that focuses on understanding the factors that predict levels of congruence, particularly within families with children on the autism spectrum. This is important to further study because autistic children need specialized supports, particularly if they are experiencing co-occurring symptoms of depression and anxiety. Thus, identifying why a parent may or may not be effective at recognizing their child's emotions and behavior is critical for the development of intervention programs. The current study focused on several parent characteristics, including parent mental health and autism-related behaviors.

Parent Characteristics and Parent-Child Congruence

One factor that might predict how well parents agree with their autistic child's rating of depression and anxiety symptoms is the broad autism phenotype (BAP). BAP describes behavioral, emotional, and cognitive expressions that reflect similar symptoms as autism spectrum disorder (Hirokawa et al., 2018). High BAP presentations are associated with impairment in communication, social skills, facial processing, executive functioning, and language acquisition and comprehension. Thus, individuals with BAP behaviors may have difficulty identifying and interpreting emotions of others, including their children (Asano et al., 2014). Previous research suggests that BAP characteristics have a possible genetic link, especially in families with multiple-incidence autism where more than one member is on the autism spectrum (Piven & Palmer, 1999). Within families of children on the autism spectrum, BAP characteristics are more commonly found in fathers as compared to mothers (Rubenstein et al., 2018); thus, BAP may impact fathers' ratings of their children's emotion more than mothers' ratings.

Parents of autistic children are more likely to experience depression and report high levels of stress compared to parents of neuro-typically developing children (Van Steijn et al., 2014). Parents of more than one autistic child are at a particular risk for increased rates of stress (Piven & Palmer, 1999). When examining parents of autistic children, prior studies have found that mothers are more likely to have higher levels of mental health symptoms compared to fathers (Tekinarslan, 2013). It is critical to examine how parent mental health impacts levels of parent-child congruence. For example, in neuro-typically developing infants, high levels of maternal depression were associated with insecure attachment (Marcynyszyn et al., 2021). Therefore, maternal depression and anxiety is likely related to less sensitive parenting which may result in missing symptoms of depression and anxiety in their autistic child. It is not well studied

whether these high rates of depression and anxiety are a result of the parent's ability to cope with raising a child with ASD or influenced by his or her own BAP tendencies. However, the presence of BAP symptoms is often comorbid with major depressive disorder and various anxiety disorders which may impact the degree to which parents understand and recognize similar disorders in their autistic child (Asano et al., 2014).

Research Question and Hypothesis

The present research sought to identify parent-level factors, including BAP and mental health symptoms, that were associated with levels of parent-child congruence in ratings of children's symptoms of anxiety and depression. Based on previous research (Piven & Palmer, 1999), it is expected that parents with high BAP scores will be less congruent to their child's reported levels of depression and anxiety. High BAP scores often lead to a lack of communication skills and emotional recognition, and therefore will likely reduce the attunement between the child and parent. I also hypothesized that parents with higher levels of depressive symptoms would be less congruent with their child's ratings of both depression and anxiety. Finally, I explored the extent to which these associations differed between mothers and fathers and expected that mothers would be more congruent to their child's reported emotional distress as compared to fathers.

Methods

Participants

The current study is using participant data from a larger study that occurred at two universities in a large metropolitan area in the southern United States. A total of 119 families were recruited from local schools, pediatricians, events designed for children on the autism spectrum and their families, psychologists, and social media platforms. All families had children

between 10 and 17 years old (M = 13.1 years, SD = 2.2 years), diagnosed with ASD without any

co-occurring intellectual delays or significant physical disabilities. The children underwent an in-

person assessment to determine an IQ $\geq$ 70 and a vocabulary score $\geq$ 70. All parents included in

this study were married or cohabitating for at least one year and lived with the child for a

minimum of 50% of the time.

Due to the nature of the current research question, we only included heterosexual

couples, and excluded any participants with incomplete data, leaving us with 117 fathers and 116

for the SCARED tests and 117 fathers and 117 mothers for the CDI tests. Most of the parents

were married (89%) while others were cohabitating (11%). Most families were white (Mother

78%; Father 76%), college educated (Mother 64%; Father 61%) and had an income over $80,000

(65%). The children were mostly male (81%).

Procedure

During the recruitment process, a trained graduate research assistant conducted an initial

phone screening asking questions to determine a family's eligibility based on the aforementioned

criteria. Eligible families were then asked to schedule a visit where at least one parent and the

child could attend an in-person screening. This initial visit lasted 3 hours while the child and

parent completed questionnaires to confirm the family's eligibility. The parent(s) were

compensated with $75, and the child received $10. If the family was deemed ineligible due to

failure to match any of the screening criteria, they were notified within a week of their first visit.

