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PARENTAL STRESS AND ITS RELATION TO PARENTAL PERCEPTIONS OF COMMUNICATION FOLLOWING LANGUAGE INTERVENTION

by

ASHLYN L. SMITH

Under the direction of MaryAnn Romski

ABSTRACT

Current research indicates that parents of children with developmental disabilities experience more parental stress than parents of typically developing children, yet most are able to successfully cope with the additional care giving demands. There has been little research however, on the role of the communication ability of children with developmental disabilities on parental stress. This study examined the effects of a parent-implemented language intervention on parental stress and its relation to parental perceptions of communication development in young toddlers (N = 59) and their parents. Results indicate that parent stress did not decrease significantly following language intervention. Parents' perceptions about the severity of their child's communication deficits partially mediated the relationship between expressive language at baseline and parent stress at post-intervention. In addition, exploratory results begin to support the idea that parents who are initially high in parent stress are able to decrease their overall parent stress following language intervention.

INDEX WORDS: developmental disability, parents, parent stress, parent perceptions, communication, expressive language, language intervention

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ASHLYN L. SMITH

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Parents of children with disabilities show significantly more stress within the family system as compared to parents of typically developing children (Byrne & Cunningham, 1985; Crnic, Friedrich, & Greenberg, 1983). While most families respond to the birth of a child with a disability with love and acceptance, there is also heightened stress as their child fails to meet certain developmental milestones. The typical challenges and stressors faced by parents of typically developing children are often magnified. Some of these stressors include adjustment of family routines due to participation in interventions and therapies, medical and financial costs, and time spent away from other family pursuits. As Baker, Blacher, Kopp, and Kraemer (1997) emphasized, however, parenting a child with a disability is more like parenting a typically developing child than it is different. Yet, the additional challenges these parents face often seem so great that dealing with them conceals the commonalities that parents of children with a broad range of ability levels experience. This introduction reviews models of stress and disability and examines research in the area of parental stress and disability and how this research has progressed to date.

Models of Stress and Disability

Research and interventions for children with disabilities and their families has evolved substantially over the years. Acknowledging the experiences and perceptions outside the context of the child that help families reduce the stress associated with having a child with a disability has not always been a focus of research or intervention. Historically, the models of disability that have informed research and interventions for children with disabilities have focused exclusively on the child rather than including the family as a whole. For many years, the medical model prevailed, viewing disability as the result of some physiological impairment due

to damage or a disease process. It assumes that disability is an intrinsic characteristic of individuals with disabilities (Johnston, 1994). Therefore, interventions developed from this model seek to "fix" what is wrong with a child with a disability. This model does not take into account the perceptions of children with disabilities themselves or their families and subsequently has been rejected as a model for defining disability.

Rejection of a medical model led to the development of a transactional model in which the environment is viewed as an interactive structure and presents a view of individuals as active participants in their own environment. It is concerned with process and change and involves attending to what is actually happening in a specific context, not just what happens in contexts in general (Lazarus & Folkman, 1984). This model is appealing for disability research because it allows for a more detailed examination of the social relationships surrounding the child, especially the child's interactions with parents. It suggests that the child with a disability can influence the family system, which in turn can have either positive or negative effects on the child's development. One of the most influential transactional models is the Lazarus and Folkman (1984) model, which was developed to help families cope with chronic illness. It emphasized coping as a process involving ongoing efforts to manage specific demands. In addition, coping is contextual and must change over time and across different stressful conditions. According to this model, parents may experience stress if they perceive that the support resources available to them are inadequate to deal with the demands of caring for a child with a chronic illness.

Arising from this transactional model is the Double ABCX model which applies the Lazarus and Folkman model to families of children with disabilities (McCubbin & Patterson, 1983). This transactional model accounts for both disability and parental stress. McCubbin and

Patterson (1983) took Hill's ABCX model of family stress originally developed in 1953 and added the construct of time. In this model, A is the build up of stressors over time, B includes resources families build up and employ to deal with the stressful situation, C involves how the family perceives events during their period of adjustment, and X is the outcome for the family defined in terms of maladapation (Orr, Cameron, & Day, 1991). This model assumes that one cannot decide a priori that an event related to a child's disability is a stressful event. The appraisal of the event depends on how the family or parent defines and interprets the child's needs, level of functioning, problem behaviors, and the resources available to the family. According to this model, there are factors relating to members of the family that can affect parental stress. Factors relating to the child consist of the degree of intellectual disability, behavior problems, responsiveness, temperament, and excessive caregiving demands. Factors relating to the parents are their resources such as marital stability, socio-economic status, and social support, as well as cognitions, which involve belief systems and coping styles. Outside of the family system there are also other factors that can result in a stressful outcome for the family, such as negative reactions of others to the child with a disability or marital adjustment (Orr et al., 1991).

Recently, Brett (2002) proposed the alliance model maintaining that the medical model and social model largely ignore the experience of the family system in general. Often times the parents' perspective should serve as an informative and essential aid to developing and constructing an alternative model of disability. If the goal of a model is to provide a different way to examine the world of a child with a disability then it must be grounded in the experience of disability. This model places the parents directly within the model along with the professionals. Having parents and professionals in an equal partnership gives the parents greater

feelings of identity and autonomy while the professionals are concerned with using their skill base to enhance the lives of the families with whom they work.

In summary, it is clear that models of disability have progressed from a focus on individual characteristics of the child to a consideration of the child's environment as a whole. This shift has allowed professionals to examine the impact of having a child with a disability on parents, siblings, and peers. Knowing that there are interactions among child and family variables permits a more complete picture of the experiences of children with disabilities and their families. It is my view that both the transactional models such as the Double ABCX model and the alliance model bring important qualities that are necessary for informing research and developing successful interventions for children with disabilities. The transactional model acknowledges the importance of considering all parts of a child's environment when trying to understand the experience of the child and the parents. The alliance model, more specifically, recognizes the importance of involving parents directly in their child's interventions. Research in the area of parental stress and disability has embraced what has been learned from these models to allow for a fuller understanding of the additional challenges parents of children with disabilities face as well as factors that influence successful coping and adaptation.

Parent Stress and Disability

As discussed previously, parents of children with disabilities often face additional caregiving demands than those faced by parents of typically developing children. Looking more closely at the additional demands that come with raising a child with a disability, Dyson (1997) compared 30 mother-father pairs with a child who had a disability with 32 pairs who did not have a child with a disability. All parents individually completed several questionnaires designed to assess parent perceptions of stress in relation to a family member with disabilities,

social environmental characteristics of the family, and sources of family support. Both mothers and fathers of children with disabilities reported significantly more parental stress than mothers and fathers of children without disabilities. The parental stress for both fathers and mothers was influenced by family psychological resources such as appraisal of family functioning, social support, and personal growth. Tunali and Power (1993) reviewed existing literature on stress and coping in families of children with disabilities. They found that there were increased financial strains due to the need for medications, hospitalizations, intervention services, and specialized equipment. They also found that there was the potential for strained emotional relationships in the family due to less available time for other family members, overprotection of the child, and feelings of blame for possibly being genetically responsible for their child's disability. Finally, they found that families may feel socially isolated due to negative reactions from extended family, friends, and neighbors; potential embarrassment about how the child looks or acts; fear of accidents; and/or limited mobility.

