POSITIVE PERCEPTIONS AS A MODERATOR OF PARENTING STRESS AND FAMILY FUNCTIONING AMONG PARENTS OF CHILDREN WITH AUTISM SPECTRUM DISORDER

By

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ASD	Autism Spectrum Disorder
CARD	Center for Autism and Related Disabilities.
DSM	Diagnostic and Statistical Manual of Mental

Abstract of Thesis Presented to the Graduate School
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With the increase in prevalence of Autism Spectrum Disorders (ASD), understanding the stress that parents of children with ASDs face and how that stress impacts the family unit has become increasingly more important. This study used the Double ABC-X model (McCubbin, Sussman, & Patterson, 1983) as a theoretical guide to understanding the relationship between parenting stress and family functioning, and how positive perceptions interact with that relationship. The research question guiding this study asked, “do positive parental perceptions of the child function as a moderator between parental stress and the family’s over-all functioning?” It was hypothesized that 1) the parent’s stress has a significant positive relationship with the child’s ASD severity, 2) the parent’s stress has a significant negative relationship with the family’s overall adaptive functioning, 3) the parent’s stress has a significant negative relationship with the parents’ cognitive beliefs, 4) the parent’s positive cognitive beliefs have a significant negative relationship with the family’s overall adaptive functioning, and 5) the association between parent’s stress and family functioning will be moderated by parents’ cognitive beliefs.

The participants in this study consisted of 66 parents who attend support groups for their child's ASD through the University of Florida's CARD (Center for Autism and Related Disabilities). The child's ASD severity, parenting stress, positive perceptions, and family functioning were measured using survey instruments. To answer hypothesis 1 through 4, bivariate correlations were run. To test hypothesis 5, multiple regression analysis was conducted.

Bivariate correlations did not show support for hypothesis 1, showing that there was not a significant relationship between parent stress and ASD severity. Bivariate correlations supported hypotheses 2, 3, and 4. Multiple regression was run to test hypothesis 5, which showed that positive perceptions were not significant moderators between the parent's stress and family functioning.

The findings of the post-hoc analysis revealed that parenting stress and family functioning were significantly mediated by the parent's positive perceptions. The perception of children being a source of happiness and fulfillment showed partial mediation, and the perception of the children being a source of family strength and closeness showed full mediation. These findings are important in understanding the impact of positive perceptions on parenting stress and family functioning, having implications for future research, intervention approaches, and support group settings for parents of children with ASDs.

CHAPTER 1
INTRODUCTION

Autism Spectrum Disorders, or ASDs, have become increasing prevalent in the United States, impacting about 1 in every 88 children and impacting boys five times more than girls (CDC, 2012; Lord & Bishop, 2010; Phetrasuwan & Miles, 2008; Manning et al., 2011). It has also increased in prevalence worldwide, crossing all ethnic, racial, social, and cultural barriers (Phetrasuwan & Miles, 2008). ASDs are diagnosed based on the criteria found in the Diagnostic and Statistical Manual of Mental Disorders, Text Revision (DSM-IV-TR) and the International Classification of Disease-10 (ICD-10) (CDC, 2012; Lord & Bishop, 2010). The Autism Spectrum currently consists of a broad range of disorders, varying in severity and symptoms, including Autistic disorder, Asperger's Syndrome, Childhood Disintegrative Disorder, and Pervasive Developmental Disorder- Not Otherwise Specified (PDD-NOS) (Kayfitz, Gragg, & Orr, 2010).

The onset of ASD typically occurs prior to age three, impacting three specific developmental domains: social interaction, communication, and restricted, repetitive, and stereotyped patterns of behavior (American Psychiatric Association, 2000). ASD symptoms vary in range of severity, from mild to severe (Phetrasuwan & Miles, 2008; Itzchak, 2007). Children with ASDs may also have unusual fears, anxieties, sleep difficulties, or exhibit other maladaptive behaviors (Manning, Wainwright, & Bennett, 2011). Compared to families of typically developing children, and families with children with other developmental disabilities, families with children with an ASD often face complicated stressors and unique challenges in understanding and working with these children. Parents are more likely to be socially isolated and experience depression (Manning et al., 2011). Parents are also more likely to face economic challenges, while

also having to reduce the number of hours at work or quit their jobs to take care of their child (Lord & Bishop, 2008). As a result, parents of children with ASD have higher stress levels (Manning et al., 2011; Abbeduto et al., 2004; Sivberg, 2002; Dumas, Wolf, Fisman, & Culligan, 1991), which lead to lower levels of family adaptation and functioning. For instance, one study found that family stress contributed significantly to maternal depression and poor family adaptation (Bristol, 1987).

The Double ABC-X model, shown in Figure 1-1 (McCubbin, Sussman, & Patterson, 1983), is a theoretical model that describes the family's functioning in response to crisis. It focuses on three pre-crisis components: the initial stressor event, the family's existing resources, and the family's perception of the stressor (Smith & Liehr, 2003). The initial stressor event is an event which has the potential to change the family's social system (Manning et al., 2011). These three components of a family and how they interact correspond to how prepared the family is for a crisis (Smith & Liehr, 2003). Once the crisis has occurred, the model proposes that family adaptation is predicated on the stressor event (a), how the family perceives the event (both c and C), the crisis (x), the resources surrounding that family (existing and new) (both b and B), and the pile-up from the stressors (A)(McCubbin, Sussman, & Patterson, 1983).

An important component of this model is how the family *perceives* the stressor, which may impact how they use their resources, how the stressors pile-up, and how they adapt together (McCubbin et al., 1983). For example, if a family, upon learning their child is diagnosed with an ASD, believes that the situation is hopeless, they may

not explore the resource options they might have, and thus they may enter crisis mode.

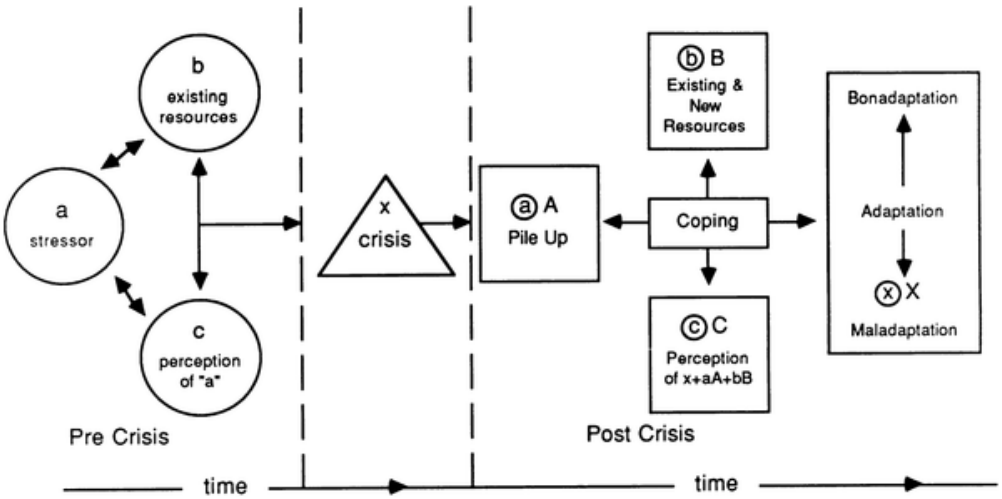

Figure 1-1. The Double ABC-X model.

With the child's diagnosis comes a pile-up of stressors including: more financial responsibilities, doctor's appointments, possible medication, therapy, taking care of other children, work, maintaining relationships, etc. If the parents continue with a negative perception, they may not have effective coping strategies, and may not seek enough support and resources to assist them. Therefore, their overall adaptation can suffer. Whereas, if they would have had more positive beliefs about their child's diagnosis, they may have been more proactive with their resources, have problem-focused coping strategies, leading to reduced stress, all contributing to a better overall adaptation.

In addition, some families may enter a point of post-crisis, being unable to cope with the original stressor, which would cause a need for an intervention. The intervention would address how the family copes with the stressor and how to promote greater adaptation. While the pile-up stressors may not be able to

change, such as economic challenges or other complications that come along with the stressor, other aspects of family life represented in the model could be addressed to improve the family's adaptation. One point of intervention is the perceptions of the stressor (both c and C). Although it may be difficult for a parent to avoid a pile-up of stressors when caring for a child with ASD, parents can choose among a variety of alternative perceptions. It has been shown through previous studies that parental stress is strongly associated with a negative definition or perception of the situation (Saloviita, Italinna, & Leinonen, 2003). When the child's disability can be reframed more positively, then stress may be reduced (Saloviita et al., 2003). Saloviita et al. (2003) found that the original stressor (the characteristics of the child's disability) had less predictive power than the parents' perceptions, and thus a better point for intervention would be the parent's cognitive beliefs, especially because it is changeable.

Based on these findings, this research will focus on positive parenting perceptions of the stressor (their child's ASD diagnosis) and how it impacts the relationship between parenting stress and family adaptation. According to the Double ABC-X model (Figure 1-1), perceptions (cC) play a role in the family's overall adaptability in that positive perceptions may protect against stressors. Parental perceptions, as originally defined in the Double ABC-X model, refer to the meaning that parents assign to the stressor event (Manning et al., 2010). However, as stressors continue to pile-up over time, parental perceptions of the specific stressor event (e.g., child diagnosis with autism) may lead to more general cognitive beliefs about their child with autism. If those cognitive beliefs are negative, then parental stress associated with caregiving may lead to greater maladaptation. If the beliefs are positive, then parental

stress may have less of an influence on family maladaptive processes. For the purpose of this research, positive perceptions are defined as the parent's cognitive beliefs about her/his child with an ASD as being a positive contributor to their family. This definition of positive perceptions is focused on the parents' defining their child with an ASD being a source of fulfillment and happiness; having a positive influence upon them, being a source of personal growth; and a positive impact on the family, being a source of closeness and strength (Hastings, Allen, McDermott, & Still, 2002; Behr, Murphy, & Summers, 1992).

For this research, positive perceptions will be examined as a moderator variable. A moderator, according to Baron and Kenny (1986), is a "variable that affects the direction and/or strength of the relation between an independent or predictor variable and a dependent or criterion variable" (p. 1174). Moderation focuses on the affect that the intervening variable has on the relationship between the independent and dependent variables. This study focuses on positive perceptions as a moderator in the relationship between the parents' stress and the overall family functioning. If shown to have a significant impact, a potential point of intervention will be highlighted.

Purpose Statement

Parenting children with ASDs involves a unique set of challenges, and can involve extreme levels of stress (Manning et al., 2010). According to the Double ABC-X Model, the interaction between the pile-up stressors and perception, coping, and resources helps to determine if there is successful family adaptation (bonadaptation) (McCubbin et al., 1983). Some research has found that families with children who have ASDs show poorer adaptation, less flexibility, and less warmth and connection within the family system (Higgins, Bailey, & Pearce, 2005). Parenting these children can cause stress

and the family's ability to function can suffer. The Double ABC-X model predicts that parent's perceptions or cognitive beliefs of their situation have an impact on adaptation. If the family is unable to adapt, the outcome of their functioning as a family can suffer. Focusing on the parents' cognitive beliefs, in this case positive perceptions, should be a key component to understanding how families with children with ASDs are able to successfully function.

Research Question

The following research question guided this research: "Do positive parental perceptions of the child function as a moderator between parental stress and the family's over-all functioning?"

Hypotheses

The Double ABC-X Model proposes that stress and cognitive beliefs play a role in the family's ability to function in the presence of a stressor. To examine the proposed relationships between variables, the following hypotheses were tested:

Hypothesis 1: The parent's stress has a significant positive relationship with the child's ASD severity.

Hypothesis 2: The parent's stress has a significant negative relationship with the family's overall adaptive functioning.

Hypothesis 3: The parent's stress has a significant negative relationship with the parents' cognitive beliefs.

Hypothesis 4: The parent's positive cognitive beliefs have a significant positive relationship with the family's overall adaptive functioning.

Hypotheses one through four test whether the variables are theoretically related to one another, consistent with the Double ABC-X model. The final hypothesis tests for moderation.