Following the initial in-person screenings, a second visit was conducted with both parents

and the child in attendance. The second visit occurred approximately two weeks following the

initial visit. Parents were asked to complete various questionnaires; however, the current study

only includes surveys related to personal well-being, personality, and information regarding their

child's wellbeing and mental health. Simultaneously, the child completed questionnaires in a different room with the aid of a trained research assistant. All participants provided an informed consent at the start of each visit. Similar to the initial visit, the parents were compensated with $75, and the child was awarded $10 for their participation.

Measures

Child Factors

      Child Depression. The Child Depression Inventory (CDI; Kovacs, 1978) consists of 27 multiple-choice items that assess symptoms of depression in children and adolescents based on how they felt in the past two weeks. Each question provides three choices focused on one symptom (e.g., sadness, anhedonia, suicidal ideation, or disturbance in habitual actions). Questions included, "I am tired once in a while," "I am tired many days," or "I am tired all the time." The questions are scored from 0-2, with 2 indicating more severe psychopathology, with a possible total score of 54. The language is modified to be developmentally appropriate for most children and adolescents. This questionnaire is significantly correlated ($r = 0.6$) with clinical ratings of depression and previous research found good reliability (Kovacs, 1978). Internal consistency in the current study was good (.87).

      Child Anxiety. The Screen for Child Anxiety Related Emotional Disorders (SCARED; SCA-C; Birmaher et al., 1997) consists of 41-items assessing five factors of childhood anxiety. The factors include panic/somatic, generalized anxiety, separation anxiety, social phobia, and school phobia. Each item has modified language to allow the child to self-report on a scale of "Not True or Hardly Ever True," "Somewhat True or Sometimes True," or "Very True or Often True" based on how the child felt in the past three months. Sample items include "People tell me I worry too much," "I worry about other people too much," and "I get stomach aches at school."

The SCA-C has been tested to display high internal consistency and discriminate validity (Birmaher et al., 1997) The internal consistency in the current study was good (.91).

Parent Factors

Parent Well-being. The Inventory of Depression and Anxiety Symptoms (IDAS; Watson et al., 2007) is a self-report designed to assess wellbeing of adults. The current study primarily assessed depressive symptoms. The instrument uses a 5-point Likert scale (1 = not at all, 2 = a little bit, 3 = moderately, 4 = quite a bit, 5 = extremely) to rate 26 statements based on how the participant felt in the past two weeks. The statements included "I felt depressed," "I felt optimistic," and "I had trouble concentrating." Each statement is assessing one of 10 symptoms including suicidality, insomnia, well-being, and other related subjects. The scales for depression have shown high internal consistency and short-term stability over various reports (Watson et al., 2007). Cronbach's alpha in the current study was good. (M General .89; M Dysphoria .89; M Wellbeing .91; F General.89; F Dysphoria .88; F Wellbeing .91).

Parent Autism Phenotype. The Broad Autism Phenotype Questionnaire (BAPQ; Hurley et al., 2006) is an instrument used to assess the mild expression of behavioral and cognitive attributes that reflect symptoms of ASD in non-autistic relatives of individuals on the autism spectrum. The BAPQ is a self-reported measure consisting of 36 statements (e.g., "Conversations bore me," "I look forward to trying new things," "I have a hard time dealing with changes in my routine"). The statements measure three subscales: aloof personality, rigidity, and pragmatic language. Each statement is rated on a 6-point scale ("very rarely," "rarely," "occasionally," "somewhat often," "often," or "very often") based on how often the participant believes the statement applies to him or her within the context of casual, daily life. The participants are asked to think about their adult life and exclude interactions within special relationships, such as

spouses. The BAPQ is shown to have high validity for characterizing a BAP (Hurley et al., 2006). Internal consistency in the current study was high (Mothers .93; Fathers .92).

Parent Report of Child Behavior

  Report of Child Depression. The Child Depression Inventory (CDI; Kovacs, 1978) has been modified to the CDI-Parent (Wierzbicki, 1987) to assess the parent's perspective on his or her child's depressive symptomology. The questionnaire consists of 17 statements that refer to the parent's observations of the child in the past 2 weeks (e.g., "My child is cranky or irritable," "My child has fun," "My child looks tired or fatigued"). Each statement is rated on a 4-point scale from "not at all," "some of the time," "often," and "much or most of the time." The CDI-Parent tends to significantly correlate with the child's self-reported CDI (Weirzbicki, 1987). Internal consistency in the current study was good (Mother .83; Father .83).