The coping styles used by these families to deal with the heightened stress of having a child with a disability also have been widely studied. There is a distinction in the literature between problem-focused coping strategies and emotion-focused coping strategies. Problem-focused strategies involve both cognitive and behavioral responses such as making a specific plan, acting on that plan, and reframing the stressful situation into one that affords positive opportunities for growth. Emotion-focused strategies include venting, denial about the situation, and mental or behavioral disengagement. While both of these strategies may be used at different times, problem-focused coping strategies often lead to better outcomes because of increased positive feelings about oneself as well as reduced depression, stress, and illness (Krauss & Seltzer, 1993). A recent study by Jobe, Glidden, Daly, and MacFarland (2005, April) found that

the coping strategy used by parents is related to adjustment in families of children with developmental disabilities. In a sample of 73 parents raising children with developmental disabilities, they found that using a more problem-focused coping style, as opposed to an emotion-focused coping style, was associated with better adjustment.

Overall, parents of children with disabilities must cope with challenges that other parents do not face such as coming to terms with the child's condition, physical and/or other limitations, providing specialized care, obtaining community resources, and caretaking demands in the present and future. Understanding how these families are dealing with such additional challenges may provide insight into ways to lower the stress that families experience.

Influences on Stress and Disability

There are multiple factors discussed in the literature that are thought to influence parental stress. These factors include the role of the child's diagnosis, parents' perceptions of their child's disability, participation in interventions, and the role of the child's communication ability. These factors are discussed with respect to how they may increase or decrease parental stress.

Role of Diagnosis. Children with developmental disabilities encompass a wide variety of diagnoses including but not limited to autism, Down syndrome, and Fragile X syndrome. The literature suggests that the type of diagnosis can have differing impacts on parent stress. Koegel et al. (1992) found a consistent stress profile in mothers of children with autism. An investigation of 50 families revealed that mothers of children with autism had great concerns about the future of the child, the level of the child's cognitive impairment, the child's ability to be accepted in the community, and the ability of the child to function independently. This profile seemed to be related to the child's pervasive behavior problems and prolonged dependency on

the parent. Consistent with these results, Tomanik, Harris, and Hawkins (2004) investigated the relationship between adaptive functioning, maladaptive behavior and maternal stress in families of children with autism. Sixty mothers of children diagnosed with a pervasive developmental disorder completed questionnaires. These children ranged in age from two years to seven years with a mean age of five. They found that lower levels of adaptive functioning and higher levels of aberrant behavior predicted higher levels of stress in mothers. Mothers reported the greatest stress when their children were more irritable, lethargic/socially withdrawn, hyperactive/non-compliant, and unable to take care of themselves. The children's limited ability to communicate and interact with others was also a significant source of stress for their mothers.

Parents of children with Down syndrome, however, do not exhibit this same pattern of stress. Kasari and Sigman (1997) investigated the perceptions of caregivers of children with autism as compared to caregivers of children without autism. They also assessed whether perceptions of children's characteristics and parents' feelings of stress were evident in actual interactions with their children. Their sample included 28 children with autism, 26 children with intellectual disabilities, and 28 typically developing children all matched on mental age. Of the children with intellectual disability, 13 had Down syndrome and 13 had unknown etiology. The average age of the children with autism or intellectual disability was 42 months while the average age of the typically developing children was 24 months. They found that parents of children with Down syndrome perceived their children as having less difficult temperaments than parents of children with autism or parents of children with other intellectual disabilities. They also showed lower levels of stress pertaining to their child's characteristics than did parents of children with autism. More specifically, their stress profile did not differ significantly from that of parents of children without developmental disabilities. Hodapp, Ricci, Ly, and Fidler

(2003) compared 27 mothers of children with Down syndrome to 15 mothers of children with other learning disabilities in order to examine the stress level related to disability and to identify predictors of stress. In this sample, the children had an average age of 7.5 years. Consistent with previous research, they found that mothers of children with Down syndrome reported lower levels of child-related stress, especially in those domains that measure the child's acceptability to the parent and how reinforcing the child was to the parent. One explanation is that the degree of sociability and level of adaptive functioning of children with Down syndrome is higher when compared to children with other disabilities. The higher sociability and adaptive functioning of these children appears to lead to lower levels of perceived stress by the parent.

Another group of children studied repeatedly in recent research are those with Fragile X syndrome. Children with Fragile X syndrome are a population of interest because it is second only to Down syndrome as a genetic cause of intellectual disability. The stress profile of these parents seems to fall somewhere between that of parents of children with autism and those with Down syndrome. Abbeduto, Seltzer, Shattuck, Krauss, Orsmond, and Murphy (2004) investigated the stress profiles for mothers of children with Fragile X syndrome, Down syndrome, and autism. The average age of their sample was markedly older than the other studies discussed here with an average age of 16 years. They found that the parents of children with Fragile X syndrome were more pessimistic about their child’s future and perceived less reciprocated closeness in their relationship with their child than parents of children with Down syndrome. However, their stress profile did not reach the levels shown by that of parents of children with autism. Another study conducted by Poehlmann, Clements, Abbeduto, and Farsad (2005) compared 11 mothers of children with Fragile X syndrome to 10 mothers of children with Down syndrome. They sought to examine the positive experiences and potential challenges that

came with their child's diagnosis. While the age of these children ranged from adolescence to early twenties, the information about the child's diagnosis was obtained by face to face interviews with the mothers asking them to recall the time surrounding their child's diagnosis which occurred from birth to 7 years. They found that while some mothers reported a continued feeling of distress and difficulty adapting to their child's diagnosis, the majority of mothers engaged in a range of adaptive coping behaviors regardless of the child's diagnosis. In addition, in both groups, some of the mothers saw the challenging behaviors of the children as a source of stress rather than the disability itself. Overall, mothers in both groups held positive perceptions about the characteristics of their child. While acknowledging the stress brought about by challenging behaviors, they emphasized their children's humor, cheerfulness, and ability to relate to others.

These studies as a whole suggest that the sources of stress may be related to the child's ongoing behavior problems rather than a chronic reaction to the child's disability in and of itself. When either a parent or child presents markedly difficult behavior, there are likely to be significant effects on their interactions with each other (Baker et al., 1997). Even though there were aspects of a child's diagnosis that seemed to affect parental stress differently, most parents showed great resilience and were able to cope successfully with the challenges that came with raising a child with a developmental disability.