Hypothesis 5: The association between parent's stress and family functioning will be moderated by parents' cognitive beliefs.

CHAPTER 2
REVIEW OF LITERATURE

This study focuses on the parents of children with Autism Spectrum Disorders, and how positive perceptions may encourage family adaptability by buffering against parental stress. The purpose of this study is to focus on the interactions between parental perceptions, parental stress, and family functioning, using the Double ABC-X model as the theoretical framework.

Autism Spectrum Disorders

ASDs are now a common set of developmental disorders (Lord & Bishop, 2010). For children to be diagnosed with Autistic Disorder, according to the DSM-IV-TR, deficits in social interaction need to include at least two of the following: (a) impairments involving nonverbal behaviors (e.g. eye-to-eye gaze, facial expressions), (b) failure in developing relationships with peers, appropriate according to their development level, (c) lack of spontaneous seeking to share things with others (e.g. interests, achievements) (American Psychiatric Association, 2000). Deficits in communication need to include at least one of the following: (a) delays, or lack of, spoken language, (b) impairments in the ability to hold conversations with others, (c) stereotyped and repetitive use of language and/or idiosyncratic language, (d) impairments in make-believe or social imitative play (according to development level) (American Psychiatric Association, 2000). Also, deficits in restricted, repetitive, and stereotyped patterns of behavior need to include at least one of the following: (a) preoccupation, abnormally intense or focused, with one or more stereotyped and restricted interests, (b) inflexibility involving specific, nonfunctional routines or rituals, (c) motor mannerisms which are stereotyped and repetitive (e.g., hand or finger flapping), (d) preoccupation with

objects/parts of objects (American Psychiatric Association, 2000). These criteria are specific to Autistic Disorder, with similar, but separate criteria for Asperger's Syndrome and Pervasive Developmental Disorder- Not Otherwise Specified. PDD-NOS is also referred to as "atypical autism", where children do not fit into the criteria of Autistic Disorder because of "late age of onset, atypical symptomatology, and/or subthreshold symptomatology" (American Psychiatric Association, 2000). Children with Asperger's Syndrome and PDD-NOS typically outnumber those with Autistic Disorder, almost 2 to 1 (Lord & Bishop, 2010).

The causes of ASDs are unknown; however, there are several risk factors and characteristics that are associated with children who are on the spectrum. In sets of identical twins, it has been found that if one child has an ASD, then about 36 to 95% of the time, the other will be likewise affected (CDC, 2012). Also, parents with a child with an ASD has a 2-18% chance of having another child who is also affected (CDC, 2012). Children born to older parents also have a higher risk for ASDs (CDC, 2012). Also, it is common for ASDs to co-occur with other developmental diagnoses, as well as psychiatric, neurologic, chromosomal, and genetic disorders (CDC, 2012). Environmental risk factors have been found to be linked to a higher risk of ASDs. For instance, prescription drugs if taken during pregnancy, valproic acid and thalidomide, are linked to ASD (CDC, 2012). Certain vaccines and infections before and after birth have been studied; however, there have not been conclusive results (CDC, 2012).

ASD and Parenting Stress

Parental stress associated with parenting a child with Autism Spectrum Disorders has been shown to be higher than parental stress of parents of children with other developmental disabilities and parents of typically developing children (Wolf, Noh,

Fisman, & Speechley, 1989; Dunn, Burbine, Bowers, & Tantleff-Dunn, 2001; Manning et al., 2011). For example, a longitudinal study conducted by Estes et al. (2009) evaluated seventy-four mothers and their children of preschool age, 51 of those children being diagnosed with an ASD, and 23 having developmental delays (DD) without Autism. The ASD group and DD group were matched based on non-verbal mental age (Estes et al., 2009). Parents were administered measures of parenting stress, psychological distress, problem behaviors, and adaptative functioning.

The first analysis was to determine whether mothers of children with ASDs and mothers of children with DD differed on levels of stress (Estes et al., 2009). Using T-tests to compare the two groups, they found that mothers of children with ASDs displayed significantly higher levels of parental stress than mothers of children with DDs (Estes et al., 2009). Mothers of children with ASDs also showed higher levels of psychological distress, determined by higher mean scores of depression and anxiety (Estes et al., 2009). When examining the differences in child problem behaviors and daily living skills, they found that children with ASDs had higher levels of problem behaviors and lower levels of daily living skills, compared to children with DDs (Estes et al., 2009, p. 383). Results indicated that child behavior problems and parenting stress and psychological distress had positive associations (Estes et al., 2009). The child's diagnosis and daily living skills were not significantly related to the mother's stress or psychological distress (Estes et al., 2009). This study adds to the body of knowledge supporting higher stress levels in parents of children with ASDs compared to parents of children with other developmental disabilities and parents of typically developing

children. More specifically, the higher stress levels are associated with problem behaviors, but not with the child's daily living skills.

Other studies have also shown a relationship between parental stress and the presence of children with ASDs in the family. A study by Kasari and Sigman (1997) examined parental perceptions of their child's temperament, and whether perceptions of the child's autistic behavior characteristics and parental stress impacted the parent-child interactions. They hypothesized that less responsive adult-child interactions would be present with children of a more difficult temperament (Kasari & Sigman, 1997). The also expected that parental stress would be greater among parents/caregivers of children who, during adult-child interactions, were least responsive (Kasari & Sigman, 1997). The study included 28 children with autism, 26 children with mental retardation, and 28 typically developing children (Kasari & Sigman, 1997). The measures of the study included the a) Autism Behavior Checklist, which includes 57 items describing symptoms of autism; b) the Behavior Style Questionnaire, containing 100 items focusing on temperament; c) the Parenting Stress Index, examining two domains of parenting stress, child characteristics and parent characteristics; and d) adult-child interactions, an observational measure (Kasari & Sigman, 1997).

Results of an ANOVA found that parents perceived their children with Autism as more temperamentally difficult than children with Down syndrome and nondisabled children (Kasari & Sigman, 1997). Parents of children with Autism also reported higher levels of stress, associated with the child's ASD characteristics (Kasari & Sigman, 1997). Scores of parenting stress were highly correlated to scores of difficult temperament (Kasari & Sigman, 1997). Also, as predicted, caregivers of children with

Autism who perceived their child as having a more difficult temperament were observed as less engaged with their child and experienced more stress (Kasari & Sigman, 1997). Overall, this study found that parents of children with Autism have higher levels of stress and also perceive their children as more difficult compared to parents of children without Autism. Furthermore, parenting stress may be in response to the level of engagement the parent has with the child.

To further examine the association between parental stress and child ASD, Davis and Carter (2008) conducted a study on parents and toddlers. Similar to the previous studies, the researchers wanted to examine the relationship between Autistic symptoms, associated problems and behaviors, and parenting stress. However, they also wanted to examine how parents experience stress when they are adjusting to the new diagnosis and whether there were differences in stress levels between mothers and fathers (Davis & Carter, 2008). They measured the parents' anxiety and depression using the Beck Anxiety Inventory (BAI; Beck et al., 1988) and the Center for Epidemiologic Studies Depression Inventory (CES-D; Radloff, 1977), respectively. Parenting stress was assessed using the Parenting Stress Index- Short Form (PSI-SF; Abidin, 1990). They measured the child's social, communicative, and emotional functioning using the Autism Diagnostic Observation Schedule-Generic (ADOS-G; Lord et al., 2000), the Autism Diagnostic Interview-Revised (ADI-R; Lord et al., 1994), the Mullen Scales of Early Learning (Mullen, 1995), and the Infant Toddler Social Emotional Assessment (ITSEA; Carter & Briggs-Gowan, 2006).

Results added to the previous body of knowledge by highlighting that parental stress is high for parents of toddlers with Autism. This assessment of parenting stress

occurred during the initial diagnosis period, differing from the previous research studies. Mothers and fathers were not significantly different in stress levels and the views of their child's behavior problems, also indicating that the parent-child relationship is the most stressful domain of parenting (Davis & Carter, 2008). Also, the most consistent predictor of parenting stress was a delay in social skills (Davis & Carter, 2008). While some differences in predictors of stress were found between mothers and fathers, overall, parenting stress was both high and consistent among both mothers and fathers of toddlers with Autism (Davis & Carter, 2008). Similar to the previous research studies mentioned, parenting stress is found to be associated with a child characteristic; however, this study found the characteristic to be the child's social skill deficit. Also, unlike the previous studies mentioned, this study assessed parenting stress during the initial diagnosis of the child's ASD, during which parenting stress is heightened (Davis & Carter, 2008).

In my research, I will be using the Parental Stress Scale (PSS), which aims to measure the stress levels experienced as a result of being a parent (Lessenberry & Rehfeldt, 2004). This measure is easy to administer, due to the short length, and score, as well as being significantly correlated with scores of more widely used measures, including the PSI (Lessenberry & Rehfeldt, 2004). The PSS measures a variety of emotions and role satisfaction, similar to the PSI (Berry & Jones, 1995). This scale can be used with parents of children with developmental disabilities and behavioral problems effectively; having the ability to isolate the stress associated with the parenting role and examining that stress (Lessenberry & Rehfeldt, 2004). The PSS has advantages over other measures of parenting stress in that it measures the specific

construct of stress, while the PSI has been criticized for not doing so adequately (Berry & Jones, 1995).

Family Stress Theory/Double ABC-X Model

Previous research has found an association between parenting stress and the child's diagnosis of ASD and associated characteristics. Family Stress Theory suggests that a stressor not only impacts the parents (Estes et al., 2009; Kasari & Sigman, 1997; Davis & Carter, 2008), but also may be associated with less adaptive family functioning. Family Stress Theory is a middle range theory that was developed by Reuben Hill, after World War II, in studying families' responses to war (Smith & Liehr, 2003). It originally began as the ABC-X family crisis model, which focused on three components: a stressor event, the family's existing resources, and the family's perceptions of the stressor (Smith & Liehr, 2003). These components interact to determine how prepared a family is for a crisis (Smith & Liehr, 2003). The theory later evolved to examine the family's adaptation after the stressor event has occurred (Smith & Liehr, 2003). The revised model, known as the Double ABC-X model, includes the original components of the stressor event, family resources, and perceptions of stressor, and added the components of the crisis, the family's new resources, the pile-up of stressors, the perception of the pile-up of stressors, and how the family adapts (see Figure 1-1, p. 13) (McCubbin, Sussman, & Patterson, 1983). Adaptation, for the purpose of this research, is defined as how well a family unit can maintain homeostasis/balance within the system (McCubbin, Sussman, & Patterson, 1983).

The theory is based on five core assumptions that recognize the family's inherent ability to adapt in times of crisis. First, it is assumed that families experience stressor events as a normal and natural part of life (Smith & Liehr, 2003). Second, each family

member and unit as a whole has the ability to function and is capable of growth and development, which contributes to that family's ability to protect itself in times of stress (Smith & Liehr, 2003). Third, each family develops unique functions and capabilities that foster growth, development, and protection in times of stress, which then leads to that family's recovery following the stressor (Smith & Liehr, 2003). Fourth, in times of stress, families are able to give as well as take away from their community relationships and resources (Smith & Liehr, 2003). Lastly, when families are forced to change due to a stressor event, the functions of that family work towards recovering from this change and restore stability (Smith & Liehr, 2003).

Although all families have the ability to respond to crisis in adaptive ways, not all families adapt well to stressors. Maladaptation, according to Family Stress Theory, is the "imbalance between the stressors and demands placed on the family and the family's capabilities in terms of managing resources and having adequate coping skills to meet demands" (Ramisch, 2010, p. 310). Maladaptive responses can include high levels of stress, negative perceptions of the child with ASD, inadequate coping skills, and lack of adequate resources (Ramisch, 2010). Based on the Double ABC-X model, an important component that differentiates adaptive from maladaptive family outcomes to stressors is the perceptions of the stressor (or pile-up of stressors). When stressors are perceived more "positively", such as perceiving the child with ASD as a positive contributor of the family, the family has a higher chance of healthy adaptation. When stressors are perceived more "negatively", such as perceiving the child with ASD as having more negative characteristics/problem behaviors, maladaptation could be a result.