  Report of Child Anxiety. The Screen for Childhood Anxiety Related Emotional Disorders (SCARED; SCA-C; Birmaher et al., 1999) was modified to a secondary report instrument to assess a parent's perception of his or her child's anxiety. The modified SCARED consists of 41-items assessing the same five factors of childhood anxiety as the SCA-C. Each item uses language that asks the parent to assess his or her child's symptomology on a scale from "Not True or Hardly Ever True," "Somewhat True or Sometimes True," or "Very True or Often True" based on how the parent believes the child felt or behaved in the past 3 months. Statements include, "My child is scared to go to school," "People tell me my child worries too much," and "He/she gets shaky." The SCARED has been tested to display high internal consistency and discriminate validity between parent and child reports (Birmaher et al., 1999). Internal consistency in the current study was good (Mother .89; Father .89).

Results

Descriptive Statistics

To begin, I developed frequency tables to compare mother-child agreement and father-child agreement on child depressive and anxiety symptoms. Mothers and their children agreed on the child's depressive symptoms in 34.5% of mother-child dyads. In 33.6% of the mother-child dyads, the mother reported greater symptoms of depression, while 30.3% of the mother-child dyads had the child report higher symptoms of depression. Fathers and their children agreed on the child's depressive symptom levels in 37.8% of the father-child dyads, leaving 33.6% of father-child dyads with the father over-estimating depressive symptoms and 30.3% of father-child dyads with the child reporting higher levels of depressive symptoms. Mothers and their children agreed on the child's anxiety symptoms in 32.8% of mother-child dyads. Mothers over-estimated anxiety symptoms in 30.3% of mother-child dyads, while 34.5% of the mother-child dyads had the child report higher anxiety symptom levels. Finally, fathers and their children agreed about the child's anxiety symptoms in 41.2% of the father-child dyads, while 28.6% of dyads had fathers over-estimated anxiety symptoms and 28.6% of father-child dyads had the child report higher anxiety symptom levels.

A paired-samples t-test determined that fathers had significantly higher BAP scores than mothers (t (116) = -3.98, p = .00), suggesting that fathers in this sample displayed more autistic characteristics than mothers (Mothers M = 2.75; Father M = 3.06).

Parent Factors Predicting Parent-Child Disagreement on Children's Depressive Symptoms

First, two separate multiple linear regression analyses were performed to examine whether parent (mother and father independently) mental well-being subscale scores predicted

parent-child disagreement on the child's depression symptoms. Fathers' depressive symptoms were a significant predictor, wherein fathers with higher depression symptoms disagreed more with their child on the child's depressive symptoms ($b = .42$, $SE = .21$, $t = 1.97$, $p = .05$, $R^2 = .09$). Father dysphoria ($b = -.37$, $SE = .28$, $t = -1.34$, $p = .18$, $R^2 = .09$) and well-being ($b = .05$, $SE = .06$, $t = .5$, $p = .62$, $R^2 = .09$) did not significantly predict levels of parent-child disagreement. Similarly, no significant results were found between parent-child depressive symptom disagreement and mother depression levels ($b = .06$, $SE = .19$, $t = .32$, $p = .75$, $R^2 = .04$), mother dysphoria ($b = .01$, $SE = .24$, $t = .04$, $p = .97$, $R^2 = .04$), or mother well-being ($b = -.06$, $SE = .1$, $t = -.58$, $p = .56$, $R^2 = .04$).

Next, two separate multiple linear regression analyses were conducted to determine whether mother and/or father autistic characteristics were predictors of parent-child disagreement regarding the child's depression symptoms. Results were not significant (Mother $b = .44$, $SE = .78$, $t = .57$, $p = .57$, $R^2 = .00$; Father $b = .91$, $SE = .77$, $t = 1.17$, $p = .24$, $R^2 = .12$).

Parent Factors Predicting Parent-Child Disagreement on Children's Anxiety Symptoms

To determine whether parents' autistic characteristics predicted parent-child disagreement about children's anxiety symptoms, a series of multiple linear regressions were performed. A significant result was found for father's autistic characteristics, ($b = 4.12$, $SE = 1.46$, $t = 2.82$, $p = .01$, $R^2 = .07$). Fathers with higher autistic symptom scores disagreed more with their child regarding the child's reported anxiety symptoms. There was no significant result when examining maternal autistic characteristics and parent-child disagreement, ($b = 1.04$, $SE = 1.46$, $t = .71$, $p = .48$, $R^2 = .00$). A multiple linear regression determined that parent mental well-being subscales did not significantly predict parent-child disagreement on the child's anxiety symptoms for mothers or fathers (Mother, see Table 1; Father, see Table 2).