Role of Perceptions. Because many parents adapt well to having a child with a disability, there has been a large focus in the literature on the positive adaptations families make that help to lower parental stress. While research on the negative outcomes of parental stress is understandable, it often results in a one-sided view of the family experience as a whole (Baker et al., 1997). There has been a shift in the perspective of researchers from a pathological view of

families to a view that focuses on positive adaptation and effective coping in families (Turnbull & Turnbull, 1993). This shift has resulted in an increased interest in the positive experiences and perceptions of having a child with a disability as well as the role of these experiences and perceptions in the parent stress level. Not all families have negative or stressful perceptions and experiences. Hastings and Taunt (2002) reviewed existing research on positive perceptions and the experience of families with disabilities. Family members reported a range of positive perceptions and experiences that occurred jointly with stressful experiences. In addition, although reporting generally higher levels of stress than families of children without disabilities, they did not report fewer positive perceptions. In fact, they reported similar or higher levels of positive perceptions as compared to families raising children without disabilities. Hastings and Taunt concluded that many families adapt well to the challenges of raising a child with a disability and that positive perceptions serve to help families in this process. Hastings, Allen, McDermott, and Still (2002) explored disability-related positive perceptions. In a sample of 41 mothers, they looked at negative feelings such as stress and more positive feelings such as parenting efficacy. They found that holding more positive perceptions may function as a mechanism for coping with the stresses and strains of caring for children with disabilities.

Role of Intervention. The transactional models that have been developed allow for research into the mechanisms that permit many families to adapt well to the challenges brought by having a child with a developmental disability. This is evident in the changing nature of interventions. The recent shift in treatment models from an exclusive focus on the child to a consideration of the entire family system in intervention has helped parents feel more competent and efficacious in their ability to successfully interact with their child and bring about positive outcomes on their own (Bernheimer, Gallimore, & Weisner, 1990). Many interventions with

children with developmental disabilities have focused exclusively on the child without much involvement from the parents. Carpenter and Phil (1997) highlighted how parents are the ones who inquire about knowledge and information that reveal needs within their family and specifically their child with a disability. When there is an over reliance on professional input, the parent may feel disempowered which may cause feelings of inadequacy and result in a tendency to problem solve only upon consultation with professionals. There has been a shift away from this thinking based on the notion that when parents feel more competent in their ability to successfully interact with their child, the result is often more positive for the child (Bernheimer et al., 1990).

Each family is different and these differences should be taken into consideration when designing interventions for the family. In a study involving 17 children with autism and their families, Koegel, Bimbela, and Schreibeman (1996) assessed how parent interactions with their child changed following two different types of parent training interventions. They found that parent training has broad effects extending beyond the intervention itself. They reported that the general style of parent-child interactions may be improved with parent training. Furthermore, they found that the type of parent training and how individualized it is to a family may have a positive influence on reducing stress. Specifically, those parents who allowed the child to participate in the choice of stimulus materials, to interact with the stimulus item, to reinforce attempts at communication, and to choose target behaviors based on motivation and responsivity, showed more positive interactions. In order for interventions to be successful, parents should take an active role, not only in implementing the intervention, but also in developing an intervention that will fit well into the families' daily routines (Brookman-Frazee, 2004).

Role of Communication Ability. While there is some research on the impact of parent training interventions on parent stress, there has been relatively little research on the stress level of parents as a function of the communication abilities of children with disabilities. Frey, Greenberg, and Fewell (1989) examined stress and coping in 48 mothers and fathers of children with disabilities. They found that the communication score on the Vineland Adaptive Behavior Scales was strongly related to parent outcome, defined as parent stress, family adjustment, and parents' psychological distress. Specifically, parents reported more stress when their child's communication skills were relatively low as determined by the standardized communication score from the Vineland. A more recent study by Robertson and Weismer (1999) investigated the effects, including parent stress, of early language intervention on various linguistic and social skills of late-talking toddlers. Using the child domain of the Parent Stress Index (PSI), they found that parents in the intervention condition showed improvements in parental perceptions of their child's linguistic, social, and behavioral skills. This suggests that one of the benefits of intervention is that it facilitates positive changes in parental perceptions about their children's skills and behaviors. While the children in this sample had diagnoses of expressive language delay, the finding that early language intervention resulted in decreased parent stress has implications for children with developmental disabilities. It is possible that early language intervention for children with developmental disabilities also may result in positive outcomes for parents as well.

Fey et al. (2006) investigated the efficacy of a 6-month parent-education program combined with pre-linguistic milieu teaching program on child communicative outcomes and parent outcomes. Their sample included children with evidence of mild to moderate intellectual disability and less than 10 words or signs. They found that the children showed significant gains

in intentional communication skills. For parents, they found that parental stress levels did not increase or decrease. Scores were, in fact, comparable to those of parents of typically developing children. They concluded that even though the parent education program combined with the language intervention for the child was more intense than the types of interventions the children were already receiving, there were no adverse effects on parental stress levels.

Although the Fey et al. (2006) study had a parent education component, parents were not actively involved in implementing the intervention with their child. Many language interventions are implemented without involving parents even though the transactional nature of communication suggests that appropriate parent involvement will result in positive child outcomes (L. K. Koegel, 2000). The inclusion of parents in communication interventions seems to be an important area for study as communication is the central way that children convey their wants, needs, and positive and negative feelings. The communication abilities of children with developmental disabilities are often delayed, and in some children are significantly impaired. In addition to the stress that comes along with a child with a disability, the inability of the child to effectively communicate with the parent may magnify the stress experienced by parents.

A concern about involving parents in language interventions has been that they will not be able to successfully implement the intervention strategies themselves. As Kaiser and Hancock (2003) discussed, teaching parents new skills to support their child's language development can in fact improve developmental outcomes and reduce problem behavior. They suggested that family-centered interventions are most effective when parents are allowed to choose when to learn new skills, when parents are taught strategies that are empirically-based and tailored to their child's developmental needs, and when parents are taught in a skillful and individualized manner. Romski, Sevcik, Adamson, and Cheslock (2005, March) investigated

parents' success in implementing language interventions in a sample of thirty children with a range of disabilities. Treatment implementation ratings from the interventions showed that even with the addition of language strategies that included a speech-generating communication device, parents were consistently able to successfully implement these types of interventions.