For example, Manning, Wainwright, and Bennett (2011) conducted a study of families with ASD children using The Double ABC-X model. The researchers sought to assess the impact of Autism severity, child problem behaviors, family resources, and cognitive reframing on parental stress and family adaptability. The study was conducted on a racially diverse group of participants (Manning, et al., 2011). Reframing, in this study, was defined as “a cognitive appraisal strategy that can lead to positive affect by allowing one to see a situation in a more positive light” (Manning et al., 2011, p. 323). Family adaptation was measured using the Relationship Dimension subscale of the Family Environment Scale (FES) (Dunst et al., 1984), and parental stress was assessed using the Parenting Stress Index- Short Form (Abidin, 1995). Regression equations predicting family functioning and parental distress included the following predictor variables: family income, stress, autism severity, child behavior severity, informal support, coping variables, reframing, and subjective social status (Manning et al., 2011, p. 326). For family functioning and parenting distress, the variables in the model explained 28 percent and 46 percent of the variance, respectively (Manning et al., 2011, p. 327). Results specific to family functioning showed that the child’s behavior severity, coping by relying on friends and family, and subjective social status were significant predictors of family functioning (Manning et al., 2011). Results also showed reframing to be a significant predictor of family functioning and parenting distress (Manning et al., 2011). Reframing was found to lead to parents having positive perceptions of their child’s ASD (Manning et al., 2011). These positive perceptions may lead to better family adaptability and lower levels of parenting stress (Manning et al., 2011). Overall, this study found the parents’ ability to reframe was more important in influencing family

adaptability than the families' social support and financial status (Manning et al., 2011). Therefore, the family's perceptions of the stressor (e.g., ASD child) could support more positive family adaptation, if perceptions are more positive (Manning et al., 2011).

Stress and Functioning

As previously discussed, an association between parenting stress and the child's ASD diagnosis has been found in numerous research studies (Estes et al., 2009; Kasari & Sigman, 1997; Davis & Carter, 2008). According to the Double ABC-X model, the original and pile-up stressors have a relationship with the family's overall adaptation (Smith & Liehr, 2003). It is hypothesized in this study that as parental stress increases, adaptation decreases (maladaptation), an inverse relationship. Previously conducted research has supported this relationship between parental stress and overall adaptation.

Bristol (1987) conducted a study focusing on the effectiveness of the Double ABC-X model and its ability to predict successful family adaptation in families of children with Autism. She defined "successful adaptation" as having "good martial adjustment, few maternal depressive symptoms" and by conducting an "in-home rating of family functioning" (Bristol, 1987, p. 469). This study examined the various components of the Double ABC-X model and the contribution to successful family adaptation. The components included the severity of the autism, the pile-up stressors, the cohesion of the family, the extent of social support, the externalization of blame, the perception of the stressor, and how the family copes (Bristol, 1987, p. 471).

Bristol (1987) tested four hypotheses. The first hypothesis was that the Double ABC-X model would be able to predict successful adaptation in families of children with Autism (Bristol, 1987, p. 471). The second hypothesis was that more successful

adaptation would be predicted by greater family cohesion, greater accessibility to informal and formal support regarding the child with autism, and better patterns of coping (Bristol, 1987, p. 471). The third hypothesis stated that there would be a negative relationship between successful adaptation and the pile-up stressors; maternal self-blame; and negative perception as the child's Autism being a catastrophe (Bristol, 1987, p. 471). The fourth hypothesis tested that the pile-up stressors, resources, perceptions, and coping style would account for more variance, rather than the severity of the child's autism, in successful adaption (Bristol, 1987, p. 472).

Forty-five biological mothers of children with autism participated in this longitudinal study. Self-report questionnaires were completed, followed by a scheduled home-visit, when structured interviews took place. The measures included the following: the Child Autism Rating Scale (CARS), used to measure the stressor- severity of the child's Autism; the Holroyd Questionnaire on Resources and Stress (QRS), used to assess the pile-up of family stressors, particularly the limitations on the family caused by the child's autism; the cohesion subscale of the Family Environment Scale, to assess the cohesion of the family; the Carolina Parent Support Scale, used to measure the parents' perceptions of social support, both informal and formal; the Coping Health Inventory for Parents, used to assess coping patterns in dealing with the stress of their child's Autism; and the Definition Scale, used to measure the parental perceptions of having a child with Autism (Bristol, 1987). Successful adaptation was measured by focusing on three factors: depressive symptoms, martial satisfaction, and in-home family adaptation (Bristol, 1987, p. 476). Depressive symptoms of the mothers were measured by the Center for Epidemiologic Studies-Depression Scale. Martial

satisfaction was measured by the Short Martial Adjustment Test, and in-home family adaptation was measured by the Home Quality Rating Scale.

Results indicated that the Double ABC-X model is effective in examining the adaptability of a family with a child with Autism, with the stressor(s), resources, and perceptions significantly predicting the family's adaptability (Bristol, 1987). Mothers who had better coping styles, more adequate sources of informal support, and who reported happier marriages, also reported more successful adaptation (Bristol, 1987). The family stressors/pile-up stressors, were found to contribute to martial adjustment, in-home ratings of adaptation, and most highly influenced the prediction of maternal depression (Bristol, 1987). Negative perceptions also affected the family's adaptability, and adaptation was found to be more highly linked to the family's resources and perceptions, rather than the severity of the Autism (Bristol, 1987). Overall, while severity was not a significant predictor of functioning, stress, self-blame, and negative perceptions were found to be significant negative predictors of family adaptation, as assumed by the Double ABC-X model (Bristol, 1987). This study supports the use of the Double ABC-X model in examining a family's ability to adapt when having a child with Autism, and the factors that contribute to this adaptation (Bristol, 1987).

Rao and Beidel (2009) examined parental stress, sibling adjustment, and family functioning and the impact that HFA has on those family factors (Rao & Beidel, 2009, p. 439). The sample consisted of parents and siblings of 15 male children with HFA, and parents and siblings of 14 male children without a disorder, which was the control group (Rao & Beidel, 2009). Parents of children with HFA were administered an interview; the Autism Diagnostic Interview-Revised (ADI-R), to measure symptoms associated with

DSM-IV autism diagnostic criteria; the Parenting Stress Index, to measure parental stress; the Family Environment Scale, to measure family functioning; the Symptom Checklist-90-Revised, to measure psychological problems; the Short Form-36, to measure physical and mental health; the Piers-Harris Children's Self-Concept Scale, to measure sibling adjustment; and finally, the Child Behavior Checklist, to assess child behavior problems (Rao & Beidel, 2009). Results indicated that, when comparing HFA families and the control family, the child's problem behaviors were associated with increased parenting stress (Rao & Beidel, 2009). Total behavioral problems of the child were also higher among children with HFA (Rao & Beidel, 2009). In addition, parents of children with HFA experienced more "restricted family functioning" than the normal control families (Rao & Beidel, 2009, p. 447). Similar to previous research studies, these results highlights the coexistence of stress and family adaptation, with the increased levels of stress and the lower levels of functioning occurring more in families of children with ASDs.

The previous research studies have looked at the correlational relationship between parenting stress and family functioning, while Tonge et al. (2006) conducted a study which examines the casual relationship using an intervention study. Tonge et al. (2006)conducted a randomized controlled study, looking at the influence of "a manual-based parent education and behavior management (PEBM) training intervention on the mental health and adjustment of parents with preschool children recently diagnosed with autistic disorder" (p. 562). Children, ages 2.5 to 5 years, all with a diagnosis of autistic disorder, and their parents, with a total sample number of 103 parents, participated in the study (Tonge et al., 2006). The parent measures included the

following: the General Health Questionnaire, to measure parental mental health; the Parenting Stress Thermometer, a measure of a general level of stress; and the Family Assessment Device (FAD), specifically the general functioning scale, measuring family function (Tonge et al., 2006). These measures were taken pre- and post treatment, and at a 6-month follow-up. The child measures included the following: the Developmental Behaviour Checklist - Autism Screening Algorithm, a parent-completed questionnaire of the child's psychopathology; and the Psychoeducational Profile-Revised, another developmental measure specifically for children with Autism (Tonge et al., 2006).

Participants were assigned to three different groups, the PEBM group, the PEC group (Parent Education and Counseling), and a control group. The PEBM group received a manual based education, also focusing on behavior management skills, based on multiple interventions and behavioral techniques, and treatment sessions (Tonge et al., 2006, p. 563). The PEC group included educational materials, same as the PEBM group; however, no skills training or homework were given (Tonge et al., 2006). The nonintervention control group only received three 6-month assessments (Tonge et al., 2006).

Tonge et al. (2006) found that parents in the intervention groups, both the PEBM and PEC, benefited from an improvement of overall mental health, over a long period of time. This includes a reduction in stress, anxiety, and depression (Tonge et al., 2006). Furthermore, family functioning also showed improvement in both intervention groups, "in the 33%-43% of treatment families who had the highest level of dysfunction" (Tonge et al., 2006, p. 568). This study highlights the use of an intervention on families of children with ASDs, targeting a reduction in stress and an improvement in family

functioning. Also, this study showed that the improvement of overall mental health, including stress, may contribute to or coexist with an improvement in family functioning.

The previous research has found the association between parenting stress and family functioning to be significant for families of children with ASDs (Bristol, 1987; Rao & Beidel, 2009). Parenting stress was found to be a significant negative predictor of family functioning (Bristol, 1987). Also, when using an intervention method targeting overall mental health of the parents, including stress, family functioning has been found to improve (Tonge et al., 2006). Therefore, the relationship between parenting stress and family functioning for families of children with ASDs is found to be an important area of focus in aiming to improve family functioning for these families.

Stress, Functioning, and Positive Perceptions

The Double ABC-X model illustrates the relationship that perceptions play on the relationship between the stressors and family functioning (Manning et al., 2011). In this research, it is hypothesized that, in the relationship between stress and adaptation, positive perceptions play the role of a moderator, or a protective factor. Positive parental perceptions have been found to be linked to the parent's sense of happiness and fulfillment in parenting, sense of personal strength, family closeness, and sense of personal growth (Behr, Murphy, & Summers, 1992; Hastings et al., 2002). Therefore, the definition of the stressor event, in order to be positive, involves positive feelings towards the child's ASD and the child's contribution to the family system. Previous studies have focused on the relationships between stress, adaptation, and perceptions.

Saloviita, Italinna, Leinonen (2003) used of the Double ABC-X model to guide their study of parenting stress and mothers' and fathers' adaptation. They were looking at the predictive power of family demands, family resources, and the family definition of

the situation (perception), on parental stress (Saloviita et al., 2003). The sample included 1,115 cases, with children from 1 to 10 years old, and both of their parents (Saloviita et al., 2003).

They measured parental stress using Friedrich et al.'s (1983) Questionnaire on Resources and Stress, Friedrich Edition, which measures parental stress by focusing on four independent factors: Parent and Family Problems, Pessimism, Child Characteristics and Physical Incapacitation (Saloviita et al., 2003). They also looked at family demands, family adaptive resources, and the family's definition and meaning of the stressor (Saloviita et al., 2003). Overall, the results indicated that parental stress was more highly predicted by how the parents defined their situations (perceptions), and their various resources, than the child's behaviors and/or symptoms (Saloviita et al., 2003). An important finding suggests that how the parents' perceived their situation was the most important component that explained stress (Saloviita et al., 2003). For mothers, it was the child's challenging behaviors, while fathers focused more on the perceived social acceptance of the child (Saloviita et al., 2003). These negative perceptions of the situation were the highest predictors of parental stress (Saloviita et al., 2003). Therefore, perceptions impact the level of parental stress, with negative perceptions associated with higher levels of parental stress. Also, since the original "stressor" (the child's disability) had small predictive power, this study indicates that trying to intervene in the parent's perceptions and attitude would be more beneficial to the family than trying to intervene with the child's disability (Saloviita et al., 2003).