Child Age or Gender Predicting Parent-Child Disagreement

A multiple linear regression suggested that child gender was a significant predictor of mother–child disagreement about the child's anxiety symptoms ($b = 5.04$, $SE= 2.37$, $t = 2.13$, $p =.04$, $R^2 = .04$). Mothers disagreed more with their daughters ($M = 16.82$) than their sons ($M = 11.81$). No significant result was found between child age and mother-child disagreement about the child's anxiety or depression (see Table 3 and Table 4). Similarly, no significant results were found between child age or gender and father-child disagreement about anxiety or depressive symptoms (see Table 5 and Table 6).

Discussion

The aim of the current study was to identify parent-level factors associated with levels of parent-child agreement about their autistic child's mental health symptoms. Although previous research has emphasized the parent-child relationship as a predictor of childhood mental health outcomes, most have focused on mothers rather than fathers. The current study found that father's levels of depressive symptoms and autistic characteristics predicted the amount of parent-child disagreement about the child's depressive and anxiety symptoms. Additionally, mothers disagreed significantly more with their daughters than their sons regarding the child's anxiety symptoms.

This study found that mothers and fathers agreed with their children at relatively similar rates across parent gender and child mental health symptoms. Approximately 60% of mother and father reports did not align with his or her child's report of anxiety or depressive symptoms in this study, which supports previous research looking at how well mothers align with their children's reports of emotional states in non-autistic samples (Durbin & Wilson, 2012). These statistics emphasize the discrepancy that is occurring between parents and their autistic children

regarding understanding the children's depressive and anxiety symptoms. Misinterpreting their child's mental well-being may lead to an inability to accurately assess the child's needs. Consequentially, children may miss out on appropriate opportunities for support or growth, which can be especially detrimental for individuals on the autism spectrum.

The first research question aimed to identify parent factors that may affect parent-child agreement about the child's depressive or anxiety symptoms. The results showed that as father's depressive symptoms increased, the father and the child disagreed more about the child's depressive symptoms. This suggests that fathers who are struggling with their own mental health may be less attuned to their child's emotional state. It is important to note that the current study did not identify higher depressive symptoms in mothers as a predictor of parent-child disagreement on the child's depressive symptoms. This is consistent with previous research examining the mothers of non-autistic families that found depressive symptoms do not impact mother sensitivity to her child's emotional well-being (Dau et al., 2019).

It is not well-defined why there is a difference between the significant impact of the father's depressive symptoms on the father-child agreement relationship, but the mother's depressive symptoms do not significantly predict the disagreement levels in the mother-child dyad. One possible explanation is that women may be predisposed to better identify nonverbal emotions in their children, making them more resilient to the effects of depressive symptoms on parenting sensitivity than men (Fischer et al., 2018). Based on these results, it is plausible that mental health factors not included in this research may also impact fathers' but not mothers' abilities to accurately assess their child's symptoms of depression, particularly within the autism community. Most research reports mothers' experiences, but the findings of the current study suggest that more researchers should include fathers due to the discrepant findings.

The current study also found that father's autistic characteristics were a significant predictor of parent-child disagreement regarding the child's anxiety symptoms. Specifically, fathers with higher autistic characteristics exhibited greater disagreement with their children. Based on previous research, this trend may occur because of deficiencies in social skills and interpersonal relations that often coincide with autism-related characteristics (Hirokawa et al., 2019). If the father and child are both struggling to identify and express their emotions, the fathers may be less aware of their child's current mental state. In addition, it is also possible that fathers with higher autistic characteristics may be less likely to seek out or try to understand the emotions of their children.

The current study did not identify an association between mothers' autistic scores and mother-child disagreement. One explanation may lay in the demographics of the fathers in our sample. The results showed that the fathers in this study had higher average scores on the BAP. This difference means that fathers displayed more autistic characteristics than mothers and therefore may have more difficulty with emotional recognition. The results could also be due to a bias in our sample as opposed to the parents' genders. Additionally, many of the fathers in this sample were the primary breadwinners, which may impact the time they have available to be with their children. The mothers may better understand their children's mental well-being due to more one-on-one time with their children and more interactions in various social settings outside of the home than fathers. Finally, the difference in how autism-related symptoms effect the mother-child dyad versus the father-child dyad may be due to gender variations in how autistic characteristics may be expressed in each parent. Previous research implies that autistic women may be better at compensating for their deficits in emotional recognition, leading them to be better than autistic men at identifying anxiety and depressive symptoms (Kothari et al., 2013).

