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MARTIAL ADJUSTMENT IN PARENTS OF MULTIPLE CHILDREN WITH AUTISM
SPECTRUM DISORDERS

by

RACHEL ADELE MILLS
B.S. The Ohio State University, 2012

A thesis submitted in partial fulfillment of the requirements
for the degree of Master of Arts
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in the College of Sciences
at the University of Central Florida
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ABSTRACT

The current study investigated the relationship between raising multiple children with Autism Spectrum Disorders (ASD) and marital adjustment and whether perceived social support moderates this relationship. The sample ($n = 115$) consisted of 77 parents of a single child diagnosed with an ASD and 44 parents of 2 or more children diagnosed with an ASD. There was no significant difference in marital adjustment between the parents of single versus multiple children with ASDs and no significant relationship between number of children with an ASD within a family and marital adjustment. Although the main hypotheses were not supported, data from experimental questions indicated that a majority of participants believed their marriage was affected by their child's ASD diagnosis and most rated this effect negatively. Further, for parents of multiple children with ASDs, the rating of degree of impact upon their marital relationship after the first diagnosis was significantly positively related to their marital impact rating following the second diagnosis, suggesting that parents who view the effects of the first diagnosis as negative are likely to view the effects of the second diagnosis negatively as well. Since there was no a significant relationship between number of children with and ASD and marital adjustment, social support was not tested as a moderator. However, there was a significant positive relationship between dyadic adjustment and perceived social support. Further research examining the effects of parenting multiple children with ASDs is warranted.

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LIST OF ACRONYMS/ABBREVIATIONS

ADDM	Autism and Developmental Disability Monitoring
ASD	Autism Spectrum Disorder
CARD	The University of Central Center for Autism Related Disabilities
CDC	Center for Disease Control and Prevention
DAS	Dyadic Adjustment Scale
DSM	Diagnostic and Statistical Manual of Mental Disorders
FAC	Florida Autism Center
DAS	Dyadic Adjustment Scale
ISSB	Inventory of Social Supportive Behaviors

INTRODUCTION

Autism Spectrum Disorders (ASDs) are now the second most prevalent developmental disability for children within the United States (Newschaffer et al., 2007). The service needs for individuals with ASDs and the potential loss of productivity of persons with autism and their families have strong implications for society as annual financial costs are estimated to exceed \$35 billion (Ganz, 2006). Fortunately, research supports that early diagnosis and intervention can assist in fostering the mastery of many adaptive skills and behaviors in children with ASD and ultimately result in these children learning to become productive citizens, which greatly benefits society as a whole (Carothers & Taylor, 2004). Parents and families play integral parts in children's development into productive citizens, as parents are responsible for providing their children with opportunities to learn and grow. However, the responsibilities associated with being a parent or family member of a child with an ASD does not come easily as the behavioral challenges and social communication deficits that characterize ASD often are correlated with increased financial and emotional burden on the entire family (Järbink et al, 2003). These emotional and financial burdens can inhibit parents and families from effectively helping their children with ASDs and could lead to significant stress and fractured family relationships. For these reasons, it is paramount that research investigates and addresses the possible stressors and challenges these families face so that appropriate interventions can be developed and children with ASDs have the best chance for developing into productive citizens. Over the past decade, there has been an increase in the number of children diagnosed with an Autism Spectrum Disorder (ASD). According to The Center for Disease Control and Prevention (2012), approximately 24,000 children born this year will be diagnosed with an ASD and 1 in every 68

children is diagnosed with an ASD. The prevalence rate for males is significantly higher than females, with the number of males (1 in every 42 boys) being diagnosed almost 5 times higher than that of females (1 in 189 girls) (CDC, 2014).

In addition to prevalence of Autism Spectrum Disorders increasing, the recurrence risk, the chance that each sibling born after an autistic child will develop autism, also has also increased. Previously thought to be between 3-10%, a recent study found that the rate of recurrence within a family is now 18.7%. The presence of one or more older siblings with an ASD significantly predicts recurrence, and the rate of recurrence increases fivefold if the older affected sibling is male (Ozonoff et al., 2011). Researchers have noted that having a sibling diagnosed with an ASD is the greatest risk factor for developing an ASD; in fact, Fombonne (2009) found that having an affected sibling increased the risk 22-fold.

From a genetic perspective, one of the first and most widely cited twin studies reported a 92% concordance for monozygotic (MZ) twins and only a 10% concordance rate for dizygotic (DZ) twins (Bailey et al., 1995). A 2009 follow-up study also supported greater ASD concordance in MZ (88%) versus DZ twins (31%) (Rosenberg et al., 2009). These findings have been further replicated in a series of twin studies demonstrating that in identical twins, if one child has an ASD, the other is found to also have an ASD about 36-95% of the time. In fraternal twins, the other is afflicted between 0-31% of the time (Hallmeyer et al., 2011; Ronald et al., 2006; Rosenberg et al., 2009; Taniai et al., 2008).

In the following paragraphs a review of the literature is presented. The literature review begins with an examination of ASD diagnostic criteria and epidemiological findings over the past decade. Next, an overview of the literature on quality of dyadic adjustment in ASD parents

and the potential moderating influence of perceived social support is presented. Finally, a rationale for studying quality of dyadic adjustment in parents of multiple children with Autism is presented.

The Autism Spectrum Disorders

As of 2013, the American Psychiatric Association revised the diagnostic criteria of the Autism Spectrum Disorders as reflected in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). Unlike the previous edition of the DSM (the DSM IV-TR), this edition classifies Autistic Disorder, Asperger's Disorder, Childhood Disintegrative Disorder, and Pervasive Developmental Disorder- Not Otherwise Specified as one diagnosis. As a result of unifying the former four separate disorders as now one disorder, the symptoms are conceptualized as a continuum.

In addition to combining the disorders into a single continuum, the DSM-5 diagnostic criteria have been rearranged from three areas (social reciprocity, communicative intent, and restricted and repetitive behaviors) to two areas: social communication / interaction and restricted and repetitive behaviors. Additionally, in order to increase early detection and intervention, the symptoms must be present beginning in early childhood; however, symptoms may not be detected until the demands exceed a child's capacities (Hyman, 2013).

Symptoms relating to deficits in social communication / interaction include: deficits in reciprocating social or emotion interaction, problems in nonverbal behaviors necessary for social interaction; such as eye contact and lack of understanding of facial expressions, and difficulties in developing and maintaining social relationship; characterized by deficits in theory of mind, understanding the perspective of others, and absence of interest in others. The diagnostic

category of restricted and repetitive behaviors is represented by stereotyped or repetitive speech, motor movements, or uses of objects; excessive adherence to routines and excessive resistance to change; highly restricted, fixated interests held with abnormal intensity; and hyper-or-hypo reactivity to sensory inputs including high pain tolerance, odd responses to sensory input and extreme fascination with sensory stimuli in the environment (APA, 2013).

All of the above symptoms must be found to limit and impair functioning. Another new addition in the DSM-5 is severity rating of the symptoms. The levels are based upon level of support required for the symptom category. There are three levels: Level 3 defined by “requiring very substantial support;” Level 2 “requiring substantial support;” and Level 1 “requiring support.”

The current prevalence of ASDs is reported to be 1 per 68 children, with 24,000 children receiving an ASD diagnosis each year (CDC, 2014). This prevalence rate reflects a drastic increase in prevalence from the first epidemiological study of ASD in 1966, which estimated the prevalence to be 4.5 per 10,000 (Lotter, 1966). A more recent epidemiological study from the CDC (2014) has examined the change in prevalence rates over the past decade. Prevalence rates were surveyed at 11 different Autism and Developmental Disability Monitoring (ADDM) sites across the United States. At these ADDM sites, the prevalence rate of ASDs and characteristics of children aged 8 years (age 8 was chosen as previous research by the CDC indicated that 8 years of age was the peak year of prevalence) were surveyed for the 2010 surveillance year. In comparison to the last surveillance year (2008), there was a 29% increase in prevalence estimates (from 11.3-14.7 per 1,000; one in 88 to one in 68) (CDC, 2014), illustrating a dramatic increase in the prevalence of families experiencing Autism. In reflecting upon comparisons between the

2010 year to past surveillance periods, there has been a 64% increase since 2006 (from 9.0 -14.7 in 1,000; one in 110 to one in 68) and a 123% increase from 2002 (from 6.4-14/7 per 1,000 children; one in 150 to one in 68). With such a profound increase in the prevalence of ASD, research cannot ignore the realities accompanying this diagnosis that these children and families face; thus it is imperative for researchers to understand the stressors associated with ASDs and how they impact families.

Parenting Stress

While all families experience stressors and difficulties, issues are intensified when a child has a disability (Harris, 1986). Parents of children with disabilities report higher levels of parenting stress than parents of neurotypical children (Hodapp, Ricci, Ly, & Fidler, 2003; Johnson et al., 2003; Pisula, 2007). In one study, over 40% of parents of children with developmental delays scored above the 85th percentile on the Parenting Stress Index (Abidin, 1995), demonstrating clinically significant parenting stress (Webster, Majnemer, Platt, & Shevell, 2008).

Parents of children with ASDs have reported higher levels of stress than parents of children with other developmental and psychiatric disabilities (Eisenhower et al., 2005; Fisman et al. 2000; Hastings et al. 2005; Pisula, 2007). In comparison to parents of children with other developmental disabilities including cerebral palsy, and mental retardation; parents of children with ASDs indicate lower quality of life ratings (Mugno, Ruta, D'Arrigo, & Mazzone, 2007). In fact, Autism Spectrum Disorders are considered to be the most stressful of the developmental disorders for parents (Gray, 2000). As the primary caregivers, parents are typically the family

members most affected by the child's disorder. Their lowered quality of life can lead to more depression, anger, anxiety, and marital discord (Bailey, Higgins, & Pearce, 2005).