How the parent perceives the communication abilities of the child also may seem to influence the parental stress. As part of a larger study, Romski, Sevcik, Adamson, Cheslock, and Smith (2005, April) examined parent perception of early toddler communication before and after a 3-month parent implemented language intervention using the Parent Perception of Language Development (PPOLD; Adamson, Romski, Sevcik, & Bakeman, 2000). The PPOLD was developed to address more specific questions relating to parental perceptions of communication development as well as stress parents feel related to their child's communication. Though the Parent Stress Index (PSI) addresses parental stress on a general level, it does not give an indication of parental stress as it relates to a child's communication abilities. The PPOLD is a 20-item questionnaire that uses a 5-point Likert scale from strongly disagree to strongly agree. The measure addresses how the parent feels about his or her child's communication development and how the parent feels about kinds of interventions that his or her child is receiving or will receive. The PPOLD was given to 45 parents of young children with severe communication disorders. At pre- and post-intervention, an exploratory factor analysis of the measure revealed two factors, Success and Difficulty. The factor Success consisted of nine items that reflected the parent's perceptions about how well they were impacting their children's communication. The factor Difficulty consisted of six items and reflected the parents' views about the severity of the communication deficits their children exhibited. They found that success, but not difficulty, increased over the course of the intervention indicating that parents' perceptions of how well

they were impacting their child's communication became more positive, while their perceptions of the severity of the child's communication difficulties did not change.

Research Questions

The present study builds upon the work described previously and examines as well the role of communication ability on the level of stress perceived by parents of young children with a range of disabilities and significant communication disorders. Three questions were addressed: (a) Did parent stress decrease following participation in a parent-implemented language intervention? It was expected that overall parent stress would decrease from pre- to post-intervention. (b) Did the child's communication ability, specifically their expressive language skills at pre-intervention, predict parent stress at post-intervention? It was expected that the higher the child's expressive language at pre-intervention, the lower parent stress would be at post-intervention. In addition, it was expected that children whose expressive language scores increased from pre- to post-intervention would have parents whose total stress scores decreased from pre- to post-intervention. (c) Did parents' perceptions about their child's language development mediate the relationship between the child's expressive language and parent stress at both pre- and post-intervention? It was expected that feelings of success would mediate this relationship at both pre- and post-intervention because of the research demonstrating that positive perceptions helped to reduce parent stress.

Method

Participants

Sixty toddlers participated in the Augmented Language Intervention for Toddlers project at Georgia State University (Romski, 2000). The goal of this larger longitudinal study is to describe the communication profiles of toddlers with significant developmental delays and to

determine the relative effects of three parent-implemented language interventions on the communication skills, adaptive behavior, and educational placement of toddlers. The 60 parent-child dyads were recruited from the metro Atlanta area through various early intervention services sites, including physicians, psychologists, and speech-language pathologists. Interested parents contacted the project about their participation. For the present study, the parent-child dyads completed the *Parent Stress Index* (PSI) and *Parent Perception of Language Development* (PPOLD) prior to beginning intervention and at the end of the 3-month intervention. One parent did not complete both the PSI and PPOLD at post-intervention and therefore the final sample for this study consisted of 59 parent-child dyads. Five children did not complete the PPOLD at baseline, as the measure was in the development phase prior to the beginning of the intervention. Therefore, analyses involving the PPOLD included a sample of 55 children.

At the beginning of the study, all children were observed to have fewer than 10 spoken words. Their developmental abilities were assessed using the *Mullen Scales of Early Learning* (Mullen, 1995). The toddlers obtained an average score of 59.47 (SD = 13.37) on the Early Learning Composite of the Mullen, placing them in the diagnostic category of "very low". There were 19 females and 40 males with an average age of 30 months (range 21-40 months; SD = 4.56). Of the 59 toddlers, 27% were African-American, 63% were Caucasian, and 10% were Asian. The parents included 55 mothers and 4 fathers with an average age of 37 years (range 30-46 years; SD = 0.65). Both mothers and fathers were included in this study because they were the primary caregivers for their children. Of the 59 parents, 27% were African-American, 66% were Caucasian and 7% were Asian. Six parents completed high school, seven parents had some college experience, 25 parents completed a bachelor's degree, and 20 parents had a post-graduate degree.

Procedure

Prior to beginning the intervention, each parent-child dyad completed a pre-intervention battery of assessments that characterized the way the child understood and used language. The parents also completed assessments about parent stress, parents' perception of the child's language development, the child's daily living skills and intervention history. Each of the 59 parent-child dyads took part in a twelve-week parent-implemented communication intervention.

Intervention. Once each parent-child dyad completed the pre-intervention assessment protocol, they were randomly assigned to one of three interventions: Spoken Communication Interaction (SCI), which focused on spoken interaction, or one of two augmented language interventions, Augmented Communication Input Intervention (ACI) or Augmented Communication Output Intervention (ACO). While these three interventions each had distinct components, they all shared a common protocol and the goal of developing parent-child communication skills. All three interventions encouraged the use of basic language stimulation techniques such as modeling, expansions, and sabotage to encourage interaction and communication from the child. As part of all three interventions, the interventionist provided coaching and feedback to the parents and answered any questions about the sessions.

In all three interventions, the goal was to teach parents effective ways to communicate with their child. Each parent and child completed two 30-minute intervention sessions per week for a total of 24 sessions. The first nine weeks or 18 sessions took place at the Toddler Language Intervention Lab at Georgia State University. The final three weeks (6 sessions) took place at the child's home. Each 30-minute intervention session consisted of three ten-minute segments of play, book, and snack in that order. An individualized set of target vocabulary appropriate to the three activities was chosen for each child through collaboration between the parent and research

speech-language pathologist. For the first four weeks, the interventionist implemented the intervention while the parent observed with the speech-language pathologist and learned how the intervention techniques were implemented. The parents also were encouraged to provide any input that helped the interventionist establish a good rapport with the child. Beginning with the fifth week, the parents slowly were incorporated into the intervention first by implementing the last ten-minutes of the session, snack. During the sixth week, the parent implemented the last twenty minutes of the session, book reading and snack. Beginning in the seventh week, the remainder of the 30-minute intervention sessions, weeks 7-12, were implemented entirely by the parent while still receiving modeling and coaching from the interventionist so that the parent would feel comfortable with the intervention strategy. Beginning with week 10, the interventions were conducted in the parents' home so that the parents would feel comfortable implementing the intervention strategies in a natural communicative setting.