Although maternal mental health did not predict levels of mother-child disagreement, which was partially consistent with hypotheses, there was a significant difference in mothers' disagreement with their daughters versus their sons. Specifically, mothers showed greater disagreement about their daughter's anxiety symptoms, but not their son's symptoms. This contradicts previous research that emphasizes mother-daughter emotional similarities, particularly in cortisol release and anxiety (Yamagata et al., 2016). Most past research was focused on non-autistic samples. Mothers and autistic daughters may disagree more in the current study due to the ability of autistic girls to mask their emotions better than autistic boys (Kothari et al., 2013). Mothers may be better at recognizing accurate levels of stress or sadness in their sons because autistic boys tend to be more externally expressive when they are experiencing discomfort than autistic girls. Unfortunately, the current study had a very limited number of girls in the sample. The trend between mothers and daughters may not be generalizable. For this reason, future research should re-examine the mother – autistic daughter disagreement levels with a larger sample size.

The findings of the current study are useful for clinicians and schools to support parents of autistic children. Although most parents aim to provide sensitive care for their children, the current study identified various factors that may hinder a mother's or father's ability to accurately assess their child's depressive and anxiety symptoms. For example, mothers who are parenting alongside a father who experiences depressive symptoms may need to be more attuned to her child's depressive symptoms because the father is likely to misinterpret their child's mental well-being. Similarly, mothers with a male partner on the autism spectrum may benefit from understanding their partners possible deficit in emotion recognition skills, especially when discussing differences in opinions regarding parenting choices and their child's needs. Fathers

may benefit from knowledge about their own tendencies, as well as the misalignment that may occur between mothers and autistic daughters. Each parent has potential to become more attuned to their child and each other, ultimately improving the home and family environment for their children.

This research may be used to help inform communities about the importance of seeking a professional opinion regarding a child's mental health. Empowering caregivers with insight about parent- autistic child dyads and how common disagreement about a child's mental health is among families, may help reduce the trends of suicidality, depression, and social isolation amongst autistic children.

Limitations and Future Directions

There are several limitations of the current study that warrant discussion and provide directions for future research. First, the characteristics of the sample limited generalizability. Most of the families were White, had college educated parents, and had a household income over $80,000. Expanding the sample to include families from varied socio-economic and cultural backgrounds may yield alternate trends because of racial and economic discrepancies that lead to patterns of less inclusive healthcare.

Research shows that ASD prevalence is consistent across economic class and racial groups, however White children living in higher socio-economic conditions are significantly more likely to receive early diagnoses and intervention than Black children, Latinx children, Asian children, or other White children in lower socio-economic groups (Aylward et al., 2021). Additionally, past research discovered that White, non-autistic children were twice as likely to receive psychiatric treatment than Latinx children (Rodgers et al., 2022). White youth also received significantly more outpatient mental health support than any other ethnic group in their

sample (Rodgers et al., 2022). All the current participants were living in a single metropolitan area. I predict that recruiting from an array of regions may help diversify the cultural and socio-economic backgrounds of the families, making the results more generalizable to a majority of the American autistic community.

More limitations exist within the recruitment process of the current sample. To qualify for the study, the mother, father, and child had to be present for an in-person assessment. This reduced the accessibility of the study for individuals with stricter work or homelife schedules. Additionally, the children could not be diagnosed with a co-occurring intellectual disability due to the nature of the child factor questionaries. Children with co-occurring intellectual disabilities may have greater difficulty identifying mental health symptoms or being able to communicate with their parents about their mental health struggles. Roughly 31% of autistic children experience co-occurring intellectual disabilities, and therefore should be considered in similar future research (Autism Speaks, 2023).

Finally, the current sample included mostly male children. As forementioned, male and female autistic children may express their emotions in vastly different fashions which can impact a parent's ability to accurately identify the child's mental state (Kothari et al., 2013). The current results may not be generalizable to predict disagreement about a daughter's anxiety levels in most mother-autistic daughter dyads. Including more girls in future samples is extremely important to fully investigate the gender differences between autistic sons and autistic daughters.