Research has demonstrated that many individuals with ASDs engage in behaviors and repertoires and have significant impairments that impact immediate family members and evoke a unique set of stressors and challenges (Plumb, 2011). These behavior problems, particularly externalizing behaviors, have been shown to be negatively associated with overall family functioning (Sikora et al., 2013). In fact, parents have described their child's maladaptive behaviors as a primary source of parental stress (Hall & Graff, 2010). In specifically addressing the impact of the child's behavior, higher frequency and severity of behavior was associated with decreased levels of parental well-being (Allik, Larsson, & Smedie, 2006). Similar findings by Rezendes and Scarpa (2011) indicated that increases in problem behaviors of children with ASDs positively correlate with not only higher levels of parental stress, but also higher levels of parental anxiety and depression. In a follow-up study, Hall and Graff (2011) found the association between low adaptive functioning in children with ASDs and increased parental stress with a need for additional support resources.

Another struggle for parents of children with ASDs is the chronic nature and permanency of the stress they face. Specifically, ASD parents describe themselves as "burned out," "exhausted," "stressed out," and "at their wits end" 24 hours a day, 365 days a year due to extensive caregiving responsibilities (Doig, McLennan, & Urichuk, 2009). Parenting stress for this population typically results from three primary sources: (1) ASD characteristics and behavior problems; (2) Lack of professional, educational, and support resources; and (3) negative

social attitudes towards ASDs and lack of understanding and empathy for the problems they face (Pisula, 2007).

Research has shown that having a child with an ASD results in elevated stress levels for both mothers and fathers (Brobst, Clopton, & Hendrick, 2009; Davis & Carter, 2008; Rao & Beidel, 2009), but several studies have indicated they may not be equally impacted. Mothers, in particular, reported significantly higher levels of stress and overall lower levels of well-being than parents of neurotypical children and parents of children with other disabilities (Meadan, Halle, & Ebata, 2010). Studies have shown that mothers report more anxiety and negative outcomes in comparison to fathers (Hastings, 2003). Similarly, mothers report greater caregiving burden when compared to fathers, as they are reportedly significantly more involved and stressed by caregiving responsibilities (Teehee, Honan, & Hevey, 2009). In comparing the involvement of mothers and fathers of children with ASDs to those with mental delays, researchers found that across all groups mothers were more involved than fathers in regard to caregiving; however, upon examining the amount of involvement between the groups, the study found that mothers of children with ASDs had more contact than mothers of children with mental delays (Konstantareas & Homatidis, 1992).

The literature has specifically addressed gender differences in stress and coping. One study indicated that social support systems were more likely to revolve around the mother than the father (Tunali, 2002). In regards to coping style and cognitive evaluations, Grey (2003) identified a gender difference in coping styles in that mothers experienced the effects and stresses of having a child with an ASD directly and were considerably affected by their child's symptoms and disorder while fathers claimed the effect to be indirect, as they reportedly

experience a majority of their stress through their partners. Overall, the majority of stress experienced by mothers was related to domestic caregiving responsibilities; in contrast to fathers whose burden focused mostly on economic responsibilities (Grey, 2003). Similar gender effects have been noted relating to stress levels as mothers consistently report higher stress levels than fathers (Sharpley & Bitsika, 1997).

It is important to note that, although there is a trend toward increased stress for parents of children with ASDs, not all parents report higher stress or negative parenting evaluations and some parents describe their experiences raising a child with an ASD as positive (Hutton & Caron, 2005). Overall, it is the parents' perceptions of the stressors that are key to understanding outcomes. The more severe the parents perceive their child's disability, the more distress they report (Perry, Harris, & Minnes, 2005).

Quality Of Dyadic Adjustment

The increase in prevalence of ASD has been accompanied by a proliferation of interest in the prevalence rates of marital maladjustment and divorce in families with ASD children. Only a few studies have investigated the relationship between having a child with an ASD and dyadic adjustment. Much of this research appears inconclusive and shows conflicted findings regarding the impact of having an ASD child upon relationship quality/status. Some research has indicated lower marital quality among these parents, while other research has shown no difference in comparison to the general population.

Research on the effects of ASDs on the marital relationship of the caregiver(s) is quite limited in comparison to the abundant research regarding marital status of parents of children diagnosed with other disorders. Findings indicate that parents of children with Down Syndrome

(Urbano & Hodapp, 2007), Oppositional Defiant Disorder and Conduct Disorder (e.g., Wymbs, Pelham, Molina, Gnagy, Wilson, & Greenhouse, 2008), Cerebral Palsy, (Joesch & Smith, 1997), and Attention Deficit Hyperactivity Disorder (Brown & Pacinin, 1989) have higher levels of marital maladjustment and divorce than parents of neurotypical children. When comparing mothers of typically developing children with mothers of children with Down syndrome and ASDs, the mothers of the ASD children reported lower marital satisfaction (Rodrigue, Morgan & Geffken, 1990). In differentially examining parents of children with and without ASDs, findings revealed that couples with a child with an ASD experience more marital dissatisfaction than parents without a child with a developmental disability. But, the findings also showed no difference in perceived spousal support or level of relationship commitment (Brobst et al., 2009)

With regard to the studies specifically addressing ASD parents, many have reported a negative impact upon parents' marital satisfaction. Caregivers of ASD children report lower marital satisfaction as well as lower levels of family cohesion and family adaptability (Higgins, Bailey, & Pearce, 2005). In addition to lower marital satisfactions, research shows ASD parents have more variance in their level of marital satisfaction than parents of neurotypical children (Lee, 2009). Consistent with these findings, ASD parents also reported lower levels of dyadic consensus (Gau, Chou, & Chiang, 2012; Oelofsen & Richardson, 2006). Positive effects can also result from the marital relationship, in that parents who report higher levels of support within the marriage also report higher levels of family adaptability and higher levels of life satisfaction (Dunn, Burbine, Bowers, & Tantleff-Dunn, 2001).

Research also has shown a relationship between marital quality and overall adjustment and well-being in both parents of typical children and children with ASDs. The existent literature

has evidenced a potential gender bias between the marital adjustment of mothers and fathers. In a longitudinal study of ASD families, marital quality was found to negatively predict maternal depression and positively predict parenting efficacy and well-being (Benson & Kersh, 2011). Findings demonstrate that mothers of children with ASDs experience more marital maladjustment and psychopathology than fathers (Gau et al., 2012).

Studies have shown that parents of children with ASDs experience decreased levels of intimacy (Fisman, Wolf, & Noh, 1989). A 2012 study investigated the difficulties in intimacy experienced by parents of ASD children through focus groups and face-to-face interviews. Researchers found a negative correlation between stressors of having a child with an ASD and the couples' sex life. Their findings also suggested that mothers took on the majority of the caretaking responsibilities; subsequently leaving a lack of time for interaction and sexual relations with their husbands (Aylaz, Yilmaz, & Polat, 2012).

It is important to also highlight that not all studies have concluded that having a child with an ASD negatively impacts the parents' quality of marriage. In fact, in some studies, parents report that having a child with an ASD strengthened their marriage and brought them closer together with their spouse (Altiere & Von Kluge, 2009; Bayat, 2007). An early study found no differences in dyadic adjustment between ASD parents and parents of typical children (Koegel, Schreibman, O'Neill, & Burke, 1983). Qualitative analyses demonstrate that relationship strain may only be found in 15% of ASD parents, thus implying that 85% of ASD parents are not negatively impacted by their child (Myers, Mackintosh, & Goin-Kochel, 2009). Hock, Timm, and Ramisch's (2011) study conceptualizes that having a child with an ASD as a crucible for the parents' relationship in that ASD exerts extraordinary pressure on partners. In their model

parents are believed to move through phases over time: first from the “crucible stage” of adjusting to the child’s disorder, to the “tag team” phase where the primary focus is on parenting with a degree of conflict and distance, to the final “deeper intimacy and commitment” stage in which the couple begins to focus back upon their relationship and grow closer together (Hock, Timm, & Ramisch, 2011).

The literature specific to the divorce rate of ASD parents is scarce. To date only a handful of studies have empirically investigated the prevalence of divorce in ASD parents. Of these studies, the findings differ vastly. In the media, the most popularly cited statistic, which lacks both epidemiological and empirical support, is an 80 +% divorce rate (Freedman, Kalb, Zablotzky, & Stuart, 2011; Lofholm, 2008; Mitchell, 2006; Winfrey, 2007). Hartley et al. (2010) examined the marriage and divorce history of 391 families with a child with an ASD in a 7-year longitudinal study. Their data were matched to a normative sample of parents of same age neurotypical peers and analyses revealed that the parents of children with ASDs had a significantly higher divorce rate of 23.5% in comparison to the 13.81% normative rate.

In contrast, one of the earliest studies on divorce prevalence rates in ASD parents found ASD families in Indiana had a divorce rate of 26%; a rate considerably lower than the state divorce rate of 40.3% (DeMayer & Golderberg, 1983). Likewise, a large-scale study sought to debunk the exaggerated and disparate divorce rate claims. The researchers examined data from the 2007 National Survey of Children’s Health (included 913 ASD participants) and found that, after controlling for relevant covariates, there was no evidence to support the idea that children with ASDs are more likely to have divorced parents (Freedman et al., 2012). However, to date, none of the studies on dyadic neither adjustment nor divorce prevalence in parents of children

with ASDs have specifically investigated the correlation between divorce rates and number of ASD children within the family.

There is a large amount of variance in the impact of having a child with an ASD upon dyadic adjustment. In addressing the discrepancies in these studies' findings, it is important to recall that parents' perceptions of their child's disorder and associated stressors are highly correlated with parents' perceived distress. Given that all parents have their unique perspective of their child's disorder, and that perception may fluctuate, it is not surprising that both positive and negative outcomes have been reported. Although some variance in parents' experience is expected, further empirical studies are needed in order to untangle and more clearly illustrate the relationship between having a child with Autism and dyadic adjustment. Moreover, research has yet to examine whether current findings apply to parents of multiple children with Autism. Autism affects more than just the afflicted child, thus the need exists for the development of interventions and support for all family members, (Higgins, Bailey, & Pearce, 2005).