Measures

Three measures were used to address the questions in this study. The first measure was parental stress as assessed by the *Parent Stress Index* (PSI) Short Form (Abidin, 1995). It measured the impact that the parenting role had on an individual's stress level and has a long history of being used to evaluate stress experienced by parents of children with developmental disabilities (Lessenberry & Rehfeldt, 2004). The PSI consisted of 36 items that provided a measure of total stress that a parent was experiencing as well as three subscales. Parental Distress (PD) evaluated the distress a parent was experiencing in his or her role as a parent; Parent-Child Dysfunctional Interaction (P-CDI) focused on the parent's perception that his or her child did not meet the parent's expectations; and Difficult Child (DC) focused on behavioral characteristics of the child that made them easy or difficult to manage. These subscales were

important for the present study because a considerable amount of literature has demonstrated that a large part of the stress that parents felt in relation to their child with a disability had to do with the interactions between the parent and child. Specifically, behavior problems and the inability to effectively communicate with their child seemed to contribute the most to parent stress (Baker et al., 1997; R. L. Koegel et al., 1992; Poehlmann et al., 2005; Tomanik et al., 2004). This measure was given to caregivers both at baseline assessment and upon completion of the 12-week intervention and yielded a maximum score of 120 and a minimum score of 36. Internal consistency alphas for the PSI were .93 and .92 for pre- and post-intervention, respectively.

The second measure assessed parental perception of the child's communication development. The *Parent Perception of Language Development* (PPOLD; Adamson et al., 2000) was developed to measure parent perception of early communication development and intervention in children who have severe communication delays. While the PSI is a good measure to address parental stress on a general level, it does not give an indication of parental stress as it relates to a child's communication abilities (Romski et al., 2005, April). Consequently, the PPOLD was developed to address more specific questions relating to parental perceptions of communication development as well as stress parents feel related to their child's communication. The PPOLD is a 20-item questionnaire that uses a 5-point Likert scale from strongly disagree to strongly agree. At pre- and post-intervention, an exploratory factor analysis of the measure revealed two factors, Success and Difficulty. The factor Success reflected the parent's perceptions about how well they were impacting their children's communication. The factor Difficulty reflected the parents' views about the severity of the communication deficits their children exhibited. Internal consistency alphas for the Success and Difficulty factors were .87 and .73 at pre-intervention; .91 and .80 at post-intervention, respectively, establishing

reliability. This measure was given to parents both at baseline and upon completion of the intervention. As shown in Table 1, Success was comprised of nine items and Difficulty was comprised of six items. The scores for the Success and Difficulty factor were obtained by taking the mean of the individual items that comprised each factor. This yields a score in the range of 1-5. For the Success factor, higher scores indicated that parents felt more positive about their ability to successfully interact with their child. For the Difficulty factor, higher scores indicated that parents felt that their child's communication difficulties were more severe.

Table 1.

PPOLD Factors

PPOLD Success

1. Therapy has helped my child communicate.
2. My child's language development has progressed well during the past three months.
3. My child and I have developed ways to communicate that I find satisfying.
4. Being in structured programs has helped my child communicate.
5. My child has made great strides in expressing his/her needs and wants.
6. My child has made great strides in understanding what othe people are trying to communicate.
7. My child seems eager to communicate with me.
8. My efforts working on communication with my child seem to be paying off.
9. I am increasingly confident that I can help my child develop ways of communicating

PPOLD Difficulty

1. It is often difficult to find the time to make special efforts to help my child learn to communicate.
2. Helping my child communicate is more work than I thought it would be.
3. Therapy related to communication development puts an added stress on our family.
4. My child still has a long way to go before he or she communicates as well as other children his/her age.
5. My child misbehaves because she does not have a way to tell me what he/she wants.
6. My child's expressive language skills hamper his/her ability to communicate needs and wants.

The third measure assessed receptive and expressive language skills. The *Sequenced Inventory of Communication Development-Revised* (SICD-R; Hedrick, Prather, & Tobin, 2000) is designed to evaluate language skills in young children ages 4 months to 4 years. It included a receptive and expressive scale, which each yielded an age in months. The receptive scale measured awareness, discrimination, and understanding. The expressive scale measured initiating, imitating, and responding as well as linguistic skills of spoken output and articulation. On both scales, responses were based on both observable behavior and parental report. The SICD-R has been shown to be an effective way to measure communication abilities of young children with and without developmental disabilities. The SICD-R also was administered during the study's baseline assessment and following completion of the intervention. It yielded an age equivalent score in months for both the receptive and expressive language scale.

Results

Means and standard deviations for all measures are displayed in Table 2. The PSI and PPOLD scores produced skew values between -1.50 and 1.50, indicating relatively normal distributions. The receptive and expressive language scales of the SICD produced significant skew values such that receptive language was positively skewed (t = 3.45) while expressive language exhibited a slight negative skew (t = -2.24). Correlations for all measures are displayed in Table 3. For each measure, there were significant correlations between pre- and post-intervention, indicating high consistency across time. The only exception was the Success factor of the PPOLD, which yielded an r = .24, indicating that Success was not stable from pre-to post-intervention. All correlations were significant at alpha equal to .05 or better.

Table 2

Descriptive Statistics for Measures and their subscales

	Pre		Post	
Variable	N	M (SD)	N	M (SD)
Total Parent Stress	59	74.12 (20.86)	59	71.75 (19.93)
Parent Distress	59	23.82 (7.37)	59	23.03 (7.2)
P-CDI	59	21.60 (6.26)	59	21.54 (5.9)
Difficult Child	59	27.88 (9.79)	59	27.34 (9.5)
PPOLD Success	55	3.60 (.72)	54	4.08 (0.7)
PPOLD Difficulty	55	3.35 (.76)	54	3.22 (0.8)
SICD-R Receptive Language	59	18.97 (7.05)	59	21.98 (8.5)
SICD-R Expressive Language	59	12.77 (4.36)	59	16.27 (6.7)

Note. P-CDI = Parent-Child Dysfunctional Interaction, PPOLD = Parent Perception of Language Development, SICD = Sequenced Inventory of Communication Development

Table 3.

Bivariate Correlations of Study Measures

Variable	1	2	3	4	5	6	7	8	9	10
1. Baseline Total Parent Stress	—									
2. Post Total Parent Stress	.78**	—								
3. Baseline PPOLD Success	–.23	–.18	—							
4. Post PPOLD Success	–.17	–.30*	.22	—						
5. Baseline PPOLD Difficulty	.57**	.60**	–.37**	–.47**	—					
6. Post PPOLD Difficulty	.46**	.61**	.26	–.62**	.73**	—				
7. Baseline Receptive Language	–.07	–.05	.20	.12	–.19	–.20	—			
8. Post Receptive Language	.00	.01	.25	.22	–.21	–.16	.86**	—		
9. Baseline Expressive Language	–.18	–.35**	.09	.25	-.36**	–.26	.31*	.32*	—	
10. Post Expressive Language	.02	–.14	.20	.32*	–.26	–.23**	.43**	.59**	.71**	—

Note. **p*<.05, ***p*<.01. Correlations for Baseline Success, Post Success, Baseline Difficulty, and Post Difficulty: *N* =55; all other correlations: *N* = 59.