In another study, Hastings et al. (2005) focused on the relationships between the child, spousal, and parent variables, looking at stress and perceptions, and overall

psychological functioning in families of children with ASDs. They expected to find 1) that maternal stress would be related to the mental health of their partner and the behavioral characteristics of their child, 2) that the behavior problems of the child predict maternal stress, rather than the adaptive functioning of the child, and 3) that paternal stress would not be predicted by the child's behavioral characteristics, but rather by the mental health of the mother (Hastings et al., 2005). They also looked at positive perceptions of the parents about their child, yet did not have enough previous research to make any predictions.

Participants included parents (48 mothers and 41 fathers) of pre-school children with autism. Six measures were used in this research; the Parent Report version of the Developmental Behavior Checklist to measure the child's problem behaviors; The Vineland Adaptive Behavior Scale- Survey form to measure adaptive behavior in four domains: Socialization, Communication, Daily Living Skills, and Motor Skills; The Autism Screening Questionnaire to measure the severity of autistic symptoms; the Hospital Anxiety and Depression Scale (HADS) to measure parent's mental health; the Questionnaire on Resources and Stress- Friedrich short form to measure parenting stress; and the Kansas Inventory of Parental Perceptions to measure positive perceptions, using the Positive Contributions scale.

Results indicated that maternal stress was related to behavior problems in the child, but paternal stress is not; paternal stress was predicted by their partner's well-being (Hastings et al., 2005). Overall, positive perceptions were identified; with mothers having more positive perceptions than fathers (Hastings et al., 2005). Positive perceptions were measured using the Positive Contributions scale, which consists of

items focusing on the positive impact that the child has on the parent (Hastings et al., 2005). The maternal positive perceptions were not predicted by either child or paternal variables, thus being determined by variables that were not measured in this study (Hastings et al., 2005). Paternal positive perceptions, on the other hand, were negatively predicted by maternal depression (Hastings et al., 2005). Therefore, for fathers, positive perceptions are impacted by similar variables that impact paternal stress (Hastings et al., 2005). This aids in my research by identifying positive perceptions of parents of children with Autism, the differences between mothers and fathers, and what those perceptions are or are not linked to for both.

Similarly, a study by Hastings, Allen, McDermott, & Still (2002) looked at the associations between parental positive perceptions related to the child's disability, and factors identified as negative (such as stress and difficulty of care) and positive (such as parenting-efficacy). They also looked at whether or not positive perceptions of mothers were associated with coping strategies which focus on the positive reframing of the stressor (Hastings et al., 2002).

Forty-one mothers (39 biological, 2 foster) of children with intellectual disabilities participated in this study. The data was collected using self-report questionnaires, with five sections: demographics, care demands for the children, family support, family coping strategies, and three subscales from the KIPP scale (Kansas Inventory of Parental Perceptions). These three subscales, to measure positive perceptions, included: source of happiness and fulfillment subscale, source of personal growth and maturity scale, and the source of strength and family closeness scale (Hastings et al., 2002). Using regression to look at each predictor's independent prediction of positive

perceptions scores (Hastings et al., 2002), the authors found that reframing coping strategies was a significant predictor of all three positive perception domains (Hastings et al., 2002). Likewise, positive perceptions were more highly related to the mothers' stress and parenting-efficacy, in the form of seeking social support, than with the child's characteristics (Hastings et al., 2002). The findings of this study highlight the importance of intervention strategies which target an increase in positive perceptions, such as reframing, in order to support coping with the stressors (Hastings et al., 2002).

Conclusion

The overview of literature has highlighted the symptoms of ASDs and parenting stress associated with those symptoms, the relationship between stress and the overall functioning of the family, and how parenting perceptions might play a role. Past research as shown that parenting stress was higher in families of children with Autism, compared to families of typically developing children, while the family functioning of families with children with ASDs was more restricted. Despite these findings, positive perceptions have also been identified in parents of children with ASDs, and it may have the function of a protective factor for the parents and their family's functioning.

The Double ABC-X model has been found to be an effective framework when looking at the adaptability of families of children with ASDs. Using the Double ABC-X model, it was found that reframing the situation (perceptions) was important in influencing adaptability (Manning et al., 2011). Negative perceptions have been found to be the highest predictor of parental stress (Saloviita et al., 2003). However, positive perceptions in parents of children with ASDs have been identified in previous research, being highly related to factors such as parental stress and self-efficacy (Saloviita et al., 2003; Hastings et al., 2005; Hastings et al., 2002).

The purpose of my study is to evaluate the relationship between parental stress and adaptation, and how positive perceptions may act as a protective factor, in parents of children on the Autism Spectrum. Based on previously conducted research, and the assumptions of the Double ABC-X model and Family Stress Theory, I am predicting that parental stress has a significant negative relationship with the family's overall adaptation. I am also predicting that the association between parental stress and family adaptability will be moderated by parents' cognitive beliefs and positive perceptions.

CHAPTER 3
METHODS

Research Design

This study used a non-experimental, cross-sectional design. The design was non-experimental because the independent variables could not be manipulated (Belli, 2008). This design was cross-sectional because it took place at one point in time, examining the correlation between two or more variables (Belli, 2008; DeVaus, 2001). To analyze the data, inferential statistics were used. Inferential statistics are “used to make conclusions beyond the data collected and to test hypotheses” (Belli, 2008, p. 111). The theoretical population for the study were families with at least one child with an ASD. The accessible population was families with at least one child with an ASD in central Florida attending CARD (Center for Autism and Related Disabilities) support groups and meetings.

Sample

The sample consisted of 69 parents attending support groups for their child’s ASD; specifically support groups through the University of Florida’s CARD (Center for Autism and Related Disabilities). Only 66 participants returned their questionnaires with signed consent forms; therefore, only data of those 66 participants were used. This was a nonprobability and purposive sample because it was not a random selection of participants and the sample was specific to the population of study (Trochim, 2006). Data was collected from support group participants in the fall of 2012 and spring of 2013. Questionnaires were distributed to any participant willing and consenting to participate. While attendance is not consistent in the groups, the participants of the support groups consisted of a diverse group of parents/guardians of children with an

ASD. The only qualifying characteristic of participating in this research was having a child with an ASD. Dr. Greg Valcante, the director of the UF CARD, assisted me in contacting the leaders of the groups and arranging my meeting with these support groups, including the Gainesville, Orlando, and Ocala, Florida groups.

The group consisted of 66 parents, 51 females and 15 males, ranging from ages 20 to 70, with the mean age being 43.9. Their children consisted of 49 males and 16 females (1 missing gender), ages ranging from 3 to 29, with the mean age being 11.5. For parents, ethnicities consisted of Caucasian (66.7%), Hispanic (18.2%), Asian (4.5%), Black (4.5%), and Multiracial (6.1%). The child sample ethnicities consisted of Caucasian (66.7%), Asian (4.5%), Hispanic (12.1%), Black (3.0%), Multiracial (9.1%), and other (1.5%). The average annual household income (see demographic table, Figure 3-1) had a median range of 50,000- 74,999. The most commonly reported education of the parents in the sample was graduated college/obtained a Bachelor's degree (34.8%) (see Figure 3-1). For the education of the child (see Figure 3-1), the most reported category was public school (63.6%). Forty-three of the parents were married, and 23 parents were single, which included divorced, separated, widowed, and other.

Instrumentation

The Parental Stress Scale

The Parental Stress Scale was designed to measure a general sense of parental stress (Berry & Jones, 1995). This measure consists of 18-items, generated to capture the "perception of parental stress among most individuals" (Berry & Jones, 1995, p. 465-466). This measure taps into emotional variables, such as anxiety and guilt, role

satisfaction, and the concept of viewing the experience of being a parent as rewarding, by looking at intimacy and satisfaction with the child (Berry & Jones, 1995). Overall,

Demographics Characteristics (n=66)	
Variables:	**n (%)**
Gender (Parent)	
Male	15 (22.7)
Female	51 (77.3)
Gender (Child)	
Male	49 (74.2)
Female	16 (24.2)
Missing	1 (1.5)
Ethnicity (Parent)	
Asian	3 (4.5)
Black	3 (4.5)
Caucasian	44 (66.7)
Hispanic	12 (18.2)
Multiracial	4 (6.1)
Ethnicity (Child)	
Asian	3 (4.5)
Black	2 (3)
Caucasian	44 (66.7)
Hispanic	8 (12.1)
Multiracial	6 (9.1)
Other	1 (1.5)
Missing	2 (3)
Average Annual Household Income	
0-10,000	
10,000-19,000	2 (3)
20,000-34,999	4 (6.1)
35,000-49,999	12 (18.2)
50,000-74,999	9 (13.6)
75,000-99,999	13 (19.7)
100,000-149,999	9 (13.6)
Over 150,000	4 (6.1)
Would rather not say	6 (9.1)
Missing	4 (6.1)
	3 (4.5)
Education (Parent)	
Less than high school	1 (1.5)
High school/GED	7 (10.6)
Some college	18 (27.3)
Bachelor's degree	23 (34.8)
Master's degree	8 (12.1)
Doctor's degree	7 (10.6)
Missing	2 (3)
Education (Child)	
No school	7 (10.6)
Home school	3 (4.5)
Public school	42 (63.6)
Private school	8 (12.1)
Charter school	1 (1.5)
Missing	5 (7.6)
Marital Status	
Married	43 (65.2)
Single	23 (34.8)

Figure 3-1. Demographic Characteristics

when compared to the widely-used PSI to assess its validity, this measure was significantly positively correlated to PSI scores (Berry & Jones, 1995).

The reported Cronbach's alpha for the entire measure is .83 (Berry & Jones, 1995). The Cronbach's alpha for this sample was slightly higher (.862). Items from this measure include: "I feel close to my child(ren)" and "The major source of stress in my life is my child(ren)" (Berry & Jones, 1995, p. 466). These items were answered on a 4-point response format, ranging from Strongly Agree to Strongly Disagree.

KIPP: Kansas Inventory of Parental Perceptions

The Kansas Inventory of Parental Perceptions was designed to measure the parental perceptions of parents of children with special needs (Behr, Murphy, & Summers, 1992, p. 5). The KIPP is divided into four domains including: Positive Contributions, Social Comparisons, Causal Attributions, and Mastery/Control (Behr et al., 1992, p. 5). Since this research was targeting positive perceptions, only the Positive Contributions subscale was used. The domain includes four subscales: Source of Happiness and Love, Family Strength and Closeness, Personal Growth and Maturity, Pride and Cooperation, and Learning through Experience with Special Problems in Life (Behr et al., 1992, p. 11). Three of the subscales were used to target the parents' positive perceptions, which were viewing their child as a source of Happiness and Fulfillment, Family Strength and Closeness, and Personal Growth. Research has used those specific subscales to measure positive perceptions, stating that "the subscales of the KIPP are empirically derived dimensions of families' positive perceptions of the children with disabilities with good psychometric characteristics" (Greer, Grey, & McClean, 2006, p. 239).

Cronbach's alphas were calculated to determine the reliability of the KIPP. The Positive Contributions Subscale for this sample had a Cronbach's alpha of .934. This Cronbach's is higher than previously reported in the literature, (.77) (Behr et al., 1992). The Source of Happiness and Fulfillment subscale had a Cronbach's alpha of .883; the Strength and Closeness subscale had a Cronbach's of .842; and the Personal Growth and Maturity subscale had a Cronbach's of .896.

For construct validity, the Positive Contributions Subscale "had a significant correlation with scores on the Family APGAR" (Behr et al., 1992, p. 15). The Family APGAR measures family satisfaction, with viewing the family as nurturing and supportive (Behr et al., 1992). The Strength and Closeness subscale was significantly correlated with this measure. Therefore, participants who reported their child as contributing to their family being stronger and close also reported greater family satisfaction (Behr et al., 1992).

Sample items for these subscales include: "My Child _____ is fun to be around"; "The Presence of My Child _____ helps me take things as they come"; "My Child ____ is responsible for my learning patience" (Behr et al., 1992, p. 30-31). The response format for these items consists of a four point scale, ranging from Strongly Disagree, Disagree, Agree, and Strongly Agree. To score these items, the responses were assigned numerical values (SD=1, D=2, A=3, SA=4) (Behr et al., 1992). Then, means for each subscale were calculated (Behr et al., 1992). Higher scores have been found to be associated with stronger parental perceptions (Behr et al., 1992, p. 18).