Social Support

As a result of research findings that highlight the potential negative impact on families of children with ASD, there has been growing acknowledgment that interventions are also needed for the family as whole, instead of treating only the child with an ASD. Of the interventions aimed towards parents and families of children with ASDs, an increasing amount of empirical studies have recognized the merits of interventions based on social support (Meaden et al., 2010). Social support positively affects health, both emotionally and physically (Cohen & Willis, 1985; Pearlin, 1989; Thoits, 1995; Thoits, 2011). With specific regard to parents of children with disabilities, social support is defined as physical assistance, aide in communication, emotional

and psychological support, and the sharing of information and resources (Dunst, Trivette, & Cross, 1986).

There has been disparity within research addressing which forms of social support ASD parents report as most helpful. Several studies identified spousal support as the most important form of social support (Bristol, 1984; Hall & Graff, 2011; Herman & Thompson, 1995). Both Bristol (1984) and Hall and Graff (2011) found results that supported a hierarchy of support effectiveness. Bristol (1984) found that spousal support was ranked as most important followed by support from the mother's relatives, and then other parents of ASD children. Likewise, Hall and Graff (2011) found that spousal support was regarded as most helpful, followed by informal kinship, including friends and other ASD parents. Social organizations, including parental groups, school, and social clubs, were viewed as least helpful. In contrast, other studies have reported that support from parents of other ASD parents (Mackintosh, Meyers, & Goin-Kochel, 2006) and support from professionals providing services for their afflicted child(ren) (Siklos & Kerns, 2006) were the most important forms of social support. Discrepancies in ratings of helpfulness may be the result of differential availability and actual utilization of the supports among the studies' participants. A significant number of ASD parents reported that more formal supports are frequently unavailable and not easily accessible (Herman & Thompson, 1995). In a more recent study, nearly all parents indicated that they did not receive enough social support and wanted more (Samadi, McConkey, & Kelly, 2012).

Greater satisfaction with social support was noted to lead to more positive outcomes for ASD parents (Dunst, Trivette, & Cross, 1986; Tobing & Glenwick, 2006). Dunst et al. (1986) utilized a sample of 137 parents of children with developmental disabilities and examined the

mediating impact of social support. Parents who reported feeling satisfied with their social support networks reported greater overall well-being, increased positive perceptions about their child, higher frequency of positive interactions with their child, and higher scores on their child's developmental assessments. A later study confirmed these findings and also demonstrated that higher satisfaction with social support was significantly related to decreased psychological distress (Tobing & Glenwick, 2006). Although ample research has not been conducted on the importance of parental satisfaction with social support, these findings give credence to the idea that social support alone is not sufficient; parents must also perceive them as helpful and satisfying.

Adequate levels of social support can mitigate potential negative effects and result in a wide range of positive outcomes for ASD parents. Of those outcomes, several studies have reported a relationship between social support and levels of depressive symptoms / negative mood (e. g., Benson, 2006; Benson & Karlof, 2009; Boyd, 2002; Bristol, 1984; Dunn et al., 2001; Ekas, Lickenborck, & Whitman, 2010; Gray & Holden, 1992; Pottie, Cohen, & Ingram, 2009; Weiss, 2002). An early study by Bristol (1994) noted that perceived social support was significantly related to decreased maternal depression as well as increased marital satisfaction. A later study replicated this finding between perceived social support and maternal depression and in addition showed that presence and utilization of a social support network led to decreased stress and anxiety levels (Dunn et al., 2001). Boyd (2002) found similar findings in that levels of maternal depression and anxiety were most significantly predicted by decreased amounts of social support. Two follow-up studies confirmed the negative relationship between social support and maternal depression (Ekas et al., 2010; Weiss, 2002). The inverse relationship between

social support and depressive symptomology was also found in studies that examined both mothers and fathers (Benson, 2006; Benson & Karlof, 2009; Gray & Holden, 1992; Pottie et al., 2009). Benson (2006) specifically reported that it was support from family members and friends that significantly decreased levels of depression in ASD parents.

Decreased levels of stress have also been found to correlate with higher amounts of social support (Hadadian, 1994). More specifically, of the studies examining the relationship between social support and stress, several found that parents who reported higher levels of social support reported lower levels of parenting stress (Ekas et al., 2010; Siklos & Kerns, 2006; Turnbull, Turnbull, Erwin, & Soodak, 2006). Researchers specifically investigated the influence of social support upon psychological distress in ASD parents and found a similar negative relationship between social support and stress in general. Furthermore, mothers of ASD children that perceived higher levels of social support were more likely to exhibit more effective coping skills (Donovan, 1988).

Positive outcomes associated with increased levels of social support include increased life satisfaction as well as overall well-being. In examining the well-being of ASD parents more precisely, a significant positive correlation was found to exist between social support and psychological well-being (Ekas et al., 2010; King, King, Rosenbaum, & Goffin, 1999). Likewise, a similar positive correlation was noted between general well-being and levels of perceived social support in mothers and fathers of ASD parents (Siklos & Kerns, 2006; Turnbull et al., 2006). Ekas et al. (2010) specifically examined the influence of social support upon life satisfaction in mothers. These researchers found a positive relationship congruent with the aforementioned studies on well-being. With regards to both mothers and fathers, the findings

specific to mothers were found to generalize to fathers; parents who reported higher levels of social support also reported higher levels of life satisfaction (Dunn et al., 2001).

Despite research highlighting that interventions based upon increasing social support have merit for ASD parents, these services are not always easily accessible. Paucity of available interventions and supports is particularly troublesome as researchers note that parents of children with ASDs endure a significant amount of psychological stress secondary to lack of support and resources (Bromley, Hare, Davidson, & Emerson, 2004). It is clear that lack of available resources increases the stress that parents, who already experience high levels of daily stressors, endure. Thus, it is important for parents of children with ASDs to have interventions and supports that are both effective and accessible. Furthermore, no empirical studies have specifically investigated whether existing findings related to social support generalize to parents of multiple children with ASDs; nor have they examined their perceptions of social support based interventions and related outcomes. Thus, the present study seeks to fill this gap in the literature and investigate the moderating influence of perceived social support in parents of multiple ASD children.

Statement of Significance

Given the rapidly rising prevalence of children being diagnosed with ASDs and the increasing rate of recurrence (i.e., the chance that each sibling born after an autistic child will develop autism), it has become even more important to examine the well-being and adjustment of not only child(ren) with the diagnosis, but also their parents and other family members. The literature indicates that having a child with an ASD can result in a set of unique stressors that impact all areas of the parents' lives; specifically resulting in decreased quality of marital

adjustment, increased parenting stress, and lower overall levels of well-being. Previous research has demonstrated that the primary causes of the stressors are lack of support (both informal and formal), and lack of understanding and empathy for the problems they face. Higher levels of perceived social support are significantly associated with reduced levels of maternal stress and overall increased life satisfaction for both parents. Yet these findings have not been examined specifically with parents of multiple children with ASD.

To date there has been no research directed towards specifically addressing the unique needs and stressors, nor possible interventions, for parents of multiple children with ASD. The current study sought to fill this important gap in the literature by examining the potential relationships between number of children diagnosed with an ASD, within a family, quality of marriage, and the moderating role of perceived social support. Such knowledge is needed for researchers and clinicians to better understand the needs of this population so that they may develop and provide appropriate treatment interventions that foster the highest quality of life possible for all members of these families.

Hypotheses

It was hypothesized that:

1. Parents with two or more children with ASDs would report lower quality of dyadic adjustment than parents of a single child with an ASD.
2. The number of children diagnosed with an Autism Spectrum Disorder within a family would be negatively related to the quality of dyadic adjustment.
3. Perceived social support would moderate the relationship between number of ASD children and quality of dyadic adjustment.

METHOD

Participants

The sample ($n = 115$) consisted of 77 parents of a single child diagnosed with an ASD and 44 parents of two or more children diagnosed with an ASD. Demographic data on the participants are presented in Table 1. Participants had to meet the following criteria in order to qualify for participation: they had to be a biological parent, adoptive parent, stepparent or legal guardian of the child; and the child must be diagnosed with an Autism Spectrum Disorder including Autistic Disorder, Asperger's Disorder and Pervasive Developmental Disorder- Not Otherwise Specified by a medical doctor or psychiatrist, psychologist, or licensed professional from a school or mental health agency.

The participants were recruited from the University of Central Florida Center for Autism Related Disabilities (CARD) ($n = 24, 20.9\%$), Florida Autism Center ($n = 10, 8.7\%$), Autism Speaks ($n = 5, 4.3\%$), Facebook-based Autism support groups ($n = 60, 52.2\%$), Yahoo Autism List-servs ($n = 8, 7.0\%$), and other referral sources ($n = 8, 7.0\%$). Participants recruited from UCF CARD and Florida Autism Center were invited to participate via an email blast and through the organization's social media networks (e.g., their Facebook pages). Those recruited from Autism Speaks were notified of the opportunity to participate in the study posted on their, "Family Participation in Research Studies Web Listing."

As an incentive to encourage parents to participate in the study, all participants had the option to have a \$1 donation made on their behalf to UCF CARD, Florida Autism Center, or Autism Speaks following completion of the study.

Materials

Participants completed all assessment questionnaires online via Qualtrics. The assessments for this study consisted of an informed consent, demographic questionnaire, *Dyadic Adjustment Scale* (DAS; Spanier, 1976), the *Inventory of Socially Supportive Behaviors* (ISSB; Barrera, Sandler, & Ramsay, 1981), and four experimental questions. Participants took, on average, 16 minutes to complete all materials.

Informed consent. Participants were provided an informed consent, which provided information about the purpose of the study as well as the potential risks and benefits. Participants also had the opportunity to refuse to participate in the study at any time if they so chose.