The first research question investigated whether parent stress decreased following participation in a parent-implemented language intervention. It was hypothesized that parent stress would decrease following the parent-implemented language intervention. On the total stress scale of the PSI, parents received a mean score of 74.12 (SD = 20.86) at pre-intervention and 71.75 (SD = 19.93) at post-intervention. A repeated measures t-test revealed that total parent stress did not change significantly following language intervention, t (1, 58) = 1.11, p = .271, $p\eta^2$ = .02, although the sample decreased their total stress score by an average of 2.1 points. Additional repeated measures t-tests showed that there were no significant changes for any of the three subscales: Parent Distress (PD), t (1, 58) = .83, p = .41, Parent-Child Dysfunctional Interaction (P-CDI), t (1, 58) = –0.09, p = .93, or Difficult Child (DC), t (1, 58) = 0.53, p = .60.

The second research question investigated the relationship between expressive language and parent stress. Romski, Sevcik, Adamson, and Cheslock (2006) reported significant increases in receptive and expressive language from pre- to post-intervention for this sample. Two repeated measures t-tests showed significant effects for receptive language skills, t (1, 58) = –5.39, p = .000, $p\eta^2$ = .33 and expressive language skills, t (1, 58) = –5.69, p = .000, $p\eta^2$ = .35 from pre- to post-intervention. Children who participated in the language interventions significantly improved their receptive and expressive language skills, by an average of 3 months and 3.5 months, respectively, over the course of the 12-week intervention. It was hypothesized that if a child's expressive language ability increased following language intervention that parent stress would consequently decrease. This hypothesis was tested in two ways. The first approach examined correlations between expressive language and parent stress. There was a significant negative correlation, (r = –.35, p < .01), between expressive language at baseline and total parent stress at post-intervention. This finding indicates that children who had higher expressive

language at baseline, relative to other children in the sample, had parents who exhibited lower levels of parent stress at post-intervention. Conversely, children who had lower expressive language at baseline, relative to other children in the sample, had parents who exhibited higher levels of parent stress at post-intervention. The second approach was a chi-square test, which compared the likelihood that parental stress would decrease when expressive language increased to the likelihood that parent stress would decrease when expressive language stayed the same or decreased. Results indicated that parental stress was almost twice as likely to decrease when child expressive language increased than when child expressive language did not increase (odds ratio = 1.94). Although this result was in the expected direction, it was not statistically significant, χ^2 (1, N = 59) = 1.42, p = .18, one-tailed.

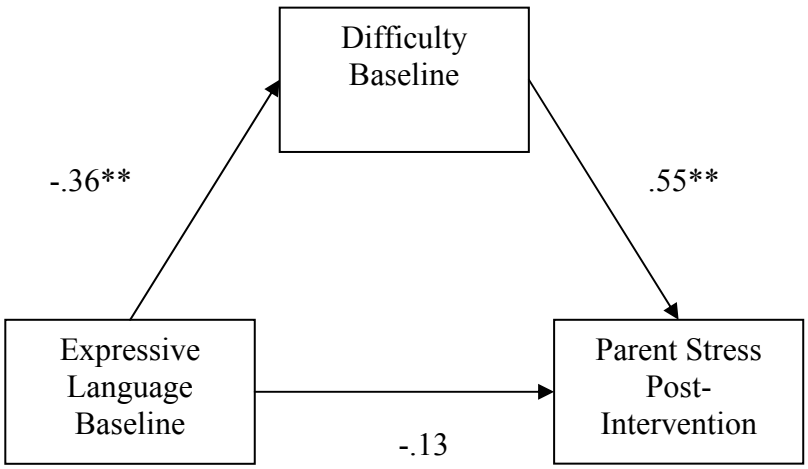
The final research question asked whether parents' perceptions about their child's communication development mediated the relationship between child's expressive language and parent stress at both pre and post-intervention. It was predicted that feelings of success would mediate the relationship between the child's expressive language and parent stress. Initially, mediation was not tested because there was no significant correlation between expressive language and parent stress at either pre-intervention, (r = –.18, p = .16) or post-intervention, (r =.14, p = .30).

The significant correlation between expressive language at baseline and parent stress at post-intervention was further explored. Although there was no relationship between the two variables at pre- or post-intervention separately, there was a relationship over time. Inspection of the bivariate correlations in Table 3 revealed that PPOLD Difficulty but not Success was significantly correlated with both expressive language at baseline and parent stress at post-intervention. A hierarchical regression analysis was conducted to determine if PPOLD

Difficulty mediated the relationship between expressive language at baseline and parent stress at post-intervention. Results of the mediation analysis, presented in Figure 2, revealed that when Difficulty was added to the model, the relationship between expressive language at baseline and parent stress at post-intervention was not significantly different from zero. The indirect effect of expressive language on parent stress via Difficulty was, β = -.20, z = -2.44, p = .01. This significant indirect effect indicated that Difficulty at baseline partially mediated the relationship between expressive language at baseline and parent stress at post-intervention; 57% of the total effect was mediated. Parents of children who had better expressive language at baseline perceived their child's communication difficulties as less severe and, consequently, had less parent stress at post-intervention.

Figure 1.

Mediation Analysis



Note. **p<.01. All regression coefficients are standardized. The indirect effect of expressive language on parent stress via difficulty was, β = -.20, z = -2.44, p = .01.

Exploratory Analyses

At pre-intervention, overall parent stress was at the 60th percentile (M = 73.83), well within the normal range of the 15th-80th percentile according to the PSI (Abidin, 1995). Thirty-three percent of the 60 parents exhibited overall stress in the high range, defined by Abidin (1995) as scores in the 85th percentile or above. The PSI considers scores in this range to be "clinically significant." In order to more closely examine parent stress in these parents, exploratory analyses were performed. Looking at the stress profiles of these 20 parents descriptively, two profiles emerged about how these parents changed following the parent-implemented language intervention.

The first profile included the 20 parents who exhibited clinically significant levels of overall parent stress at pre-intervention. Means and standard deviations for parents in the clinically stressed sub-group as compared to parents in the non-clinically stressed group are displayed in Table 4. Thirteen parents reduced their total stress level following intervention by an average of 15.61 points on the total stress scale of the PSI, 5 of these 20 parents showed an increase in parent stress with an average increase of 5.4 points on the PSI following intervention, and two parents stayed the same.

The second profile that emerged included 20 of the 60 parents who scored in the high range on the Difficult Child subscale. On this scale, a high score indicated that the parent experienced difficulty in managing his or her child's behavior, specifically as it related to setting limits and gaining the child's cooperation. Interestingly, of these 20 parents, 85% also scored in the high range for total stress. For this particular sub-sample, it may be that the stress related to managing the child's behavior is responsible for the parents scoring high overall. Eleven of the 20 parents (55%) decreased their score on this scale at post-intervention by an average of nine

points. Nine parents either increased their score or stayed the same. They increased by an average of four points.