The current study focused on internalizing factors such as depression, anxiety, and mental well-being. It is well known that mothers tend to be the primary caregiver and therefore have higher involvement with their child's community systems- e.g., teachers, peers, siblings, therapists. Shifting the procedures to include assessments of externalizing factors, such as

classroom disruptiveness, may reveal that mothers were less affected by higher autistic characteristics and depressive symptoms when assessing their child's mental well-being because mothers tend to work more closely than fathers with the child's support groups. Including externalizing behaviors may also shift how much mothers and fathers agree with their children's reports. For example, a father may be better at identifying his child's observable meltdowns than his child's internal anxiety about going to school. I predict that assessing the child's externalized behaviors may result in more equal trends between mother-child and father-child reports because it removes the bias that women tend to be more apt at identifying nonverbal emotions (Fischer et al., 2018).

Comparing disagreement trends in mother-autistic child and father-autistic child dyads may be expanded to help understand future implications on childhood outcomes of parent-child agreement in autistic samples. A longitudinal study could identify agreement levels within the family dyads and follow these trends over many years. Although the current study did not find a significant association between child age and parent-child disagreement, an extended study may be useful to look at individual family factors. A new study could include marriage satisfaction, child externalized behaviors, or childhood achievements. Broadening the scope of research can help identify any potential interactions between parent-child disagreement levels and autistic children's long-term health and well-being outcomes.

References

Asano, R., Tsuchiya, K. J., Takei, N., Harada, T., Kugizaki, Y., Nakahara, R., Nakayasu, C.,

    Okumura, A., Suzuki, Y., Takagai, S., & Mori, N. (2014). Broader autism phenotype as a

    risk factor for postpartum depression: Hamamatsu birth cohort (HBC) study. *Research in*

    Autism Spectrum Disorders, *8*(12), 1672–1678. https://doi.org/10.1016/j.rasd.2014.08.010

Autism statistics and facts. Autism Speaks. (2023). Retrieved April 22, 2023, from

    https://www.autismspeaks.org/autism-statistics-

    asd#:~:text=Associated%20Challenges&text=autism%20are%20nonverbal.-

    ,31%25%20of%20children%20with%20ASD%20have%20an%20intellectual%20disability

    %20(intelligence,(IQ%2071%E2%80%9385).

Aylward, B. S., Gal-Szabo, D. E., & Taraman, S. (2021). Racial, ethnic, and sociodemographic

    disparities in diagnosis of children with autism spectrum disorder. *Journal of*

    Developmental & Behavioral Pediatrics, *42*(8), 682–689.

    https://doi.org/10.1097/dbp.0000000000000996

B.T. Dau, A. L., Callinan, L. S., & Smith, M. V. (2019). An examination of the impact of

    maternal fetal attachment, postpartum depressive symptoms and parenting stress on

    maternal sensitivity. *Infant Behavior and Development*, *54*, 99–107.

    https://doi.org/10.1016/j.infbeh.2019.01.001

Beck, A. T. (2001). *Cognitive therapy of depression*. Guilford Press.

BIRMAHER, B. O. R. I. S., BRENT, D. A. V. I. D. A., CHIAPPETTA, L. A. U. R. E. L.,

    BRIDGE, J. E. F. F. R. E. Y., MONGA, S. U. N. E. E. T. A., & BAUGHER, M. A. R. I. A.

    N. N. E. (1999). Psychometric Properties of the screen for child anxiety related emotional

    disorders (scared): A replication study. *Journal of the American Academy of Child &*

    Adolescent Psychiatry, *38*(10), 1230–1236. https://doi.org/10.1097/00004583-199910000-

    00011

BIRMAHER, B. O. R. I. S., KHETARPAL, S. U. N. E. E. T. A., BRENT, D. A. V. I. D.,

    CULLY, M. A. R. L. A. N. E., BALACH, L. I. S. A., KAUFMAN, J. O. A. N., & NEER,

    S. A. N. D. R. A. M. C. K. E. N. Z. I. E. (1997). The screen for child anxiety related

    emotional disorders (scared): Scale construction and psychometric characteristics. *Journal*

    of the American Academy of Child & Adolescent Psychiatry, *36*(4), 545–553.

    https://doi.org/10.1097/00004583-199704000-00018

Centers for Disease Control and Prevention. (2022, April 7). *Key findings: CDC releases first*

    estimates of the number of adults living with autism spectrum disorder in the United States.