Demographic questionnaire (Appendix A). The participants then completed a demographic questionnaire. The questionnaire consisted of information regarding the parent, including age, marital status, household size, annual household income, level of education, and ethnicity. The questionnaire also included questions about the child, including age, gender, and age at diagnosis. This information was used as descriptive demographic information about the sample.

Dyadic Adjustment Scale (DAS) (Appendix B). The Dyadic Adjustment Scale assesses the quality of adjustment in marital and other similar relationships (Spanier, 1976). This scale has been widely adopted since its publication and is regarded as the most utilized measure of marital adjustment (Spanier & Thompson, 1982). The DAS consists of 32 self-report items regarding various relationship issues. Participants respond on a 5-7 point Likert Scale to indicate their level of agreement/disagreement. The 32-items comprise four subscales: Dyadic Consensus (e.g., “Religious matters” and “Making major decisions.”), Dyadic Satisfaction (e.g., “Do you

ever regret that you married?” and “Do you confide in your mate?”), Dyadic Cohesion (e.g., “Laugh together” and “Calmly discuss something”), and Affectional Expression (e.g., “Demonstrations of affection” and “Sex relations.”)

Although Spanier (1976) advocates using the individual subscales to assess the quality of the relationship, the DAS is typically evaluated with a total score assessing overall quality of the marital relationship. Higher overall scores demonstrate a perception of higher quality of the relationship. A T-score of less than 30 on a subscale or an overall score of less than 100 indicates a clinically significant level of marital maladjustment. The scale was developed and normed using a sample of 218 married individuals, and 94 divorced individuals. Only questions which were significantly different at the .001 level between married and divorced respondents were included in the final development of the scale. High reliability has been demonstrated for the overall scale; total scale reliability $\alpha = .96$ and subscale reliability ranging from $\alpha = .73$ to $.94$ (Spanier, 1976). High construct validity was established by demonstrating high correlation with the Locke-Wallace Marital Adjustment Scale, another widely used marital adjustment scale (.86 for married individuals and .88 for divorced individuals) (Spanier, 1976).

Inventory of Socially Supportive Behaviors (ISSB) (Appendix D). The Inventory of Socially Supportive Behaviors assesses the how often parents received various forms of social support (emotional support and tangible support) throughout the preceding month (Barrera, Sandler, & Ramsey, 1981). Emotional support is defined by an individual’s perception of feeling loved and cared about. Tangible support consists of others providing materials and supplies necessary to assist an individual with daily living. The scale is a 40-item self-report measure rated on a 5-point scale (1=not at all, 2=once or twice, 3=about once a week, 4=several

times a week, and 5=about every day). Examples of items include: “Let you know that you did something well,” “Looked after a family member while you were away,” and “Provided you with a place you could get away for a while.”

The ISSB is designed to be interpreted via an overall general score, with responses summed to reach a total score. Higher scores suggest more perceived social support. The internal consistency has been consistently above 0.90 across different studies (Barrera & Ainlay, 1983). Test-retest reliability for ISSB is $= .88$ and internal consistency (Cronbach’s alpha) is $.93$. The convergent validity of the ISSB has been demonstrated via significant correlation with the Arizona Social Support Interview Schedule (Barrera et al., 1981).

Experimental Questions (Appendix E). In addition to these established, psychometrically sound measures, participants were asked six exploratory, face valid questions for the purpose of assessing parents’ perceptions of the impact of having children with ASDs on their marriage.

Procedure

The study was approved by the University of Central Florida Institutional Review Board. Participants were recruited as discussed in the participants section above. Participants were then sent and asked to follow an Internet link to access the study. Participants first reviewed the informed consent. If they consented to participate, participants continued to answer the demographic questionnaire, the DAS, the ISSB, and the experimental questions. Following completion of the study, participants had the option to have a \$1 donation made on their behalf to one of three locations (UCF CARD, FAC, or Autism Speaks).

Statistical Analyses

Data from the Dyadic Adjustment Scale, Perceived Social Support Questionnaire, experimental questions, and the demographic questionnaire were analyzed using SPSS (IBM Corporation). For the demographic differences between the parents of single or multiple children with ASDs, frequencies and percentage were presented and a chi-square test was utilized for categorical variables (such as income). For continuous variables (such as parent age), means, standard deviations (*SD*), and ranges were presented and independent samples t-tests were employed.

Pearson correlations were computed between each independent variable of interest (number of children with an ASD, parent age, parent age at first child's diagnosis, combined annual income, household size, number of marriages, education level, years married prior to diagnosis, number of years between first diagnosis and start of divorce, marital satisfaction prior to first child diagnosis, number of person under 18 within the household, and number of parents in the household) and each dependent variable (DAS total score and ISSB total score) to assess for simple relationships. All bivariate correlations were assessed for significance and reported in a correlation matrix.

After the raw scores on the DAS were converted to t-scores, an independent samples t-test was conducted to compare the mean score on the DAS between parents of single children with an ASD and parents of multiple children with ASDs. A Pearson correlation was analyzed to examine whether a statistically significant association exists between number of children within a household diagnosed with ASD and DAS total score.

For the first experimental question, regarding perceived effect on the parent's marital relationship, frequencies and percentages were presented as well as a chi-square test to analyze

whether there was a difference in perceived effect between the groups. The mean and standard deviation (*SD*) were also presented and an independent samples t-test was conducted to compare mean effect difference between the groups. The third and fourth experimental questions targeted only parents with multiple children with ASDs. For the third question, frequency and percentage statistics were reported to address the presence of a further effect upon the marital relationship after the diagnosis of a second (or subsequent) child with ASD. The mean and standard deviation (*SD*) were presented for the fourth as well as the frequency and percentage of each response.

RESULTS

Demographic characteristics

Tables 1 and 2 present the descriptive statistics regarding the parent's demographic characteristics for the total samples as well as for each parent group. Significant demographic differences between parents with a single child and parents with multiple children diagnosed with an ASD were found for race/ethnicity, education level, and income. Parents of a single child with an ASD were more likely to be White (88.7% vs. 74.4%, $\chi^2(5, N = 115) = 12.036, p = .034$ for the joint test of racial differences); while parents of multiple children with ASDs were more likely to be Hispanic/Latino (11.6% vs. 4.2%, $\chi^2(5, N = 115) = 12.036, p = .034$ for the joint test of racial differences) or two or more races (14.0% vs. 1.4%, $\chi^2(5, N = 115) = 12.036, p = .034$ for the joint test of racial differences). With regards to education level, parents of a single child with an ASD were more likely to have achieved a Bachelor's degree or higher (59.1% vs. 34.1%, $\chi^2(5, N = 115) = 11.600, p = .011$ for the joint test of educational differences). In terms of income, parents of a single child with an ASD were likely to report higher combined annual household income ($\chi^2(4, N = 115) = 12.955, p = .011$). There were no significant group differences between the parents' gender, age, and age at their first child's ASD diagnosis.

Table 3 presents the descriptive statistics regarding each participant's household demographic characteristics for the total sample as well by group. Significant differences between the groups were found for household size and number of individuals in the household under 18. Parents of multiple children with ASDs were significantly more likely to have more individuals in their households ($t(112) = -2.641, p = .009$) as well as more likely to have a greater number of individuals under the age of 18 in their households ($t(111) = -2.403, p = .018$). There

were no significant differences found between the number of parents within a household and the relationship of the other parent to the child.

Descriptive statistics regarding the parent's marital relationship for the total sample and each group are presented in Table 4. The only statistically significant difference between the two groups was the length of time between the ASD diagnosis and the commencement of the divorce process. Parents of multiple children with ASDs began the divorce process significantly later than parents of a single child with an ASD ($t(13) = -2.829, p = .014$). No significant differences between groups related to marital status classification, number of marriages, and number of years married prior to receiving an ASD diagnosis. Additionally, there was no significant difference between perceived satisfaction level prior to the birth of their 1st ASD child and parents with multiple children with ASDs were no more likely to be divorced from the child's other biological parent than parents of a single child with an ASD.

Table 5 presents descriptive statistics regarding the child(ren) of the participating parent as a function of whether the parent had one or multiple children with ASDs. A significant group difference between parents of single vs. multiple children with ASDs was found for age at time of diagnosis. Children from families with only one child with an ASD were significantly more likely to be diagnosed earlier than children from families of multiple children with ASDs ($t(156) = -2.619, p = .022$). No significant group differences were found between the age of the child at the time of the study and the child's gender. Descriptive statistics of the children as a function of diagnosis were presented in Table 6. Significant group differences between whether the child was diagnosed with an ASD or not was found for age at the time of the study (in years) and

gender. Children with ASDs were more likely to be older at the time of the study ($t(245) = 1.436, p = .022$) and more likely to be male (77.8% vs. 46.2%, $p < .001$).

Correlations

Pearson correlations are presented in Table 7. Four variables correlated significantly with DAS total score: combined annual household income ($r(113) = .220, p = .018$), education level ($r(113) = .253, p = .007$), length of marriage prior to first child's ASD diagnosis ($r(113) = .203, p = .036$), and marital satisfaction prior to first child's ASD diagnosis ($r(113) = .277, p = .003$). Therefore, higher annual income, education level, length of marriage prior to diagnosis, and marital satisfaction pre-diagnosis corresponded to increased dyadic adjustment. Education level also correlated significantly with ISSB total score ($r(113) = .219, p = .019$). Therefore, higher education corresponded to increased perceived social support. The independent variables (DAS total score and ISSB total score) were significantly associated ($r(113) = .263, p = .005$); thus indicating, that those who receive social support more frequently report higher dyadic adjustment.

Dyadic Adjustment

The first of the primary analyses was directed at determining whether there was a difference in quality of dyadic adjustment between parents of single and multiple children with ASDs. An independent samples t-test was used to analyze the data. The analysis (presented in Table 8) revealed that there was no significant difference between the groups, $t(113) = .212, p = .832$). Therefore, the first hypothesis was not supported.