Table 4

Means and SD of PSI for Clinically Stressed vs. Non-Clinically Stressed Group

	Pre		Post	
Variable	N	M (SD)	N	M (SD)
Non-Clinically Stressed Group				
Total Parent Stress	39	62.38 (13.38)	39	63.63 (15.12)
Parent Distress	39	20.50 (5.97)	39	20.55 (5.84)
P-CDI	39	18.75 (4.33)	39	19.63 (4.67)
Difficult Child	39	22.83 (6.25)	39	23.70 (7.93)
Clinically Stressed Group				
Total Parent Stress	20	97.60 (10.67)	20	88.84 (18.17)
Parent Distress	20	30.45 (5.09)	20	28.26 (7.01)
P-CDI	20	27.30 (5.64)	20	25.58 (6.24)
Difficult Child	20	38.00 (7.47)	20	35.00 (8.11)

Note. P-CDI = Parent-Child Dysfunctional Interaction

For the Difficult Child subscale, high scores are typically indicative of parents who need professional assistance, regardless of the cause. The PSI identifies two distinct profile patterns into which most parents typically fit (Abidin, 1995). Parents fit into the first profile if they score in the high range on the Difficult Child (DC) subscale but within the normal range on the Parent Distress (PD) and Parent-Child Dysfunctional Interaction (P-CDI) subscale. If a parent fits this profile, it indicates that intervention involving a consultation or a parent-education class focused on management strategies is recommended. Parents fit into the second profile if they score in the high range on the DC subscale and the P-CDI subscale but in the normal range for the PD subscale. If a parent fits this profile, it indicates that a more intensive child-oriented intervention program is needed. For the 20 parents in the sample who scored in the high range on this subscale, five parents fit the first profile and five parents fit the second profile. The other 10 parents in this sample did not fit into either of these typical profile patterns.

Because the PPOLD was developed to more closely explore the stress related to the child's communication, the relationship between the PPOLD and the PSI was examined. Parent's feelings of success in communicating with their child increased significantly from pre- to post-intervention and it was important to investigate the relationship between parent's feelings of success and parent stress. There were correlations between the total stress score on the PSI and the Success factor of the PPOLD at pre-intervention ($r = -.23$, $p = .08$) and post-intervention ($r = -.30$, $p = .05$), suggesting that a relationship did exist (see Table 3). The negative relationship at both pre- and post-intervention suggests that at specific points in time, parents who had higher feelings of success exhibited lower levels of parent stress. Conversely, parents who had lower feelings of success exhibited higher levels of parent stress.

The relationship between the Difficulty factor of the PPOLD and parent stress, was examined as well. Correlations revealed that there was a significant relationship over time between parents' perceptions about the severity of their child's communication deficits and parent stress. Specifically, the higher total parent stress at pre-intervention, the more severe parents thought their child's communication disability was at post ($r = .46$, $p < .01$). Similarly, the greater the difficulty at pre-intervention, the higher total parent stress was at post-intervention ($r = .60$, $p < .01$).

Discussion

This study examined the effects of a parent-implemented language intervention on parental stress in a sample of very young children with developmental disabilities. Additionally, the study investigated whether there was a relationship between children's expressive language ability and parental stress and if parent perceptions about their child's communication development mediated this relationship. The results indicate that two of the three initial hypotheses were partially supported. While parent stress did not show significant decreases from pre- to post-intervention, there was a relationship between expressive language and parent stress. Specifically, parents' perceptions about the severity of their child's communication deficits partially mediated the relationship between expressive language at baseline and parent stress at post-intervention. In addition, exploratory results begin to support the idea that parents who are initially high in parent stress are able to decrease their overall parent stress following language intervention.

The first question hypothesized that parent stress would decrease following parent-implemented language intervention due to parents' increased feelings of confidence in communicating with their children. This hypothesis was not supported. Although Total Stress

scores on the *Parent Stress Index* (PSI) decreased from pre-intervention to post-intervention, the change was not significant and the effect size was minimal. In fact, parents' Total Stress score at pre-intervention was in the normative range and suggested that overall, parents who participated in this study were not very stressed at the beginning of the intervention. With the growing number of community-based early intervention services, parents of young children may have greater access to resource supports, social supports, and information and services. Access to services and supports may, in turn, contribute to parents' confidence in their ability to be a successful caretaker to their child with a disability (Guralnick, 2000). Having the early intervention system in place can bring about more positive developmental outcomes for the children and can in turn, mitigate the psychological distress of families. In this sense, the fact that the present sample of parents did not exhibit high stress levels is not surprising and is an encouraging sign. Because parents in this particular sample did not exhibit elevated levels of stress prior to beginning the intervention, it is reasonable that they would not decrease by a significant amount following intervention. This finding also supports previous intervention research that certain types of early language intervention do not increase parent stress (Fey et al., 2006; Robertson & Weismer, 1999; Shonkoff, Hauser-Cram, Krauss, & Upshur, 1992).

Fey et al. (2006) reported that there were not significant changes in parent stress following language intervention and their sample was in the normative range for parental stress at the onset of the study as well. They did not, however, report whether there were any parents in their sample who did show high levels of stress. In the present sample, one-third of the sample, 20 parents, did exhibit clinically high levels of total stress at pre-intervention and showed decreases in parent stress at post-intervention. This is contrary to research by Brinker, Seifer, and Sameroff (1994) who found that for parents who initially exhibited high levels of

parent stress, more intensive interventions targeting communication between parent and child led to less child improvement and increases in parent stress. The research by both Brinker et al. (1994) and Fey et al. (2006) did not include a specific parent-implemented component to their interventions. Brinker et al. (1994), included a parent-focused intervention that involved a support group where parents received information on parental needs and information on ameliorating the developmental delays of their children, but parents were not taught to use specific communication strategies. Fey et al. (2006) included an intensive parent education component that helped parents to recognize communicative attempts by their children and how to respond to the attempts appropriately. Neither intervention, however, taught parents to implement the intervention with their children.

The second question hypothesized that the higher the child's expressive language at pre-intervention, the lower parent stress would be at post-intervention. In addition, if the child's expressive language ability increased following language intervention, parent stress would decrease. This hypothesis was partially supported. Although the chi-square test did not produce a significant result, parent stress was almost twice as likely to decrease when expressive language increased as compared to when expressive language decreased or stayed the same. There was, however, a significant negative correlation between expressive language at pre-intervention and total parent stress at post-intervention. The significant correlation shows that regardless of how expressive language is changing over time, parents of children who exhibit higher expressive language, relative to other children in the sample, show less parent stress overall.