    Centers for Disease Control and Prevention. Retrieved November 4, 2022, from

    https://www.cdc.gov/ncbddd/autism/features/adults-living-with-autism-spectrum-

    disorder.html

De-la-Iglesia, M., & Olivar, J.-S. (2015). Risk factors for depression in children and adolescents

    with high functioning autism spectrum disorders. *The Scientific World Journal*, *2015*, 1–

    17. https://doi.org/10.1155/2015/127853

Di Lorenzo, M. G., Bucsea, O., Rumeo, C., Waxman, J. A., Flora, D. B., Schmidt, L. A., & Riddell, R. P. (2022). Caregiver and young child biological attunement in distress contexts: A systematic review and narrative synthesis. *Neuroscience & Biobehavioral Reviews*, *132*, 1010–1036. https://doi.org/10.1016/j.neubiorev.2021.10.045

Durbin, C. E., & Wilson, S. (2012). Convergent validity of and bias in maternal reports of child emotion. *Psychological Assessment*, *24*(3), 647–660. https://doi.org/10.1037/a0026607

Fischer, A. H., Kret, M. E., & Broekens, J. (2018). Gender differences in emotion perception and self-reported emotional intelligence: A test of the emotion sensitivity hypothesis. *PLOS ONE*, *13*(1). https://doi.org/10.1371/journal.pone.0190712

Fraser, A., Cooper, M., Agha, S. S., Collishaw, S., Rice, F., Thapar, A., & Eyre, O. (2017). The presentation of depression symptoms in attention-deficit/hyperactivity disorder: Comparing child and parent reports. *Child and Adolescent Mental Health*, *23*(3), 243–250. https://doi.org/10.1111/camh.12253

Hedley, D., Uljarević, M., Foley, K.-R., Richdale, A., & Trollor, J. (2018). Risk and protective factors underlying depression and suicidal ideation in autism spectrum disorder. *Depression and Anxiety*, *35*(7), 648–657. https://doi.org/10.1002/da.22759

Hendrix, C. L., Stowe, Z. N., Newport, D. J., & Brennan, P. A. (2017). Physiological attunement in mother–infant dyads at Clinical High Risk: The influence of maternal depression and positive parenting. *Development and Psychopathology*, *30*(2), 623–634. https://doi.org/10.1017/s0954579417001158

Hirokawa, K., Kimura, T., Ikehara, S., Honjo, K., Sato, T., Ueda, K., & Iso, H. (2019).

Associations between broader autism phenotype (BAP) and maternal attachment are

moderated by maternal postpartum depression when infants are one month old: A

prospective study of the japan environment & children's study. *Journal of Affective

Disorders*, *243*, 485–493. https://doi.org/10.1016/j.jad.2018.09.060

Hurley, R. S., Losh, M., Parlier, M., Reznick, J. S., & Piven, J. (2006). The broad autism

phenotype questionnaire. *Journal of Autism and Developmental Disorders*, *37*(9), 1679–

1690. https://doi.org/10.1007/s10803-006-0299-3

Jansen, M., Bodden, D. H., Muris, P., van Doorn, M., & Granic, I. (2017). Measuring anxiety in

children: The importance of separate mother and father reports. *Child & Youth Care

Forum*, *46*(5), 643–659. https://doi.org/10.1007/s10566-017-9402-5

Kim, J. A., Szatmari, P., Bryson, S. E., Streiner, D. L., & Wilson, F. J. (2000). The prevalence of

anxiety and mood problems among children with autism and asperger syndrome. *Autism*,

4(2), 117–132. https://doi.org/10.1177/1362361300004002002

Kothari, R., Skuse, D., Wakefield, J., & Micali, N. (2013). Gender differences in the relationship

between Social Communication and emotion recognition. *Journal of the American

Academy of Child & Adolescent Psychiatry*, *52*(11).

https://doi.org/10.1016/j.jaac.2013.08.006

Kovacs, M. (1978). Children's Depression Inventory. *PsycTESTS Dataset*.

https://doi.org/10.1037/t00788-000

Lee, B., Park, H. I., & Park, S. (2022). Parent-adolescent vocational aspiration congruence and its relations with academic adjustment. *Journal of Youth and Adolescence*, *51*(7), 1374–1387. https://doi.org/10.1007/s10964-022-01598-1

Marcynyszyn, L. A., McCarty, C. A., Rivara, F. P., Johnson, A. M., Wang, J., & Zatzick, D. F. (2021). Parent traumatic events and adolescent internalizing symptoms: The mediating role of parental depression among youth with persistent post-concussive symptoms. *Journal of Pediatric Psychology*, *46*(5), 547–556. https://doi.org/10.1093/jpepsy/jsaa128

Miller, K. F., Borelli, J. L., & Margolin, G. (2017). Parent–child attunement moderates the prospective link between parental Overcontrol and adolescent adjustment. *Family Process*, *57*(3), 679–693. https://doi.org/10.1111/famp.12330