The second of the primary analyses was conducted to determine whether there was a relationship between number of children with an ASD diagnosis within a household and quality

of dyadic adjustment. A Pearson correlation was computed to analyze the data. The correlation (presented in Table 9) was not significant ($r(113) = -.022, p = .817$). Therefore, the second hypothesis was not supported and there was no evidence to support that parents with multiple children with ASDs experience worse dyadic adjustment than parents of a single child with an ASD.

Finally, the last hypothesis was that perceived social support would moderate the relationship between number of ASD children and quality of dyadic adjustment. Given that the correlation between number of children with an ASD and quality of dyadic adjustment was not significant, there was no relationship to moderate. Thus, this hypothesis was not analyzed.

Experimental Questions

As presented in Table 10, descriptive statistics regarding the first set of experimental questions (“Has having child(ren) with ASDs affected your marriage?” and “If yes, rate the effect”) are presented. When looking at participants in total, participants were significantly more likely to perceive that their child’s diagnosis had affected their marriage (84.3% vs. 15.7%). There was no significant group difference between parents of single child with ASD and parents with multiple children with ASDs on the perceptions of the effect ($\chi^2(1, N = 115) = .345, p = .557$). With regard to rating the type of effect, a higher percentage of the participants reported that the ASD diagnosis had a negative effect on their marriage (62.4%) than a positive effect (23.9%). There was no significant difference in effect rating between parents of single or multiple children with ASDs ($\chi^2(4, N = 115) = .795, p = .939$). There was a significant correlation between DAS total score and the rating on experimental question 2 ($r(113) = .494, p$

< .001), indicating that parents who rated the effect of the first child's ASD diagnosis on their marriage as more positive reported higher quality of dyadic adjustment.

Descriptive statistics for the second set of experimental questions (“Did you notice a change in your marriage after your second child was diagnosed?” and “If yes, rate the effect”) are presented in Table 11. This question was only presented to participants with multiple children with ASDs. A higher percentage of the participants reported experiencing a change in their marriage following the second diagnosis (70.0% vs. 30.0%). Participants were significantly more likely to perceive this effect as negative than positive (84.6% vs. 7.7%). There was no significant association found between the rating on question 4 (the effect of the second/subsequent child's diagnosis on the marriage) and the DAS total score ($r(113) = .164, p = .109$). However, a significant positive relationship was found between questions 1 and 4 ($r(113) = .635, p = .000$). In essence, this correlation demonstrates consistency among parents' responses, in so much that parents who rated the effect of their first child's diagnosis upon the marriage as negative were more likely to rate the effect of their second child's diagnosis as negative, and those who rated the first effect positively were more likely to rate the second effect as positive as well.

DISCUSSION

This study represents a first step in the process of empirically understanding the impact of raising children, specifically multiple children, with ASDs upon parental marital adjustment. While the prior research has examined the relationship between raising a child with an ASD and marital adjustment, no prior study has specifically examined the effects upon the parental marital relationship when there are two or more children with ASDs within a family. Combined with the past research on families with typically developing children has demonstrated that number of children within a family is negatively correlated with parent's marital satisfaction (Twenge, Campbell, & Foster, 2003), it was important to investigate how these findings apply to parents of multiple children with ASDs.

Consistent with past findings that parents of children with ASDs suffer worse marital adjustment and that there is a negative association between marital satisfaction and number of typically developing children within a family, it was hypothesized that parents of multiple children with ASDs would report lower quality of dyadic adjustment than parents of a single child with an ASD. However, results from the independent samples t-test to compare group means of the DAS failed to reveal any differences between the groups. Results were consistent with past research indicating that parents of children with ASDs report lower marital adjustment than parents of typically developing children. Specifically, parents of children with ASDs in the present study reported a DAS mean total score of 93.28, which is lower than the mean total score (94.42) reported by parents of typically developing children in Lee (2009). Similarly, contrary to the second hypothesis that number of children with an ASD within a family would be negatively correlated with marital adjustment, results from the bivariate

correlation yielded no significant relationship between these variables. Thus, parents with multiple children with ASDs were no more likely than parents of a single child with an ASD to report low marital adjustment.

Despite the fact that the primary analyses did not support the hypotheses, evidence from the experimental questions indicated otherwise. The first set of experimental questions was presented to all of the study's participants to investigate whether parents believed having a child with an ASD affected their marriage and if so, to what extent. Although there was no significant difference between parents of single vs. multiple children with ASDs, a significantly higher proportion of the participants indicated that they believed there was an effect. Of the participants who reported they believed their marriage was affected, a larger proportion rated the effect as extremely negative or negative as compared to rating the effect neutral or positive. Participants with multiple children with ASDs were asked a second set of experimental questions. This set of questions asked: "Did you notice a change in your marriage after your second child was diagnosed with an ASD?" and "If so, please rate the effect." Similar to the results from the first set of questions, a larger proportion of participants reported that they noticed an effect and rated the effect as extremely negative or negative. In fact, none of the participants presented with the second set of questions rated the effect as extremely positive. This finding is consistent with prior research findings that parents of children with ASDs report low marital satisfaction (Gau et al., 2012; Oelofsen & Richardson, 2006; Rodrigue et al., 1990).

Although these results conflict with the non-significant group difference, this discrepancy may result from the questions posed in the Dyadic Adjustment Scale. It is possible that the criteria on the DAS did not reflect the marital difficulties that parents face. Thus, in future

research it is suggested that multiple measures are used to assess quality of dyadic adjustment in order to capture a more valid representation of the marital struggles these parents face.

Additionally, it is also possible that the stressors associated with having multiple children with ASDs do not differ significantly from only having a single child with an ASD. Thus, with the first diagnosis these parents may learn how to adjust and cope with the associated stressors and therefore do not experience further difficulty after the diagnosis of a subsequent child as they already have the necessary skills established.

Furthermore, discrepancies between our analyses may be secondary to the retrospective nature of our studies as parents were requested to report the effects on their marriage after the first and subsequent children. In future research, a more accurate estimation of the effect may be derived if families were followed over time. A longitudinal design would allow for a detailed investigation into how the marital relationship evolves with each diagnosis and could provide further evidence into the impact, if any, of having multiple children with ASDs.

With regard to the moderating role of perceived social support, given that the correlation between number of children with ASD and quality of dyadic adjustment was non-significant, the third hypothesis, that perceived social support moderated this relationship, could not be tested nor supported. Data obtained through bivariate correlations revealed that quality of dyadic adjustment is positively related to amount of perceived social support, suggesting that parents who perceive receiving social support more frequently also report greater quality of overall dyadic adjustment. This positive association is consistent with past findings that perceived frequency of social support was positively related to marital quality (Harper, Dyches, Harper, Roper, & South, 2013). Also of similar interest was the relationship between perceived social

support and number of children with ASDs in a family. Likewise with the findings regarding quality of dyadic adjustment, there was no evidence to support that there is an association between number of children with ASDs and amount of perceived social support.

Also of interest in this study was providing additional descriptive demographics for families raising children with ASDs, with particular emphasis on demographics regarding the parental marital relationship and household composition. Data obtained from the demographic questionnaire suggests that parents of children with ASDs were moderately satisfied with their marriage prior to the diagnosis of their first child with an ASD ($M = 6.75$, $SD = 1.84$) and there was no significant difference between the groups reported. On average, participants were married for seven years prior to the diagnosis of their first child and those that were married longer prior to their first child's diagnosis reported greater quality of dyadic adjustment. This finding is consistent with past literature supporting a positive relationship between marital adjustment and length of marriage (Jose & Alfons, 2007). To answer the question of who is raising children with ASDs, household composition was assessed in the demographic questionnaire. The majority of children in our sample (86.6%) were raised in a household with both of their biological parents and there was no significant difference between those raising a single versus multiple children with ASDs. This finding is consistent with prior findings demonstrating that, when compared to NT children in the United States, there is no evidence to support that children with ASDs are more likely to live in a household not comprised of their two biological parents (Freedman, Kalb, Zablotzky, & Stuart, 2012).

Another area of interest in this study was the prevalence of divorce amongst ASD parents. Data obtained from the demographic questionnaire indicate that the majority of parents

(78.4%) were still married to the biological parent of their child with an ASD. In analyzing this data, this represents a 21.6% divorce rate among our participants in total, with a 23.5 % and 18.6% divorce rate among parents of a single and multiple children with ASDs, retrospectively. This 21.6% overall divorce rate is not surprising as it corresponds well with past studies that have found a 23.5% and 26% divorce rate (DeMyer & Golderberg, 1983; Hartley et al., 2010). A final demographic question of interest was examining how long following the first child's diagnosis did parents begin the divorce process. To date, previous literature has not examined this question. Our preliminary findings indicate that on average, of our participants who divorced, the process began approximately 3.13 years following the first diagnosis. However, a significant group difference was found indicating that parents of multiple children with ASDs began the process significantly later than those with a single child. It is suggested that future research attempt to examine the factors that contribute to this difference between the groups. Perhaps having a second child with ASD strengthens the partners' commitment to the family unit despite a decrease in marital satisfaction. Or it is also possible that parents of multiple children with ASDs remain together despite worsening marital adjustment due to the financial burden associated with raising multiple children with a developmental disability. Alternatively, parents of children with an ASD may attribute all or most of their relationship distress to their child's diagnosis and not identify or actively address marital issues that may be unrelated to the child.

In examining demographic variables specific to the parents of children with ASDs, it is not all that surprising that parents of a single child report higher education levels than parents of multiple children with ASDs. First, given that raising more children requires more time, parents of multiple children with ASDs likely have less time available to dedicate to furthering their

education. Second, it may be that parents who are more educated are less likely to have additional children after having their first child diagnosed with ASD. It is also possible that parents with more education have the knowledge necessary to detect the symptoms associated with their child's diagnosis at a younger age. In comparison, those with lower levels of education may lack the knowledge to detect their first diagnosed child's symptoms and then continue having more children who are at greater risk for ASD.