The Family Assessment Device

The Family Assessment Device was designed to measure family functioning by gathering information on different dimensions of the family system (Epstein, Baldwin, &

Bishop, 1983). The development of the FAD was based on the dimensions of the McMaster Model of Family Functioning (MMFF) (Epstein et al., 1983). This model aims to describe the organizational and structural dynamics of the family, including “the patterns of transactions among family members which have been found to distinguish between healthy and unhealthy families” (Epstein et al., 1983, p. 172). For example, the dimensions of the model include problem solving, communication, roles, affective responsiveness, affective involvement, and behavior control, all of which come into play to determine the level of health in families (Epstein et al., 1983). If a family has lower levels of communication and problem solving, their health as a family may suffer.

The FAD is made up of 7 subscales. Six of the subscales measure the six dimensions of the MMFF, while the seventh subscale, the General Functioning scale, was created by selecting “the most highly intercorrleated subset of these items… which assesses the overall health/pathology of the family” (Epstein et al., 1983, p.175). Since the General Functioning scale assesses the overall sense of family functioning, it was used to measure family adaptability. Items from the subscale include: “In times of crisis we can turn to each other for support” and “We are able to make decisions about how to solve problems” (Epstein et al., 1983, p. 174). The Cronbach’s alpha for this measure was .890, slightly lower than reported in the literature (.92; Epstein et al., 1983). The response format for these items consists of a four point scale, ranging from Strongly Disagree, Disagree, Agree, and Strongly Agree. To test for validity of the FAD, it was compared with two other family measures, FACES II and the Family Unit Inventory, and validity correlations were significant (Ridenour, Daley, & Reich, 1999).

Procedure

CARD support groups were identified in Gainesville, FL, Ocala, FL, and Orlando, FL. Dr. Valcante, the director of UF CARD, described the study to support group leaders and asked for their permission to allow data collection prior to the planned support group. All agreed to support the data collection with their groups. I visited each group meeting, and introduced the research. Parent support group members were informed about the purpose of the study and invited to participate in the study. For those who agreed to participate, I provided a consent form, obtaining active consent. I also informed the participants that 1) participation is completely voluntary, and they can cease to participate at any point, 2) their names and responses will not be linked, keeping their identity confidential, 3) there will be no action if someone refuses to participate, and 4) there will be no incentives for participating. This study was approved by the IRB before beginning, IRB protocol number 2012-U-1011. The three instruments, plus a demographic form, was handed out to willing participants, who were asked to fill out the instruments, put them back in the envelopes, and return them to me at the end of their meeting.

Analysis

In analyzing this data, correlations between the variables were examined. According to Pallant (2005), correlations “describe the strength and direction of the linear relationship between two variables” (p. 121). Correlations between two variables, such as stress and family function, being bivariate correlations, were examined (Pallant, 2005). Through interpreting the correlations between the variables, the direction of the relationship was explored, being positive/negative (Pallant, 2005). Correlations are on a scale from -1 to +1, the closer to 1 indicating a stronger relationship (Pallant, 2005).

Pearson's correlation coefficient is represented by *r*, with strong relationships being from .50 to 1.0 (+/-), a medium relationship being from .30 to .49 (+/-), and a small relationship being from .10 to .29 (+/-) (Pallant, 2005). This value, *r*, will be significant at a p-value of less than .05 (Nardi, 2006). Bivariate correlations were used to answer the following hypotheses: "What is the relationship between parental stress and the family's adaptation?"; "What is the relationship between parental stress and the severity of the child's ASD?"; "What is the relationship between parental stress and parental positive perceptions?"

Multiple regression is a "family of techniques that can be used to explore the relationship between one continuous dependent variable and a number of independent variables or predictors" (Pallant, 2007, p. 146). Multiple regression aims to answer several types of research questions, including whether a predictor variable is able to predict the dependent variable when another independent variable is being controlled for (Pallant, 2007). How much of the variance in the dependent variable that can be explained by the independent variable is shown using multiple regression analysis (Pallant, 2005). In hierarchical regression, "variables are entered in steps, with each independent variable being assessed in terms of what it adds to the prediction of the dependent variable, after the previous variables have been controlled for" (Pallant, 2005, p. 141). Specifically, the hypothesis, "What is the relationship between parental stress and the family's over-all adaptation, when parental positive perceptions are a moderator?", was addressed with hierarchical multiple regression.

The variables were entered in blocks, which were predetermined, starting with the control variables (Pallant, 2005). The control variables in this analysis was the

demographic variables; gender of parent, gender of child, marital status, and the age of the child. The next block consisted of the main effect variables. The main effect variables in this analysis were parental stress (coded as Pstress) and the different types of positive perceptions (Happiness and Fulfillment, Family Strength and Closeness, and Personal Growth). The last block consisted of the interaction terms. The interaction terms will consists of 2-way interactions between the main effect variables in the analysis. The dependent variable was family functioning (coded as HFunctioning). Values were considered significant with a p-value of less than .05 (Nardi, 2006).

CHAPTER 4
ANALYSIS

The previous chapter discussed how the data was collected and how the two hypotheses would be tested. This chapter will discuss the results of the bivariate correlations and moderation described in Chapter 3. The first research question was answered by looking at bivariate correlations. The second research question was answered by moderation determined by regression.

Table 4-1 shows the results of the bivariate correlations. Using SPSS data analysis software, bivariate correlations were ran using Pearson's correlation coefficient (*r*). A strong relationship is represented by a coefficient between .50 to 1.0 (+/-), a medium relationship between .30 to .49 (+/-), and a small relationship between .10 to .29 (+/-) (Pallant, 2005). Statistical significance was set at a *p*-value of less than .05 (Nardi, 2006).

It was found that the only significant relationship that a demographic variable has with a perception variable is the relationship between the parent's sense of personal growth, and the parent's gender. Therefore, females are more likely to feel a sense of personal positive growth than males, according to this study.

H1: The parent's stress has a significant positive relationship with the child's ASD severity.

Table 4-1 also provides evidence against support for hypothesis 1, which predicted that parental stress has a significant positive relationship with the severity of the child's ASD. As shown in Table 4-1, there was not a significant relationship between parenting stress and severity, $r(66)= -.060$, ns.

H2: The parent's stress has a significant negative relationship with the family's overall adaptive functioning.

The second hypotheses predicted that parental stress has a significant negative relationship with the family's overall functioning.

Table 4-1. Results of Bivariate Correlations Between All Variables

Bivariate Correlations Variable	1	2	3	4	5	6	7	8	9	10
1. Parent's Gender	1.0									
2. Child's Gender	.039	1.0								
3. Child's Age	.135	-.094	1.0							
4. Marital Status	-.169	-.025	-.066	1.0						
5. Severity of ASD	.046	.132	-.162	-.182	1.0					
6. Parent Stress	.067	-.043	.292*	-.053	-.060	1.0				
7. Happiness	.082	.039	-.238	-.037	.050	-.594**	1.0			
8. Strength/ Closeness	.143	.129	-.179	.092	.089	-.523**	.738**	1.0		
9. Growth	.291*	.127	-.089	-.010	.008	-.375**	.504**	.621**	1.0	
10. Family Functioning	.075	-.110	-.041	.128	.127	-.485**	.415**	.572**	.213	1.0

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

relationship between .30 to .49 (+/-), and a small relationship between .10 to .29 (+/-) (Pallant, 2005). Statistical significance was set at a *p*-value of less than .05 (Nardi, 2006).

Table 4-1 summarizes the correlation coefficients between the variables used in this study, including demographic variables. As shown in Table 4-1, there was a negative correlation between parent stress and family functioning, $r(66) = -.485$, $p < .01$, representing a medium effect (Pallant, 2005).

H3: The parent's stress has a significant negative relationship with the parents' cognitive beliefs.

Table 4-1 also provides evidence in support of hypothesis 3, which predicted that parental stress has a significant negative relationship with the parents' positive perceptions (happiness, closeness, growth). As shown in Table 4-1, there was a negative correlation between parent stress and happiness, $r(66) = -.594$, $p < .01$, representing a strong effect (Pallant, 2005). There was a negative correlation between parent stress and closeness, $r(66) = -.523$, $p < .01$, representing a strong effect (Pallant, 2005). There was a negative correlation between parent stress and personal growth, $r(66) = -.375$, $p < .01$, representing a medium effect (Pallant, 2005).

H4: The parent's positive cognitive beliefs have a significant positive relationship with the family's overall adaptive functioning.

Table 4-1 provides evidence in partial support of hypothesis 4, which predicted that the parent's positive cognitive beliefs would have a significant positive relationship with the family's functioning. As shown in Table 4-1, there was a positive correlation between happiness and family functioning, $r(66) = .415$, $p < .01$, representing a medium

effect (Pallant, 2005). There was also a positive correlation between closeness and family functioning, $r(66) = .572$, $p < .01$, representing a strong effect (Pallant, 2005). Growth and family functioning had a positive correlation, but it was not significant, $r(66) = .213$, ns (Pallant, 2005).

H5: The association between parent's stress and family functioning will be moderated by parents' cognitive beliefs.

In my fifth hypotheses, it was predicted that the association between parent's stress and family functioning will be moderated by parents' cognitive beliefs. To test this, hierarchical regression was run.

Moderation

In Block 1, the demographic variables were entered; gender of parent, gender of child, marital status, and the age of the child. Block 2 consisted of parental stress (Pstress) and a perception variable (i.e. Happiness, Growth, or Closeness). The interaction effect (Pstress * a perception variable) was entered in Block 3. The dependent variable was family functioning (coded as HFunctioning).

Happiness

Table 4-2 summarizes the statistical analysis with Happiness as the moderator. Block 1 (model 1) included the demographic variables. The model was not significant, $F(4, 56) = .471$, Adjusted $R^2 = -.037$, ns The Block 2 variables included parenting stress and happiness. After the Block 2 variables were entered, the adjusted R2 was .184; R^2 change= .233, $F(6, 54) = 3.256$, $p<.05$. After the Block 3 variables were entered, the interaction between parent stress and happiness, the adjusted R^2 was .171; explaining 17.1 per cent of the variance, R^2 change= .002, $F(7, 53)=2.772$, $p<.05$. The β coefficient for the interaction term was not significant, $\beta = -.277$, ns.

Table 4-2. Results of Hierarchical Regression Analyses Testing for Happiness as a Moderator

	Step 1		Step 2		Step 3	
	β	SE	β	SE	β	SE
Variables						
Parent's Gender	.156	.151	.120	.135	.110	.138
Child's Gender	-.111	.142	-.125	.126	-.130	.127
Marital Status	.078	.131	.094	.117	.097	.118
Child's Age	-.005	.009	.007	.009	.007	.009
Parental Stress			-.439*	.190	-.056	.950
Happiness			.174	.124	.439	.657
Parent Stress x Happiness					-.111	.269
R^2	.033		.266		.268	

*denotes p<.05

Growth

Table 4-3. Results of Hierarchical Regression Analyses Testing for Growth as a Moderator

	Step 1		Step 2		Step 3	
Variables	β	SE	β	SE	β	SE
Parent's Gender	.156	.151	.139	.142	.126	.143
Child's Gender	-.111	.142	-.125	.129	-.142	.131
Marital Status	.078	.131	.081	.118	.058	.121
Child's Age	-.005	.009	.005	.009	.006	.009
Parental Stress			-.591*	.179	.152	.817
Growth			.007	.105	.563	.605
Parent Stress x Growth					-.249	.267
R^2	.033		.239		.251	

*denotes p<.05

Table 4-3 summarizes the statistical analysis with Growth as the moderator. Block 1 (model 1) included the demographic variables. The model was not significant, $F(4, 56)= .471$, ns The Block 2 variables included parenting stress and growth. After the Block 2 variables were entered, the adjusted R^2 was .155; R^2 change= .206, $F(6, 54)= 2.828$, p<.05. After the Block 3 variables were entered, the interaction between parent stress and growth, the adjusted R^2 was .152; explaining 15.2 per cent of the variance, R^2 change= .012, $F(7, 53)=2.542$, p<.05. The interaction effect in Block 3 was not significant, with a β value of -.705, ns.