Munesue, T., Ono, Y., Mutoh, K., Shimoda, K., Nakatani, H., & Kikuchi, M. (2008). High prevalence of bipolar disorder comorbidity in adolescents and young adults with high-functioning autism spectrum disorder: A preliminary study of 44 outpatients. *Journal of Affective Disorders*, *111*(2-3), 170–175. https://doi.org/10.1016/j.jad.2008.02.015

Piven, J., & Palmer, P. (1999). Psychiatric disorder and the broad autism phenotype: Evidence from a family study of multiple-incidence autism families. *American Journal of Psychiatry*, *156*(4), 557–563. https://doi.org/10.1176/ajp.156.4.557

Posada, G., Kaloustian, G., Richmond, M. K., & Moreno, A. J. (2007). Maternal secure base support and preschoolers' secure base behavior in Natural Environments. *Attachment & Human Development*, *9*(4), 393–411. https://doi.org/10.1080/14616730701712316

Rodgers, C. R. R., Flores, M. W., Bassey, O., Augenblick, J. M., & Cook, B. L. (2022).

Racial/ethnic disparity trends in children's mental health care access and expenditures from

2010-2017: Disparities remain despite sweeping policy reform. *Journal of the American

Academy of Child & Adolescent Psychiatry*, *61*(7), 915–925.

https://doi.org/10.1016/j.jaac.2021.09.420

Rubenstein, E., & Chawla, D. (2018). Broader autism phenotype in parents of children with

autism: A systematic review of percentage estimates. *Journal of Child and Family Studies*,

27(6), 1705–1720. https://doi.org/10.1007/s10826-018-1026-3

Rutter, M., Kreppner, J., & Sonuga-Barke, E. (2009). Emanuel Miller lecture: Attachment

insecurity, disinhibited attachment, and attachment disorders: Where do research findings

leave the concepts? *Journal of Child Psychology and Psychiatry*, *50*(5), 529–543.

https://doi.org/10.1111/j.1469-7610.2009.02042.x

Simonoff, E., Pickles, A., Charman, T., Chandler, S., Loucas, T., & Baird, G. (2008). Psychiatric

disorders in children with autism spectrum disorders: Prevalence, comorbidity, and

associated factors in a population-derived sample. *Journal of the American Academy of

Child & Adolescent Psychiatry*, *47*(8), 921–929.

https://doi.org/10.1097/chi.0b013e318179964f

van Steijn, D. J., Oerlemans, A. M., van Aken, M. A., Buitelaar, J. K., & Rommelse, N. N.

(2013). The reciprocal relationship of ASD, ADHD, depressive symptoms and stress in

parents of children with ASD and/or ADHD. *Journal of Autism and Developmental

Disorders*, *44*(5), 1064–1076. https://doi.org/10.1007/s10803-013-1958-9

Wierzbicki, M. (1987). A parent form of the children's Depression inventory: Reliability and

validity in nonclinical populations. *Journal of Clinical Psychology*, *43*(4), 390–397.

https://doi.org/10.1002/1097-4679(198707)43:4<390::aid-jclp2270430409>3.0.co;2-s

Table 1

Mother Well-Being Predicting Mother-Child Disagreement on Anxiety Symptoms

	B	*SE*	*p*
Intercept	6.38	9.10	.49
Mother Dysphoria	-.25	.45	.58
Mother Depression	.33	.35	.34
Mother Well-Being	-.05	.19	.81

Table 2

Father Well-Being Predicting Father-Child Disagreement on Anxiety Symptoms

	B	SE	p
Intercept	20.11	9.63	.04
Father Dysphoria	.06	.56	.91
Father Depression	-.09	.43	.84
Father Well-Being	-.23	.21	.26

Table 3

Child Age and Gender Predicting Mother-Child Disagreement on Anxiety Symptoms

	B	*SE*	*p*
Intercept	8.04	6.15	.19
Child Age	-.01	.04	.82
Child Gender	5.04	2.37	.04

Table 4

Child Age and Gender Predicting Mother-Child Disagreement on Depression Symptoms

	B	*SE*	*p*
Intercept	11.34	3.34	.00
Child Age	-.01	.02	.5
Child Gender	-1.03	1.29	.42

Table 5

Child Age and Gender Predicting Father-Child Disagreement on Anxiety Symptoms

	B	*SE*	*p*
Intercept	6.74	6.49	.3
Child Age	.01	.04	.86
Child Gender	3.58	2.5	.15

Table 6

Child Age and Gender Predicting Father-Child Disagreement on Depression Symptoms

	B	SE	p
Intercept	8.12	3.34	.02
Child Age	.01	.02	.56
Child Gender	-2.2	1.29	.09