Several limitations should be considered when interpreting the results of this study. First, given the anonymous survey methodology utilized in this study, there was no way to verify the accuracy of the participant's ASD diagnosis. The variable of disorder severity also was not assessed in the current study. Symptom severity may impact and exacerbate the stressors experienced by parents and thus should be explored in future studies. Second, the sample included only a small amount of male participants, thus findings from this study may not be a valid representation of the experiences fathers of multiple children with ASDs endure. Third, all of the sample recruitment sources were derived from Autism support groups or organizations that provided different forms of support to families of children with ASDs. These parents may be more adjusted and more aware of available support than the general population of ASD parents. Additionally, given that parenting a child, or multiple children with ASDs, requires large amounts of time and energy, participants experiencing the most negative effects (i.e., more marital maladjustment and low levels of perceived social support) may not have been able to complete the survey, thus positively biasing the results of the study towards less negative effects. Finally, the experimental questions presented in this study have not been normed or

standardized with a large heterogeneous sample. Therefore, future researchers should seek larger samples to establish adequate reliability and validity of these (and similar) questions.

As one of few studies to examine the effects of having multiple children with ASDs within a family, the major strengths of this study are the large, geographically diverse sample and inclusion of participants recruited from center and non-center based populations. A second strength of this study is the large quantity of demographic variables investigated, as the literature of the demographics of ASD families is limited.

In conclusion, the current study adds to the empirical literature by providing preliminary findings regarding the marital adjustment and general demographics of families with multiple children with ASDs. Greater exploration of the effects of having multiple children is warranted. Although the main hypotheses were not supported, the contrary findings from the experimental questions illustrate that the majority of parents with children with ASDs' marriages are affected by their child's diagnosis, and this effect is exacerbated as the number of children with ASDs in a family increases. Therefore, mental health professionals should be aware that parents are affected by their child's diagnosis and should monitor, detect, and intervene upon potential maladjustments as early as possible. It is strongly recommended that future research aim not only to intervene with symptoms experienced by the diagnosed child, but also on the parents' marital adjustment and accessibility to social support. The current findings highlight the importance of continued research into this area as helping parents maintain or improve the quality of their marital adjustment and access to social supports not only benefits the parents themselves, but the child with an ASD as well.

APPENDIX A: DEMOGRAPHIC QUESTIONNAIRE

-Demographic Questionnaire

Directions: Please complete the following questions.

Parent Gender Male Female

Parent Age: _____ **Parent age at child's diagnosis:** _____

What is your relationship to the child(ren) diagnosed with an ASD?

- Biological parent
- Adopted parent
- Stepparent
- Legal Guardian
- Grandparent
- Other: _____

Education of Parent (Please check the highest level you have completed):

- High School / GED or less
- Associate's Degree or other 2-year degree
- Bachelor's Degree or other 4-year degree
- Master's Degree
- Doctoral Degree

Ethnicity (Please check one):

- White Black Hispanic Native American
- Asian/Indian subcontinent Pacific Islander

What is your total household income?

- | | | | |
|---|---|---|--------------------------|
| <input type="checkbox"/> Less than \$ 10,000 | <input type="checkbox"/> \$10,000 to \$19,999 | <input type="checkbox"/> \$20,000 to \$29,999 | <input type="checkbox"/> |
| <input type="checkbox"/> \$30,000 to \$39,999 | <input type="checkbox"/> \$40,000 to \$49,999 | <input type="checkbox"/> \$50,000 to \$59,999 | |
| <input type="checkbox"/> \$60,000 to \$69,999 | <input type="checkbox"/> \$70,000 to \$79,999 | <input type="checkbox"/> \$80,000 to \$89,999 | |
| <input type="checkbox"/> \$90,000 to \$99,999 | <input type="checkbox"/> \$100,000 to \$149,999 | <input type="checkbox"/> \$150,000 or more | |

What state do you reside in? _____

Current Relationship Status (Please select one):

- Married
- In a relationship
- Married, but separated
- Divorced
- Widowed
- Single, never married

How many times, in total, have you been married? _____

If you are currently married or in a relationship, is this with the biological parent of your child(ren) diagnosed with an ASD?

- Yes
- No

If applicable, how many years into your marriage was your child/were your children diagnosed? _____

If applicable, how many years following your child’s diagnosis did you begin the divorce or separation process? _____

How would you rate your satisfaction with your marriage prior to the birth of your first child with an ASD?

1	2	3	4	5	6	7
Extremely Unhappy	Fairly Unhappy	A Little Unhappy	Happy	Very Happy	Extremely Happy	Perfect

How many people (including yourself) live in your household?: _____

How many parents (excluding yourself) live in your household:

What is their relationship to the child with ASD?

How many people under 18 live in your household?: _____

Please fill in the chart with the information about the individuals in your home under the age of 18:

	Date of Birth (mm/dd/yyyy)	Gender	Diagnosed with an ASD? (Yes or No)	Age at Diagnosis
1.				
2.				
3.				
4.				
5.				
6.				

How did you hear about this survey? _____

APPENDIX B: DYADIC ADJUSTMENT SCALE

Dyadic Adjustment Scale

Most persons have disagreements in their relationships. Please indicate below the approximate extent of agreement or disagreement between you and your partner for each item on the following list. Please select only one answer per item.

I am answering this survey as a reflection of my relationship with:

- My current relationship with the biological parent of my child with an ASD
 My current relationship with a person who is not the biological parent of my child with an ASD
 My current relationship with a partner who is not the biological parent of my child with an ASD

#		Always Agree	Almost Always Agree	Occasionally Disagree	Frequently Disagree	Almost Always Disagree	Always Disagree
1	Handling family finances	*	*	*	*	*	*
2	Matters of recreation	*	*	*	*	*	*
3	Religious matters	*	*	*	*	*	*
4	Demonstrations of affection	*	*	*	*	*	*
5	Friends	*	*	*	*	*	*
6	Sex relations	*	*	*	*	*	*
7	Conventionality (correct or proper behavior)	*	*	*	*	*	*
8	Philosophy of life	*	*	*	*	*	*
9	Ways of dealing with parents or in-laws	*	*	*	*	*	*
10	Aims, goals and things believed important	*	*	*	*	*	*
11	Amount of time spent together	*	*	*	*	*	*

12	Making major decisions	*	*	*	*	*	*
13	Household tasks	*	*	*	*	*	*
14	Leisure time interests and activities	*	*	*	*	*	*
15	Career decisions	*	*	*	*	*	*

		All the Time	Most of the time	More often than not	Occasionally	Rarely	Never
16	How often do you discuss or have you considered divorce, separations, or terminating your relationship?	*	*	*	*	*	*
17	How often do you or your mate leave the house after a fight?	*	*	*	*	*	*
18	In general, how often do you think that things between you and your partner are going well?	*	*	*	*	*	*
19	Do you confide in your mate?	*	*	*	*	*	*
20	Do you ever regret that you married? (or lived together)	*	*	*	*	*	*
21	How often do you and your partner quarrel?	*	*	*	*	*	*
22	How often do you and your mate "get on each other's nerves?"	*	*	*	*	*	*
			Every Day	Almost Every Day	Occasionally	Rarely	Never
23	Do you kiss your mate?		*	*	*	*	*
			All of them	Most of them	Some of them	Very few of them	None of them
24	Do you and your mate engage in outside interests together?		*	*	*	*	*

How often would you say the following events occur between you and your mate?

		Never	Less than once a month	Once or twice a month	Once or twice a week	Once a day	More often
--	--	-------	------------------------	-----------------------	----------------------	------------	------------

25	Have a stimulating exchange of ideas?	*	*	*	*	*	*
26	Laugh together	*	*	*	*	*	*
27	Calmly discuss something	*	*	*	*	*	*
28	Work on a project together	*	*	*	*	*	*

These are some things about which couples sometimes agree and sometimes disagree. Indicate if either item below caused differences of opinions or were problems in your relationships during the past few weeks.

	Yes	No	
29	*	*	Being too tired for sex
30	*	*	Not showing love

31. The stars on the following line represent different degrees of happiness in your relationship. The middle point, “happy”, represents the degree of happiness of most relationships. Please circle the star which best describes the degree of happiness, all things considered, of your relationship.

*	*	*	*	*	*	*
Extremely Unhappy	Fairly Unhappy	A Little Unhappy	Happy	Very Happy	Extremely Happy	Perfect

32. Which of the following statements best describes how you feel about the future of your relationship? Select only one statement.

A	I want desperately for my relationship to succeed, and would go to almost any length to see that it does.
B	I want very much for my relationship to succeed, and will do all I can to see that it does.
C	I want very much for my relationship to succeed and will do my fair share to see that it does.
D	It would be nice if my relationship succeeded, but I can't do much more than I am doing now to help it succeed.
E	It would be nice if it succeeded, but I refuse to do any more than I'm a doing now to keep the relationship going.
F	My relationship can never succeed, and there in no more that I can do to keep the relationship going.

APPENDIX C: INVENTORY OF SOCIALLY SUPPORTIVE BEHAVIORS

Inventory of Socially Supported Behaviors

We are interested in learning about some of the ways that you feel people have helped you or tried to make life more pleasant for you over the *past four weeks*. Below you will find a list of activities that other people might have done for you, to you, or with you in recent weeks. Please read each item carefully and indicate how often these activities happened to you during the *past four weeks*.

Use the following scale to make your ratings:

- A. Not at all
- B. Once or twice
- C. About once a week
- D. Several times a week
- E. About every day

		Not in a while	Once or twice	Once a week	Several times a week	Every Day
1	Looked after a family member when you were away.					
2	Was right there with you (physically) in a stressful situation.					
3	Provided you with a place where you could get away for awhile.					
4	Watched after your possessions when you were away (pets, plants, home, apartment, etc.).					
5	Told you what she/he did in a situation that was similar to yours.					
6	Did some activity with you to help you get your mind off of things.					
7	Talked with you about some interests of yours.					
8	Let you know that you did something well.					
9	Went with you to someone who could take action.					
10	Told you that you are OK just the way you are.					