Closeness

Table 4-4. Results of Hierarchical Regression Analyses Testing for Closeness as a Moderator

	Step 1		Step 2		Step 3	
Variables	β	SE	β	SE	β	SE
Parent's Gender	.156	.151	.062	.126	.046	.129
Child's Gender	-.111	.142	-.181	.117	-.196	.120
Marital Status	.078	.131	.054	.108	.052	.108
Child's Age	-.005	.009	.006	.008	.007	.008
Parental Stress			-.286	.168	.328	.900
Closeness			.428*	.125	.868	.645
Parent Stress x Closeness					-.183	.264
R^2	.033		.374		.380	

* denotes p<.05

Table 4-4 summarizes the statistical analysis with Growth as the moderator. Block 1 (model 1) included the demographic variables. The model was not significant, $F(4, 56)= .471$, ns. The Block 2 variables included parenting stress and closeness. After the Block 2 variables were entered, the adjusted R^2 was .305; R^2 change= .342, $F(6, 54)= 5.384$, p<.001. After the Block 3 variables were entered, the interaction between parent stress and closeness, the adjusted R^2 was .298; explaining 29.8 per cent of the variance, R^2 change= .006, $F(7, 53)=4.640$, p<.001. The interaction effect in Block 3 was not significant, with a β value of -.457, ns.

Post-hoc Analysis

Because a moderating effect of parental positive perceptions on the relationship between parental stress and family functioning was not supported in the research analysis, mediation was tested for follow-up analysis. Mediation of the positive perception variables was assessed because the relationships between parenting stress, the positive perception variables, and family functioning was significant (see Table 4-1). Mediation could not occur without the variables being significantly related. Mediation

happens when the independent/predictor variable (X) has a significant association with the mediator variable (M), and M has a significant association with the dependent/ criterion variable (Y); thus after controlling for M, the relationship between X and Y is reduced or is no longer significant (Kenny, 2013a). Complete mediation would involve variable X no longer having an effect on variable Y, after variable M is controlled for (Kenny, 2013a). Partial mediation happens when there is still an effect on variable Y from X, but after controlling for variable M, the effect is reduced, but not to zero (Kenny, 2013a). Testing for mediation was conducted using multiple regression. Positive perceptions were analyzed as mediation variables, as supported by the Double ABC-X model (see Figure 1-1, p. 13).

Table 4-5 shows the results of the mediation analysis. The relationship between the predictor (X) to mediator (M) is in the first column, mediator (M) to outcome (Y) in the second column, predictor (X) to outcome (Y) in the third column, and the predictor (X) to outcome (Y) when the mediator (M) is controlled for is in the fourth column. The β and Standard Error (β(SE)) is reported. Columns 3 and 4, displaying the relationship between X and Y, and that relationship when the mediator (M) is controlled for, are the primary focus of the table, displaying mediation. The sobel test was conducted, and the purpose is to test whether a mediator carries the influence of an independent variable to a dependent variable (Preacher, 2013). The sobel test is an approximate estimate of the standard error of the paths from the independent variable to the mediator and the mediator to the dependent variable (Kenny, 2013).

The demographic variables are entered into Block 1 of each model and the model was not significant, $F(4, 56) = .471$, ns.

Table 4-5. Results of Each Step of Regression Analysis to Test for Mediation

Predictor to Mediator	Mediator to Outcome	Predictor to Outcome	Predictor to Outcome (mediator controlled for)		
β (SE)	β (SE)	β (SE)	β (SE)	Sobel (se)	R^2
Happiness (positive perception)					
PS to HAP	HAP to FF	PS to FF	PS to FF	-2.677** (.093)	.266
-.597** (.166)	.417** (.104)	-.476** (.154)	-.350* (.190)		
Strength and Closeness (positive perception)					
PS to CL	CL to FF	PS to FF	PS to FF	-2.981** (.105)	.374
-.543** (.152)	.579** (.107)	-.476** (.154)	-.228 (.168)		
Personal Growth (positive perception)					
PS to GR	GR to FF	PS to FF	PS to FF	-1.729(.068)	.239
-.491** (.200)	.241 (.099)	-.476** (.154)	-.471** (.179)		

β and (SE) reported for each variable; *denotes p<.05, ** denotes p<.01; PS = Parenting Stress; HAP= Happiness; FF= Family Functioning; CL=Closeness; GR=Growth.

When looking at the relationship between Parenting Stress (predictor) and Family Functioning (criterion), the Block 2 variable was entered, parenting stress. The adjusted R^2 was .170, R^2 change= .206, $F(5, 55)= 3.455$, p<.05. The model was significant, with the β value of -.476, p<.01.

Happiness as a Mediator

As shown in Table 4-5, all three variables were significantly related to one another, a requirement for testing mediation. The path from Parenting Stress (PS) to Happiness (HAP) was statistically significant (β = -.597), as was the path from PS to Family Functioning (FF) (β = -.476). The path from HAP to FF was also statistically significant (β = .417). To demonstrate mediation, both PS and HAP were entered into a regression equation simultaneously, each predicting FF. The resulting model was significant, R^2= .266, F(6, 54)= 3.256, p<.05, with the path from PS to FF remaining significant (β = -.350), but at a reduced value (change β = -.126), suggesting partial mediation. The post-hoc sobel test confirmed that the indirect relationship between PS – HAP- FF was significant.

Closeness as a Mediator

The path from Parenting Stress (PS) to Closeness (CL) was statistically significant (β = -.543), as was the path from PS to Family Functioning (FF) (β = -.476). The path from CL to FF was also statistically significant (β = .579). To test for mediation, both PS and CL were entered into a regression equation simultaneously, each predicting FF. The resulting model was significant, R^2 = .374, F(6, 54)= 5.384, p<.01, with the path from PS to FF not remaining significant (β = -.228) suggesting full mediation. The post-hoc sobel test confirmed that the indirect relationship between PS – CL- FF was significant.

Growth as a Mediator

The path from Parenting Stress (PS) to Growth (GR) was statistically significant (β = -.491), as was the path from PS to Family Functioning (FF) (β = -.476). The path

from GR to FF, however, was not statistically significant (β = .241). Therefore, GR was not a significant mediator, also shown by the post-hoc sobel test between PS – GR- FF (see Table 4-5).

CHAPTER 5
SUMMARY AND CONCLUSIONS

Purpose of Research

Parents of children with ASDs face unique challenges and higher levels of parenting stress than found in parents of typically developing children or children with other developmental disabilities (Manning et al., 2011). According to the Double ABC-X model of family stress, a distressing event can lead to poor family adaptability, and this relationship can be influenced by the intervening variable of cognitive beliefs. Also, families of children with ASDs have shown lower levels of functioning, which, in part, may be attributed to the high levels of stress (Ramisch, 2010). The parent's cognitive beliefs are another component of the Double ABC-X model, predicting that perceptions of the stressor situation have an impact on the level of functioning. Therefore, the purpose of this research was to examine the relationship between parenting stress and family functioning, and how this relationship is affected by the intervening variable of the parent's cognitive beliefs, in this case positive perceptions. Positive perceptions, for the purpose of this research, was defined as the parents' perceptions of their child being a source of fulfillment and happiness; having a positive influence upon them, being a source of personal growth; and a positive impact on the family, being a source of closeness and strength (Hastings, Allen, McDermott, & Still, 2002; Behr, Murphy, & Summers, 1992).

Results

Using the Double ABC-X model to guide this research, relationships between the constructs of the model were examined. These constructs were the stressor (a, A), perceptions (c, C), and overall family functioning (see Figure 1-1, pg. 13). The stressor

was operationalized as the severity of the child's ASD. It was hypothesized that the child's ASD severity would have a significant positive relationship with the parent's stress. This hypothesis was not supported; there was not a significant relationship between parent stress and severity. This finding implies that the degree of severity of the disorder has little impact on the stress of the parent.

The Double ABC-X model also focuses on the impact of parenting stress on family adaptation and functioning. This relationship was tested in Hypothesis 2. As predicted, parenting stress was negatively associated with family functioning. Therefore, as parental stress increased, family functioning decreased. This is important because parents of children with ASDs have been shown to have higher levels of parenting stress than parents of typically developing children or children with other developmental disorders (Manning et al., 2011). These higher stress levels are associated with experiencing lower levels of functioning.

In addition, the Double ABC-X model suggests that parental perceptions are a component which plays a role in the relationship between parenting stress and family functioning, which is tested in this research. Perceptions, whether negative or positive, about the stressor can impact the family's resources and coping strategies, both of which contribute to how the family functions (McCubbin et al., 1983). Positive perceptions were focused on in this research, hypothesizing that the parent's stress has a significant negative relationship with the parents' positive perceptions (specifically coded as Happiness, Closeness, and Growth). This hypothesis was supported in the research. There was a statistically significant negative correlation between parent stress and happiness, and parent stress and closeness, both having a strong effect based on

Pallant's (2005) criteria. There was also a statistically significant negative correlation between parent stress and personal growth, having a medium effect (Pallant, 2005). Therefore, the lower the parent's stress, the higher their positive perceptions, and vice versa. It was also hypothesized that positive perceptions would have a significant positive relationship with family functioning. This was partially supported in the research. There was a significant positive correlation between happiness and family functioning, and between closeness and family functioning. However, growth and family functioning had a positive correlation, but it was not significant.

In the final hypothesis, hierarchical regression analysis was run to test whether positive perceptions were a moderator between parent's stress and family functioning. This hypothesis was not supported by the research, as the analysis indicated that none of the perception variables were significant moderators of the relationship between parental stress and family functioning. These findings led to a post-hoc analysis focusing on the role of positive perceptions as a mediator between parent's stress and family functioning. The test for mediation found that happiness and closeness positive perceptions served as mediators between parenting stress and family functioning. Growth was not a significant mediator.

Discussion

Parenting stress among parents of children with ASDs has been found to be high (Estes et al., 2009; Davis & Carter, 2008). This study examined whether or not stress was related to the severity of the child's ASD. However, the study found that severity of the child's ASD was not a significant variable associated with parenting stress. This finding is consistent with previous research, finding that the severity of the ASD was not related to parenting stress (Bristol, 1987; Estes et al., 2009); however, these findings

surrounding the impact of ASD severity on parents have been inconsistent in the literature (Pisula, 2011). For instance, some studies have identified child problem behavior severity, identified as both internalizing (depressed and anxious) and externalizing (aggressive and noncompliant) behaviors, as being a significant contributor to parenting stress (Rao & Beidel, 2009). These problem behaviors could overlap with the severity of the ASD, making it a challenge to differentiate between the two. Estes et al. (2009) measured both symptoms specific to ASDs (e.g. deficits in communication, socialization, daily living skills, and motor skills) and problem behaviors (e.g. irritability, social withdraw, stereotypic behavior, non-compliance, inappropriate speech), and found that the child's diagnosis and symptoms were not significantly related to the mother's stress, but child problem behaviors were (Estes et al., 2009). However, Davis and Carter (2008), when examining the child's social, communicative, and emotional functioning, found that the delay in social skills and problem behaviors (including internalizing and externalizing) were significantly related to parenting stress. Therefore, an inconsistency occurs in the literature.

Severity may not have been well assessed in this study due to the composition of the sample; consisting only of parents of children with ASDs. Without a control group of parents of typically developing children, the impact of the severity of the ASD is difficult to gauge. Also, this study did not measure child problem behaviors along with symptom severity, limiting our understanding of what child characteristics associated with their ASD could impact parenting stress.