11	Told you that she/he would keep the things that you talk about private - just between the two of you.					
12	Assisted you in setting a goal for yourself.					
13	Made it clear what was expected of you.					
14	Expressed esteem or respect for a competency or personal quality of yours.					
15	Gave you some information on how to do something					
16	Suggested some action that you should take.					
17	Gave you over \$25.					
18	Comforted you by showing you some physical affection.					
19	Gave you some information to help you understand a situation you were in.					
20	Provided you with some transportation.					
21	Checked back with you to see if you followed the advice you were given.					
22	Gave you under \$25.					
23	Helped you understand why you didn't do something well.					
24	Listened to you talk about your private feelings.					
25	Loaned or gave you something (a physical object other than money) that you needed.					
26	Agreed that what you wanted to do was right.					
27	Said things that made your situation clearer and easier to understand.					
28	Told you how he/she felt in a situation that was similar to your.					
29	Let you know that he/she will always be around if you need assistance.					

30	Expressed interest and concern in your well-being.					
31	Told you that she/he feels very close to you.					
32	Told you who you should see for assistance.					
33	Told you what to expect in a situation that was about to happen.					
34	Loaned you over \$25.					
35	Taught you how to do something.					
36	Gave you feedback on how you were doing without saying it was good or bad.					
37	Joked and kidded to try to cheer you up.					
38	Provided you with a place to stay.					
39	Pitched in to help you do something that needed to get done.					
40	Loaned you under \$25.					

APPENDIX D: EXPERIMENTAL QUESTIONS

Experimental Questions

Has having children with ASDs affected your marriage?

Yes No

If yes, please rate the effect

Extremely negative	Negative	Neutral	Positive	Extremely Positive

Did you notice a change in your marriage after your second child (or subsequent children) were diagnosed with and ASD?

Yes No

If yes, please rate the effect

Extremely negative	Negative	Neutral	Positive	Extremely Positive

APPENDIX E: DONATION SELECTION

Donation Selection

Thank you for completing our survey. We appreciate your time and effort to help us in understanding the unique experiences associated with parenting children with Autism Spectrum Disorders. As token of our gratitude, we would like to make a \$2 donation to one of the following organizations, of your choosing, on you and your child(ren)'s behalf.

Please select one of the organizations below:

UCF Card

Autism Speaks

APPENDIX F: EXPLANATION OF RESEARCH

EXPLANATION OF RESEARCH

Title of Project: Predicting Dyadic Adjustment in Parents of Multiple Children with Autism Spectrum Disorders

Principal Investigator: Rachel Mills

Faculty Supervisor: Stacey Dunn, Ph.D

You are being invited to take part in a research study. Whether you take part is up to you.

- The purpose of this research is to investigate how perceived social support influences quality of marital adjustment in parents of children with Autism Spectrum Disorders.
- You will be asked to complete a demographic questionnaire, a scale measuring marital adjustment, a scale measuring perceived social support, and four experimental questions through an online research database.
- Your participation will require one online session lasting approximately 20 minutes.
- You do not have to answer any questions that make you feel uncomfortable.
- Your responses will be completely anonymous.
- Following completion of the study, all participants will have the option to have a \$2 donation made on their or their child(ren)'s behalf to either UCF Center for Autism Related Disabilities or Autism Speaks).

You must be 18 years of age or older and the parent, stepparent, legal guardian, or grandparent of a child diagnosed with an Autism Spectrum Disorder to take part in this research study.

If you are interested in the findings of this research project, you may contact the Principal Investigator at the addresses listed below.

Study contact for questions about the study or to report a problem: If you have questions, concerns, or complaints: Rachel Mills, Graduate Student, Clinical Psychology M.A. Program, College of Sciences, rmills@knights.ucf.edu or Dr. Stacey Dunn, Faculty Supervisor, Department of Psychology at (407) 708-2822 or by email at Stacey.dunn@ucf.edu

IRB contact about your rights in the study or to report a complaint: Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (UCF IRB). This research has been reviewed and approved by the IRB. For information about the rights of people who take part in research, please contact: Institutional Review Board, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246 or by telephone at (407) 823-2901

APPENDIX G: IRB APPROVAL LETTER



University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Exempt Human Research

From: UCF Institutional Review Board #1
FWA00000351, IRB00001138

To: Rachel A. Mills and Co-PI: Stacey T. Dunn

Date: April 30, 2014

Dear Researcher:

On 4/30/2014, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review: Exempt Determination
Project Title: Predicting Dyadic Adjustment in Parents of Multiple Children
with Autism Spectrum Disorders
Investigator: Rachel A. Mills
IRB Number: SBE-14-10273
Funding Agency:
Grant Title:
Research ID: N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewska, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

A handwritten signature in cursive script that reads 'Kanille Chay' followed by a horizontal line.

IRB Coordinator

APPENDIX H: TABLES

Table 1. Descriptive Data for Parents' Demographics

Characteristics	Total	Single	Multiple	<i>t</i> or Chi-square statistics
	<i>n</i> = 115	<i>n</i> = 71	<i>n</i> = 44	
Gender, <i>n</i> , (%)				$\chi^2 = .699, df = 1, p = .403$
Males	5 (4.4)	4(5.6)	1(2.3)	
Females	109(95.6)	67(94.4)	42(97.7)	
Respondent relationship to ASD child(ren), <i>n</i> , (%)				$\chi^2 = 5.180, df = 4, p = .269$
Biological parent	106(92.2)	65(91.5)	41(93.2)	
Adoptive parent	5(4.3)	4(5.6)	1(2.3)	
Stepparent	1(0.9)	1(1.4)	0(0.0)	
Legal guardian	1(0.9)	1(1.4)	0(0.0)	
Grandparent	0(0.0)	0(0.0)	0(0.0)	
Other	2(1.7)	0(0.0)	2(4.5)	
Age (years)				$t(112) = .851, p = .397$
Mean	39.81	40.31	39.00	
SD	8.022	8.017	8.055	
Range	21 - 64	21 - 64	25 - 64	
Age at 1 st child's diagnosis (years)				$t(101) = 1.471, p = .114$
Mean	33.71	34.44	32.55	
SD	6.407	6.344	6.413	
Range	20 - 61	21 - 61	20 - 45	
Race/Ethnicity, <i>n</i> , (%)				$\chi^2 = 12.036, df = 5, p = .034$
White	95 (83.3)	63(88.7)	32(74.4)	
Black or African American	2(1.8)	2(2.8)	0(0.0)	
Hispanic/Latino	8(7.0)	3(4.2)	5(11.6)	
American Indian/Alaska Native	1(0.9)	1(1.4)	0(0.0)	
Asian	0(0.0)	0(0.0)	0(0.0)	
Native Hawaiian/Pacific Islander	1(0.9)	1(1.4)	0(0.0)	
Two or more races	7(6.1)	1(1.4)	6(14.0)	
Education, <i>n</i> , (%)				$\chi^2 = 11.600, df = 5, p = .041$
High School Diploma or GED	11(9.6)	3(4.2)	8(18.2)	
Some College	29(25.2)	16(22.5)	13(29.5)	
Associate's degree	17(14.8)	10(14.1)	7(15.9)	
Bachelor's degree	31(27.0)	21(29.6)	10(22.7)	
Master's degree	21(18.3)	16(22.5)	5(11.4)	
Doctoral degree	5(4.3)	5(7.0)	0(0.0)	
Income, <i>n</i> , (%)				$\chi^2 = 12.955, df = 4, p = .011$
Under \$29,999	25(21.7)	11(15.5)	14(31.8)	
\$30,000-\$49,999	17(14.8)	7(9.9)	10(22.7)	
\$50,000-\$69,999	18(15.7)	12(16.9)	6(13.6)	
\$70,000-\$99,999	23(20.0)	20(28.2)	3(6.8)	
\$100,000 +	32(27.8)	21(29.6)	11(25.0)	

Table 2. Sample Geographic Demographics

Geographic State/Region	Total, <i>n</i>(%)	Single, <i>n</i>(%)	Multiple, <i>n</i>(%)
Alabama	1(0.9)	0(0.0)	1(2.3)
Alaska	0(0.0)	0(0.0)	0(0.0)
Arizona	1(0.9)	0(0.0)	1(2.3)
Arkansas	1(0.9)	1(1.4)	0(0.0)
California	6(5.2)	5(7.0)	1(2.3)
Colorado	0(0.0)	0(0.0)	0(0.0)
Connecticut	0(0.0)	0(0.0)	0(0.0)
Delaware	0(0.0)	0(0.0)	0(0.0)
District of Columbia	0(0.0)	0(0.0)	0(0.0)
Florida	35(30.4)	14(19.7)	21(47.7)
Georgia	2(1.7)	1(1.4)	1(2.3)
Hawaii	0(0.0)	0(0.0)	0(0.0)
Idaho	1(0.9)	1(1.4)	0(0.0)
Illinois	3(2.6)	3(4.2)	0(0.0)
Indiana	0(0.0)	0(0.0)	0(0.0)
Iowa	1(0.9)	0(0.0)	1(2.3)
Kansas	1(0.9)	1(1.4)	0(0.0)
Kentucky	0(0.0)	0(0.0)	0(0.0)
Louisiana	0(0.0)	0(0.0)	0(0.0)
Maine	0(0.0)	0(0.0)	0(0.0)
Maryland	2(1.7)	2(2.8)	0(0.0)
Massachusetts	2(1.7)	2(2.8)	0(0.0)
Michigan	2(1.7)	2(2.8)	0(0.0)
Minnesota	0(0.0)	0(0.0)	0(0.0)
Mississippi	1(0.9)	0(0.0)	1(2.3)
Missouri	8(7.0)	6(8.5)	2(4.5)
Montana	0(0.0)	0(0.0)	0(0.0)
Nebraska	0(0.0)	0(0.0)	0(0.0)
Nevada	2(1.7)	1(1.4)	1(2.3)
New Hampshire	0(0.0)	0(0.0)	0(0.0)
New Jersey	4(3.5)	0(0.0)	4(5.6)
New Mexico	0(0.0)	0(0.0)	0(0.0)
New York	4(3.5)	3(4.2)	1(2.3)
North Carolina	1(0.9)	1(1.4)	0(0.0)
North Dakota	0(0.0)	0(0.0)	0(0.0)
Ohio	9(7.8)	7(9.9)	2(4.5)
Oklahoma	2(1.7)	2(2.8)	0(0.0)
Oregon	0(0.0)	0(0.0)	0(0.0)
Pennsylvania	3(2.6)	2(2.8)	1(2.3)
Puerto Rico	0(0.0)	0(0.0)	0(0.0)
Rhode Island	0(0.0)	0(0.0)	0(0.0)
South Carolina	0(0.0)	0(0.0)	0(0.0)
South Dakota	0(0.0)	0(0.0)	0(0.0)
Tennessee	0(0.0)	0(0.0)	0(0.0)
Texas	2(1.7)	2(2.8)	0(0.0)
Utah	6(5.2)	4(5.6)	2(4.5)
Vermont	0(0.0)	0(0.0)	0(0.0)
Virginia	0(0.0)	0(0.0)	0(0.0)
Washington	0(0.0)	0(0.0)	0(0.0)
West Virginia	0(0.0)	0(0.0)	0(0.0)
Wisconsin	1(0.9)	1(1.4)	0(0.0)
Wyoming	0(0.0)	0(0.0)	0(0.0)
Outside the United States	14(12.2)	6(8.5)	8(18.2)