The relationship between parenting stress and the family's functioning was also assessed in this study. Previous research studies have supported the significant

influence of parenting stress on family functioning (Bristol, 1987; Rao & Beidel, 2009; Tonge et al., 2006). A significant finding of this study was the relationship between parenting stress and family functioning, being both consistent with the previous literature and the Double ABC-X model. More specifically, in this study, the PSS (Berry & Jones, 1995) evaluated parent's negative emotions (feelings of guilt, anxiety, and loneliness), role dissatisfaction, and the experience of being a parent as unrewarding (Berry & Jones, 1995). Family functioning, as measured by the General Functioning Scale (Epstein et al., 1983), gauged the overall health of the family. The results suggest that although the severity of ASD symptoms in the child is unrelated to parents' level of negative emotions, role dissatisfaction, and unrewarding feelings, the presence of these distressing symptoms in the parent is associated with the overall health of the family. As summarized previously, parents with children with ASD report greater parenting stress than parents of children with other developmental disabilities (Manning et al., 2011). Although comparisons with parents with non-ASD children were not a part of this study, it can be assumed that the study participants were experiencing similar amounts of parenting stress. When distressed, parents may experience greater depression (Bristol, 1987; Tonge et al., 2006; Manning et al., 2011) and poorer parent-child communication (Kasari & Sigman, 1997; Davis & Carter, 2008), which have been associated with poorer family functioning (Bristol, 1987; Rao & Beidel, 2009).

As illustrated in the Double ABC-X model, perceptions have been found to be an intervening variable in the relationship between parenting stress and family functioning. Saloviita et al. (2003) found that the way parents' perceived their situation was the most important component explaining responses to stress. Negative perceptions of the

situation were the highest predictor of parental stress (Saloviita et al., 2003). In another study, Hastings et al. (2002) found that positive perceptions, for mothers, were significantly related to less stress and greater parental self-efficacy. Furthermore, Manning et al. (2011) found that positive perceptions were associated with better family adaptability and lower levels of parenting stress.

The significant link between stress and perceptions is incorporated in the Double ABC-X model. The Family Stress and Coping theory is comprised of family demands, family capabilities, and the appraisals they assign to their situation (Patterson, 2002). Family demands include stressors, family strains, and disruptions in daily life (Patterson, 2002). Family capabilities include the family's resources and coping behaviors, what the family does in response to the demands (Patterson, 2002). Risk factors, such as stress, can result from the family demands, and protective factors need to come into play to impact how the family responds, which leads to family adjustment (Patterson, 2002). The appraisals of their situation can act as a protective factor for the family's adjustment (Patterson, 2002). In hopes to restore balance in the family unit when facing stressors, changing cognitive beliefs is crucial for good family adjustment (Patterson, 2002). With high family demands, stress can result, putting the family's adjustment at risk. However, perceptions can buffer this effect. For instance, a component of parental stress is negative emotions (depression, guilt, anxiety) which can emerge in the presence of their caregiving demands. This reaction can emerge, influencing the meaning that is assigned to the demands, fueling negative perceptions. However, if those negative emotions are decreased, the negative perceptions would decrease, or as the cognitive beliefs are changed to more positive, the negative emotions may become less

influential, decreasing parental stress. According to this theoretical framework, the process of being able to adapt to major stressors, such as the child being diagnosed with a disorder, involves a change in prior cognitive beliefs (Patterson, 2002). Furthermore, this view emphasizes the family's resiliency to the stressors, in response to the meaning that is assigned to the situation, and the capability to manage stress (Patterson, 2002).

Parental perceptions have also been found to be significantly linked to the family's ability to function appropriately following a stressor event. Bristol (1987) found that negative parenting perceptions had a significant inverse relationship with the family's adaptability; finding that adaptation was more highly linked to parent perceptions rather than severity of the ASD. In another study, Manning et al. (2011) examined reframing, a strategy which can lead to the development of more positive perceptions, as a predictor of family functioning. They found that the reframing leads to parents having positive perceptions of their child's ASD and positive perceptions could support more positive family adaptation (Manning et al., 2011). The current study found similar results, that each of the positive perceptions had a significant positive relationship with family functioning; as one increased, so did the other.

While previous studies have examined the moderating effect of perceptions, none have examined the moderating effect of positive perceptions on the relationship between parenting stress and family functioning. Research has studied similar variables as moderators of the relationship between parenting stress and various outcomes, specifically of parents of children with developmental disabilities, including ASDs. For example, Blacher and Baker (2007) found that the "positive impact", referring to the

child's positive impact on the family, served as a moderator of the child's behavior problems on parental stress in families of children with mental retardation (Blacher & Baker, 2007). Similarly, Dunn, Burbine, Bowers, and Tantleff-Dunn (2001) found that social support significantly moderated the relationship between stressors and the negative outcome of isolation (Dunn et al., 2001). Distancing as a coping style was also a significant moderator in the relationship between stressors and the negative outcome of isolation (Dunn et al., 2001). However, in the current study, parents' cognitive beliefs did not moderate the association between parent's stress and family functioning. Therefore, this research adds to the existing body of knowledge by looking at the moderation effect of positive perceptions on the relationship between parenting stress and family functioning, and finding that none of the three perceptions were significant moderators. The moderation effect may not have been significant for a couple of reasons, including the sample size. The lower sample size may be a statistical issue, not generating enough statistical power for significant interactions. These specific positive perceptions also may not act as protective factors between parenting stress and family functioning; however, other variables may be explored in the future, such as coping styles and social support (Dunn et al., 2001). Furthermore, moderation may not have been significant due to the high associations between each of the positive perception variables as parenting stress (see Table 4-1, p. 49). Since moderation does not take into account the relationships between the predictor and intervening variable, these variables when highly linked are unable to separate in the analysis, leading to problems (Kenny, 2013). However, since the variables were so highly associated, mediation was completed as a post-hoc analysis.

The post-hoc analysis examined the mediating effect of positive perceptions on the relationship between parenting stress and family functioning. If mediation occurs, the relationship between the predictor and criterion variables should be reduced because of the mediating variable (Kenny, 2013). Because those three positive perceptions were not significant moderators, they were tested as mediators on the relationship between parenting stress and family functioning. Previous research has studied the mediating impact of perception variables on the parent's well-being. For instance, Hastings and Brown (2002) examined self-efficacy of parents of children with Autism and found that self-efficacy was a significant mediator of the relationship between the child's disability and father's anxiety. In the current study, parents' perceptions of their child as a source of fulfillment and happiness served as a partial mediator, and the parents' perceptions of their child being a source of closeness and strength served as a full mediator. However, since parents' perception of the child being a source of personal growth was not a significant predictor of family functioning, that perception variable was not a significant mediator on the stress and functioning relationship.

As previously discussed, parenting stress is determined by the presence of negative emotions, role dissatisfaction, and unrewarding feelings specific to parenting, which impacts the parents' assessment of the overall family health. The relationship between parenting stress is significant with the cognitive belief that the child is a source of happiness and fulfillment, and a source of family strength and closeness. Therefore, if the presence of negative emotions, role dissatisfaction, and unrewarding feelings are high, the cognitive beliefs that a child is source of happiness or strength and closeness

for the family are reduced. Also, those cognitive beliefs may predict the family's overall health; if those beliefs are increased, family functioning may increase. The causal order of these variables aligns with the Double ABC-X model, and these findings are specific to parents of children with ASD.

Implications

This research study has some implications for the future for families of children with ASDs. With the high levels of parenting stress that parents of children with ASDs experience (Manning et al., 2010), and the impact of the stress on how well the family functions, protecting the functioning of the family is an important focus area. This study looked at the association of positive perceptions on the relationship between the stressors of having a child with an ASD, and how the family functions, as illustrated by the Double ABC-X model.

For the relationship between parenting stress and family functioning, key components involved in the measurement of those variables were identified. The parenting stress measure (PSS) assessed emotional variables (guilt, anxiety, and loneliness), role dissatisfaction, and the concept of viewing the experience of being a parent as unrewarding (Berry & Jones, 1995). The family functioning scale (General Functioning Scale; Epstein et al., 1983), gauged the overall health of the family. Therefore, negative emotions, role satisfaction, and rewarding feelings may be targeted in future research and intervention approaches, as those components are related to overall family health.

The association between parenting stress and family functioning was not significantly moderated by the parent's cognitive beliefs in this study. This study would therefore suggest that the three positive perceptions (happiness, closeness, and

growth) do not serve as protective factors for the relationship between parenting stress and family functioning, specifically for families of children with ASDs. The small sample size of the study could contribute to this finding. Also, due to the high associations between each of the positive perception variables and parenting stress, this finding could have occurred, as moderation does not take into account the relationships between the predictor and intervening variables.

The findings of the post-hoc analysis revealed that parenting stress and family functioning were significantly mediated by the parent's positive perceptions. The perception of the children being a source of happiness and fulfillment showed partial mediation, and the perception of the children being a source of family strength and closeness showed full mediation. The perception of the child being a source of personal growth was not a mediator, due to the relationship between that perception and family functioning not being significant. These findings provide a target for components of parenting stress and perceptions to focus on in order to improve how the family functions. By focusing on the reduction of parenting stress, the presence of positive parental perceptions could increase. Furthermore, the two positive perceptions that were found to be significant mediators in the study, perceiving the child as a source of fulfillment and happiness and a source of closeness and strength, can be the focus of improving family functioning.

Future research can further build on this study by examining other potential moderating variables for the relationship between parenting stress and family functioning. For instance, reframing as a coping strategy which leads to forming positive perceptions could be explored as a moderator, along with various other coping

mechanisms in order to offer protective factors for families of children with ASDs (Dunn et al., 2001). Resources, another component in the Double ABC-X model, could also be examined in a moderating role, such as social support (Dunn et al., 2001), specifically in the relationship between stress and functioning.

This study is also beneficial for intervention approaches and support group settings, which was how the data for this study was gathered. Support groups which aim to target reducing parenting stress can also focus on promoting overall family health, by focusing on the parents' negative emotions, role satisfaction, and rewarding feelings of being a parent of a child with an ASD. From a social learning perspective, intervention strategies for reducing stress could include coping skills training, which involves relaxation techniques, and problem-solving skills training, which involve strategies on how to deal with incoming conflicts (Kilpatrick & Holland, 2006). These strategies could help parents reduce stress by tapping into the components that make up the stress. For instance, if parents learn relaxation techniques, the anxiety they feel (negative emotion) associated with parenting could be reduced.

Since this study could not target the causal relationship between parenting stress and positive perceptions, it may be that targeting positive perception could also lead to a reduction in parenting stress. The Double ABC-X model outlined the causal relationship presented here, however, future research could explore the direction of the relationship between parenting stress and positive perceptions, using a longitudinal method instead of a cross-sectional. However, what this study can imply is that positive perceptions predict family functioning, while also impacting the relationship between parenting stress and family functioning. Specifically the two perceptions found to be

significant mediators should be focused on in intervention strategies. Positive reframing coping strategies which focus on the beliefs that the child is a source of both happiness and family strength could be beneficial in promoting a more positive functioning for the families, allowing families to interact in healthier ways (Kilpatrick & Holland, 2006).

Limitations

One limitation of this study is the use of nonrandom selective sampling, strictly targeting parents of children with ASDs, and gathering the sample from established support groups. Another limitation is the sample size, being smaller than the ideal sample size for survey research. Also, survey research, unless conducted with ideal conditions, does not produce findings that can be generalized to the population (Sills & Song, 2002). The “ideal” survey method can do the following: have randomly selected sample participants, ensure that everyone in the population has an equal chance in participating in the sample, and have everyone included in the sample respond to the survey (Sills & Song, 2002). Therefore, because the current research sample is non-representative and nonrandom, the findings cannot be generalized to the population (Sills & Song, 2002).

Another limitation with survey research is the likelihood of social desirability in the participants’ responses. Social desirability occurs when participants answer the way they think they should in order to look better (Trochim, 2006). Since the surveys will be confidential, this may be less of a problem in this research; however, it is a common bias that occurs when using survey research (Trochim, 2006).

This sample was comprised of support group participants only, participating in the CARD groups. Bias could be introduced, based on the sample being made up of people who already have chosen to participate in a support group. These parents may

already have higher positive perceptions due to the time they have spent with their support group, which was not controlled for, potentially creating a bias in the sample.