Table 3. Descriptive Statistics for Household Composition

Characteristic	Total	Single	Multiple	<i>t</i> or Chi-square statistics
	<i>n</i> = 115	<i>n</i> = 71	<i>n</i> = 44	
Household size				<i>t</i> (112)= -2.641, <i>p</i> = .009
Mean	4.37	4.13	4.78	
SD	1.312	1.362	1.125	
Range	1 - 9	1 - 9	3 - 9	
Number of parents (excluding respondent)				<i>t</i> (111)= .817, <i>p</i> = .116
Mean	1.05	1.04	1.07	
SD	.595	0.600	.593	
Range	0 - 4	0 - 4	0 - 2	
Other parent's relationship to ASD child(ren), <i>n</i> , (%)				$\chi^2 = 9.466$, <i>df</i> = 5, <i>p</i> = .092
Biological parent	84(86.6)	55(88.7)	29(82.9)	
Adoptive parent	1(1.0)	1(1.6)	0(0.0)	
Stepparent	3(3.1)	3(4.8)	0(0.0)	
Legal guardian	1(1.0)	1(1.6)	0(0.0)	
Grandparent	3(1.0)	0(0.0)	3(8.6)	
Other	5(5.2)	2(3.2)	3(8.6)	
Number of individuals under 18				<i>t</i> (111)= -2.403, <i>p</i> = .018
Mean	2.07	1.89	2.37	
SD	1.067	1.149	0.846	
Range	0 - 6	0 - 6	0 - 4	

Table 4. Marital Demographics

Characteristic	Total	Single	Multiple	<i>t</i> or Chi-square statistics
	<i>n</i> = 115	<i>n</i> = 71	<i>n</i> = 44	
Marital Status, <i>n</i> , (%)				$\chi^2 = 3.121, df = 4, p = .538$
Single (never married)	0(0.0)	0(0.0)	0(0.0)	
In a relationship	7(6.1)	4(5.6)	3(7.0)	
Married	90(78.9)	57(80.3)	33(76.7)	
Divorced	10(8.8)	7(9.9)	3(7.0)	
Separated	6(5.3)	2(2.8)	4(9.3)	
Widowed	1(0.9)	1(1.4)	0(0.0)	
Number of Marriages				$t(99) = .046, p = .963$
Mean	1.08	1.08	1.08	
SD	.392	.329	.480	
Range	0 - 2	0 - 2	0 - 2	
Married to Biological Parent of ASD child, <i>n</i> , (%)				
Yes	87(78.4)	52(76.5)	35(81.4)	
No	24(21.6)	16(23.5)	8(18.6)	
Satisfaction prior to birth of 1 st ASD child				$t(109) = .070, p = .944$
Mean	6.75	6.76	6.73	
SD	1.841	1.845	1.858	
Range	0 - 8	0 - 8	0 - 8	
How long after you were married was your 1 st child diagnosed?				$t(105) = -1.449, p = .150$
Mean	7.28	6.74	8.15	
SD	4.898	4.277	5.709	
Range	0 - 25	0 - 19	1 - 25	
If applicable, how long after diagnosis did you begin the divorce process?				$t(13) = -2.829, p = .014$
Mean	3.13	1.90	5.60	
SD	2.924	1.524	3.647	
Range	0 - 12	0 - 4	3 - 12	

Table 5. Child Demographics as a Function of Number of ASD Children in a Family

Characteristic	Total	Single	Multiple	<i>t</i> or Chi-square statistics
Age at time of study (ASD and NT) (in years)				$t(247) = -.836, p = .389$
Mean	9.358	9.094	9.691	
SD	5.42	5.42	5.42	
Range	0.8 - 24	1.0 - 29	0.8 - 29	
Age at diagnosis (in years)				$t(156) = -2.619, p = .003$
Mean	4.29	3.66	4.81	
SD	2.80	2.22	3.13	
Range	1.33 - 14	1.33 - 12	1.5 - 14	
Child gender, <i>n</i> (%)				$\chi^2 = .180, df = 1, p = .671$
Male	167(66%)	94(67.1%)	46(32.9%)	
Female	86(34%)	73(64.6%)	40(35.4%)	

Table 6. Child Demographics as a Function of Diagnosis

Characteristic	Total	ASD	NT	<i>t</i> or Chi-square statistics
Age at time of study (in years)				$t(245) = 1.436, p = .022$
Mean	9.358	9.66	8.65	
SD	5.42	5.10	5.79	
Range	0.8 - 24	2 - 29	0.8 - 24	
Child gender, <i>n</i> (%)				$\chi^2 = 26.120, df = 1, p = .000$
Male	166(66.1%)	123(77.8%)	43(46.2%)	
Female	85(33.9%)	35(22.2%)	50(53.8%)	

Table 7. Bivariate Correlation Matrix

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 - Number of children with ASD	-----													
2 - Parent age	-0.02													
3 - Parent age at 1 st child's diagnosis	-0.119	0.740**												
4 - Combined annual income	-0.187*	0.370**	0.355**											
5 - Household size	0.281**	-0.108	-1.010	-0.860										
6 - Number of marriages	0.035	0.187	0.284	0.016	0.020									
7 - Education level	-0.248**	0.232*	0.240*	0.584	-0.178	0.032								
8 - Years married before 1 st diagnosis	0.149	0.433**	0.540	0.276**	0.105	-0.164*	0.123							
9 - Years between 1 st diagnosis and divorce	0.617*	0.346	0.095	-0.081	-0.183	-0.009	-0.450	-0.059						
10 - Marital satisfaction prior to 1 st ASD child	0.027	0.053	0.160	0.141	0.043	0.144	0.151	0.179	-0.159					
11 - Number of persons under 18 in household	0.220	-0.302**	-0.125	-0.470	0.742**	-0.135	-0.177	0.071	-0.308	0.075				
12 - Number of parents in household	0.015	-0.110	-0.008	0.039	0.314**	0.025	-0.055	0.037	0.178	0.019	0.207*			
13 - Dyadic Adjustment Scale total score	-0.022	0.016	0.140	0.220*	0.018	-0.032	0.253**	0.203*	-0.187	0.277*	0.118	0.053		
14 - Inventory of Social Supportive Behaviors Total Score	-0.065	-0.081	0.162	0.105	0.003	0.044	0.219*	0.099	0-.018	0.115	0.075	-0.005	0.263**	-----

* = $p < .05$, ** = $p < .005$

Table 8. t-test for Equality of Means

	t	df	Sig (2-tailed)	MD	SED
Equal variances assumed	.212	113	.832	1.150	5.415

Table 9. Dyadic Adjustment Scale Descriptive Statistics

	N	M	SD	SE	Range
Single	71	93.72	27.080	3.214	17 – 140
Multiple	44	92.57	29.996	4.522	16 - 137
Total	115	93.28	28.107	2.621	16 - 140

Table 10. Experimental Question Set 1 Statistics

Question	Total	Single	Multiple	<i>t</i> or Chi-square statistics
	<i>n</i> = 115	<i>n</i> = 71	<i>n</i> = 44	
Has having children with ASDs affected your marriage? <i>n</i> , (%)				$\chi^2 = .345, df = 1, p = .557$
Yes	97(84.3)	61(85.9)	36(81.8)	
No	18(15.7)	10(14.1)	8(18.2)	
If yes, rate the effect				$t(94) = .507, p = .613$
Mean	2.54	2.58	2.47	
SD	1.035	1.030	1.055	
Range	1 - 5	1 - 5	1 - 5	
<i>n</i> , (%)				$\chi^2 = .795, df = 4, p = .939$
Extremely negative	10(10.4)	5(8.3)	5(13.9)	
Negative	50(52.1)	32(53.3)	18(50.0)	
Neutral	13(13.5)	8(13.3)	5(13.9)	
Positive	20(20.8)	13(21.7)	7(19.4)	
Extremely positive	3(3.1)	2(3.3)	1(2.8)	

Table 11. Experimental Question Set 2 Statistics

Question	Multiple
	<i>n</i> = 60
Did you notice a change in your marriage after your second child was diagnosed?	
Yes	42(70.0)
No	18(30.0)
If yes, rate the effect	
Mean	1.96
SD	.824
Range	1 - 4
<i>n</i> , (%)	
Extremely negative	7(26.9)
Negative	15(57.7)
Neutral	2(7.7)
Positive	2(7.7)
Extremely positive	0(0.0)

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