Conclusion

The purpose of this study was to examine parenting stress among parents of children with ASDs, and the impact of parenting stress, as well as positive parental perceptions, on family functioning. According to the Double ABC-X Model, the interaction between the pile-up stressors and perceptions help to determine if there is successful family adaptation (McCubbin et al., 1983). Guiding this research was the question, “do positive parental perceptions of the child function as a moderator between parental stress and the family’s over-all functioning?” Results found that positive perceptions are not significant moderators between parental stress and the family’s functioning. Moderators serve as intervening variables, which affect the strength of relationship between the independent and dependent variables. Post-hoc analysis, however, determined that positive perceptions are significant mediators between parental stress and family functioning. After controlling for the mediator variable, the relationship between the independent and dependent variable can be reduced or is no longer significant. This occurred when controlling for both the happiness and the family strength/closeness parent perception variables.

This research aids in our understanding of the role that both parental stress and positive perceptions of parents of children with ASDs may play in determining the family’s ability to function.

APPENDIX A
CONSENT FORM

Informed Consent
University of Florida

Protocol Title: Positive Perceptions as a Moderator of Parenting Stress and Family Functioning among Parents of Autism Spectrum Disorder Children

Please read this consent document carefully before you decide to participate in this study.

Purpose of the research study:

The purpose of this research study is to better understand how parents cope with the stresses associated with parenting a child with ASD. I am also interested in better understanding how parent's stress and coping may affect family functioning.

What you will be asked to do in the study:

You will be asked to complete a questionnaire; including demographic questions, severity questions, and questions about parent stress, feelings about the child, and family functioning. The questionnaire will be handed out to you, with a code number already assigned. You will complete the questionnaire and hand it back in an envelope, along with this signed consent form. If you wish to take home the questionnaire and return it by mail, a self-addressed stamped envelope will be provided for you. If you decide to take home the questionnaires, we will ask for your email address in order to send out follow-up emails and reminders.

Time required:

About 20 minutes.

Approved by
University of Florida
Institutional Review Board 02
Protocol # 2012-U-1011
For Use Through 10-01-2013

Risks and Benefits:

The risk(s) of harm anticipated in the proposed research is not greater than that ordinarily encountered in daily life or through routine physical or psychological examinations or tests.

The benefit(s) of participating in this study are not immediate. However, this research will be helpful in better understanding families with children with Autism Spectrum Disorders.

Compensation:

There will be no compensation for participating in this research.

Confidentiality:

Your identity will be kept confidential to the extent provided by law. Your information will be assigned a code number, and your name will not be linked to this number. If you decide to take home your questionnaires, your email address and name will be linked on a contact list in a locked file in my faculty supervisor's office. When the study is completed, the contact list will be destroyed. Your name will not be used in any report.

Voluntary participation:

Your participation in this study is completely voluntary. There is no penalty for not participating.

Right to withdraw from the study:

You have the right to withdraw from the study at anytime without consequence.

Whom to contact if you have questions about the study:

Shelby Rudd, BS, College of Agriculture and Life Sciences, (

Larry Forthun, PhD, Assistant Professor, College of Agriculture and Life Sciences,

Whom to contact about your rights as a research participant in the study:

IRB02 Office, Box 112250, University of Florida, Gainesville, FL 32611-2250; phone 392-0433.

Agreement:

I have read the procedure described above. I voluntarily agree to participate in the procedure and I have received a copy of this description.

Participant: _____

Date: _____

Principal Investigator: _____

Date: _____

Approved by
University of Florida
Institutional Review Board 02
Protocol # 2012-U-1011
For Use Through 10-01-2013

APPENDIX B
SEVERITY CHECKLIST

(Adapted from a questionnaire taken from the Center for Autism and Related Disabilities at UF)

Please answer the following questions based on the behaviors of your child with an Autism Spectrum Disorder. Answer each question by placing an (**x**) to indicate either a Yes or No response.

1. Does the child do things to injure himself or herself?
   Yes___ No___

2. Does the child do things to injure others?
   Yes___ No___

3. Have you ever had to call the police or 911 due to the child's behavior?
   Yes___ No___

4. Has the child ever been hospitalized because of behavior?
   Yes___ No___

5. Has the child been suspended or sent home from school because of behavior?
   Yes___ No___

6. Does the child speak to communicate?
   Yes___ No___

7. Does the child use phrases or sentences to communicate?
   Yes___ No___

8. Does the child use single words to communicate?
   Yes___ No___

9. Can the child communicate to indicate Yes and No?
   Yes___ No___

10. Can the child communicate to ask for help?
    Yes___ No___

11. Does the child seek social interaction?
    Yes___ No___

12. Does the child respond to their name?
    Yes___ No___

13. Do sensory problems interfere with activities for daily living?

Yes___ No___

14. Does the child use the potty during the day?
Yes___ No___

15. Does the child feed him/herself with utensils?
Yes___ No___

APPENDIX C
FAMILY ASSESSMENT DEVICE

(Epstein, Baldwin, & Bishop, 1983)

Instructions:
This assessment contains a number of statements about families. Read each statement carefully, and decide how well it describes your own family. You should answer according to how you see your family.

For each statement, there are four (4) possible responses:

Strongly Agree: Check this box if you feel that the statement describes your family very accurately.

Agree: Check this box if you feel that the statement describes your family for the most part.

Disagree: Check this box if you feel that the statement does **NOT** describe your family for the most part.

Strongly Disagree: Check this box if you feel that the statement does **NOT** describe your family at all.

Try not to spend too much time thinking about each statement, but respond as quickly and as honestly as you can. If you have difficulty, answer with your first reaction. Please be sure to answer *every* statement and mark all your answers in the space provided *next to* each statement.

	Strongly Agree	**Agree**	**Disagree**	**Strongly Disagree**
1. Planning family activities is difficult because we misunderstand each other.				
2. In times of crisis we can turn to each other for support.				
3. We cannot talk to each other about the sadness we feel.				
4. Individuals are accepted for what they are.				
5. We avoid discussing our fears and concerns.				
6. We can express feelings to each other.				
7. There are lots of bad feelings in the family.				

8. We feel accepted for what we are.				
9. Making decisions is a problem for our family.				
10. We are able to make decisions about how to solve problems.				
11. We don’t get along well together.				
12. We confide in each other.				

APPENDIX D
PARENTAL STRESS SCALE

(Berry & Jones, 1995)

Instructions:
This assessment contains a number of statements describing feelings and perceptions about the experience of being a parent. Read each statement carefully, and decide how well it describes your own experience being a parent.

For each statement, there are four (4) possible responses:

Strongly Agree: Check this box if you feel that the statement describes your experience very accurately.

Agree: Check this box if you feel that the statement describes your experience for the most part.

Disagree: Check this box if you feel that the statement does **NOT** describe your experience for the most part.

Strongly Disagree: Check this box if you feel that the statement does **NOT** describe your experience at all.

Please be sure to answer *every* statement and mark all your answers in the space provided *next to* each statement.

	Strongly Agree	**Agree**	**Disagree**	**Strongly Disagree**
1. I am happy in my role as a parent.				
2. There is little or nothing I wouldn't do for my child(ren) if it was necessary.				
3. Caring for my child(ren) sometimes takes more time and energy than I have to give.				
4. I sometimes worry whether I am doing enough for my child(ren).				
5. I feel close to my child(ren).				
6. I enjoy spending time with my child(ren).				
7. My child(ren) is an important source of affection for me.				

8. Having child(ren) gives me a more certain and optimistic view for the future.				
9. The major source of stress in my life is my child(ren).				
10. Having child(ren) leaves little time and flexibility in my life.				
11. Having child(ren) has been a financial burden.				
12. It is difficult to balance different responsibilities because of my child(ren).				

Please be sure to answer every statement and mark all your answers in the space provided next to each statement.

	Strongly Agree	**Agree**	**Disagree**	**Strongly Disagree**
13. The behavior of my child(ren) is often embarrassing or stressful to me.				
14. If I had it to do over again, I might decide not to have child(ren).				
15. I feel overwhelmed by the responsibility of being a parent.				
16. Having child(ren) has meant having too few choices and too little control over my life.				
17. I am satisfied as a parent.				
18. I find my child(ren) enjoyable.				

APPENDIX E

KANSAS INVENTORY OF PARENTAL PERCEPTIONS

(Berry & Jones, 1995)

Instructions:

This assessment contains a number of statements describing the effects you believe your child has had on you and other members of your family. Read each statement carefully, and decide much you agree or disagree with each statement.

The statements are divided into parts. Each part begins with a different sentence at the top of each section. For example, the first section begins with:

My Child _____ Is:

All the statements in the first section complete this sentence. The blank space after the word "child" is there to remind you to <u>think only of your child with an ASD when you answer each statement.</u> You **DO NOT** have to write down the name of your child in the blank.

For each statement, there are four (4) possible responses:

Strongly Agree: Check this box if you feel that the statement describes your experience very accurately.

Agree: Check this box if you feel that the statement describes your experience for the most part.

Disagree: Check this box if you feel that the statement does **NOT** describe your experience for the most part.

Strongly Disagree: Check this box if you feel that the statement does **NOT** describe your experience at all.

Please be sure to answer *every* statement and mark all your answers in the space provided *next to* each statement.

My Child_____ Is:	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagre**
1. the reason my life has better structure.				
2. why I am a more responsible person.				
3. the reason I've learned to control my temper.				
4. responsible for my learning patience.				

5. fun to be around.				
6. kind and loving.				

Please be sure to answer every statement and mark all your answers in the space provided next to each statement.

I Consider My Child _____ To Be:	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**
1. the reason I am more productive.				
2. the reason I budget my time better.				
3. the reason I am able to cope better with stress and problems.				
4. very affectionate.				

The Presence of My Child_____:	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**
1. cheers me up.				
2. is very uplifting.				
3. makes us more in charge of ourselves as a family.				
4. helps me take things as they come.				

The Presence of My Child_____:	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**
1. I am grateful for each day.				

2. our family has become closer.				
3. I am more sensitive to family issues.				
4. I have learned to adjust to things I cannot change.				
5. I have many unexpected pleasures.				
6. I am more accepting of things.				

APPENDIX F
DEMOGRAPHIC FORM

Tell us about yourself and your family.

ID#:_____

1. **What is your gender?**

   ____ Male ____ Female

2. **How old are you?** _____

3. **What is your current marital status?**

____ Divorced ____ Separated
____ Married ____ Widowed
____ Single ____ Other

4. **How would you classify yourself?**

____ Middle Eastern/Arab/North African
____ Asian (South Asian/East Asian)
____ Native Hawaiian/Pacific Islander
____ Black/African American/Afro-Caribbean
____ Caucasian/White
____ Hispanic/Latino/Spanish
____ Indigenous or Aboriginal
____ Multiracial
____ Would rather not say
____ Other: _____

5. **How would you classify your child?**

____ Middle Eastern/Arab/North African
____ Asian (South Asian/East Asian)
____ Native Hawaiian/Pacific Islander
____ Black/African American/Afro-Caribbean
____ Caucasian/White
____ Hispanic/Latino/Spanish
____ Indigenous or Aboriginal
____ Multiracial
____ Would rather not say

____ Other:_____

6. **What is the gender of your child with an ASD?**

   ____ Male ____ Female

7. **How old is your child? _____**

8. **What would you say is your average annual household income (include all sources of income)?**

   ___ 0- 10,000
   ___ 10,000- 19,999
   ___ 20,000- 34,999
   ___ 35,000- 49,999
   ___ 50,000- 74,999
   ___ 75,000- 99,999
   ___ 100,000- 149,999
   ___ Over 150,000
   ___ Would rather not say

9. **Describe your education:**
   ___ Less than High School
   ___ Graduated High School/GED
   ___ Some College/Special Training
   ___ Graduated College/Bachelor's
   ___ Master's Degree
   ___ Doctor's Degree

10. **What type of school does the child attend?**

___ No school
___ Home school
___ Public school
___ Private school
___ Charter school

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BIOGRAPHICAL SKETCH

Shelby Rudd graduated from the University of Florida in 2011 with a Bachelor of Science degree in family, youth, and community sciences with a minor in education. In the summer of 2013, she received her Master of Science from the University of Florida in family, youth, and community sciences. Shelby plans to pursue a career working in Kenya with children who are orphaned.