The third question examined the relationship between parents' perceptions about their child's communication development and parent stress from pre-intervention to post-intervention

The findings indicated that parent's feelings of success in impacting their child's communication development was not related to parent stress from pre- to post-intervention. The correlations between parent perceptions and parent stress at pre- and post-intervention indicated that although there was no relationship over time, a relationship at specific points in time did exist. For this particular sample at either pre- or post-intervention, parents who felt more positive about their ability to communicate with their child exhibited lower levels of parent stress. Conversely, those parents who did not feel as positive about their ability to communicate with their child exhibited higher levels of parent stress. This finding indicates that different parents account for the negative correlations at pre- and post-intervention and suggests that the relationship between parents' feelings of success in impacting their child's communication development may be a more situational trait rather than one that is stable over time.

Parents' perceptions about the severity of their child's communication difficulties, however, were stable over time. It seems that how well parents perceive that their child is communicating may have the greatest contribution to parent stress. In the present study not only did parents who perceived their child's communication difficulties as more severe exhibit greater parent stress, but their perceptions of difficulty partially mediated the relationship between expressive language and parent stress. This finding suggests that improving a child's expressive language may decrease parents' perceptions about their child's communication difficulties which may then have positive impacts on parent stress. It should be emphasized, however, this effect was not predicted and resulted from exploratory analyses that may capitalize on chance effects in this sample, and therefore, would need to be replicated in independent samples.

This study adds an important component to existing research on the role of positive perceptions and parent stress in families of children with disabilities. Current research

demonstrates how parents who hold more positive perceptions about their child's disability exhibit lower levels of parent stress (Hastings et al., 2002; Hastings & Taunt, 2002). While this research asked about parent's perceptions of their child's disability, no study to date has specifically investigated parent's perceptions about their child's communication abilities and their role in impacting their child's communication development. The present study showed that parent-implemented language interventions can improve parent's perceptions of success in impacting their child's communication development and also reduce parent stress. Future studies should investigate how parent's perceptions about their child's communication development impact their interactions with their child and other psychosocial variables.

The exploratory results from the present study showed that the majority of the parents who were initially high in parent stress did reduce their overall levels of parent stress following intervention. However, because this finding was exploratory in nature, it could simply be an artifact of the sample, such as regression to the mean. When looking at a sample of extreme scores from a distribution, it would be expected that parent-reported scores would decrease at post-intervention simply due to the fact that scores at the first observation were very extreme in relation to the mean for the sample as a whole (Judd & Kenny, 1981). Future studies should examine this issue again using a control group in order to determine whether this finding is actually an effect of intervention, or merely regression to the mean. If similar results are obtained, there would be more support for the notion that parent-implemented language interventions can have positive impacts on parent stress, especially for parents who exhibit high levels of stress prior to intervention.

There was also a sub-sample of 20 parents who scored high on the Difficult Child subscale of the PSI. While the majority of parents decreased their score on this scale following

intervention, fewer parents decreased on this scale as compared to the number of parents who decreased on the total stress scale. This finding may indicate that even though parents are learning new skills to help their children communicate, if the child is still exhibiting difficult behavioral characteristics, parents may still feel highly stressed in this area. As mentioned previously, the PSI references two distinct profiles that parents typically fit into on the Difficult Child subscale. For the present sample, half the parents did not fit into either of these typical profiles, which may suggest that interventions to help parents as recommended by the PSI may not work for those who do not fit easily into one of the two PSI profiles.

Interestingly, 17 of the 20 parents who scored high on the Difficult Child subscale were also in the sub-sample of parents who scored high on the total stress subscale. The behavioral characteristics of the child may be driving the overall parent stress. This exploratory finding is consistent with previous research showing that parent stress is often related to the child's behavior problems and not to the fact that the child has a disability in and of itself (Baker et al., 1997; R. L. Koegel et al., 1992; Poehlmann et al., 2005; Tomanik et al., 2004). Parent stress and child behavior problems can often exist in a bi-directional relationship so that when parents are highly stressed, they may create more problem behaviors in their child (Baker, Blacher, Crnic, & Edelbrock, 2002; Hastings, Daley, Burns, & Beck, 2006). As Lazarus and Folkman (1984) discuss, a child can have an influence on the functioning of the family system which in turn can have effects on the child. When a child is exhibiting difficult behaviors, it may compound the stress parents feel, which in turn, may elicit even more behavior problems. Assessing this relationship directly is beyond the scope of this study but should be considered as it relates to the transactional model of disability. Again, these exploratory results should be interpreted with caution due to the small sample size of 20 parents.

Overall, these findings fit well within the framework of both the transactional model and alliance model of stress and disability. Briefly, the transactional model, as it relates to stress and disability, recognizes the importance of considering all parts of a child's environment when trying to understand the experience of the child and the parents (Lazarus & Folkman, 1984; Orr et al., 1991). The present study showed that when examining parent stress, it important to consider that it may not be the disability status of the child that leads to high parent stress but the characteristics of the child that may bring about stressful interactions with the parent. Although a transactional model accounts for the ways that children and parents can influence each other, it does not allow for an understanding of the experience of disability from the parents' perspective. These findings are better interpreted in terms of the framework of the alliance model (Brett, 2002). This model recognizes the importance of involving parents directly in interventions with their children, bringing about equal partnerships between parents and professionals. The present study involved a parent-implemented component where parents worked closely with the speech language pathologist and interventionist in a collaborative effort to help bring about more positive communicative interactions with their child. The parent was actively involved in all stages of the intervention process. This model is especially important as it relates to interventions with children who have severe communication difficulties. Helping parents find more successful ways to interact with their children permits them to feel more capable in their interactions with their children without having to rely entirely on the assistance of professionals.

There were several limitations to the study. The first is the sample size of 60, which, in general, is a small sample size. For this type of intervention work, however, it is actually a large sample size. Although a power analysis conducted prior to the study indicated that the sample size was sufficient to find significant effects, it may be possible that if we had a larger sample,

we would have seen the desired effects. With the increase of parent involvement in interventions and the larger community beginning to view disability less negatively, parents may not become as stressed upon finding out that their child has a disability as parents may have in the past.

Another limitation involves the composition of the sample. The present sample consisted mostly of middle class families who all had at least a high school education. The sample was, however, ethnically diverse as 39% of the families identified themselves as minority. These families may have had access to more resources, financial or otherwise, to help them deal with the needs of their children. This access to resources may also explain why these families did not exhibit higher levels of overall stress. In that sense, it is unknown how families from lower socioeconomic backgrounds may respond to a child with a disability and communication difficulties. For this study, families had to initiate contact with the project and commit to bringing their child to the intervention twice a week for nine weeks until the sessions were generalized to the home. While childcare, parking and other transportation costs were provided as needed, the commitment required for participation may have been too much for families from a lower SES background to make.

A substantial portion of these families of children with disabilities are vulnerable not only to the usual stressors related to a child's disability but also to multiple risk factors in addition to low socioeconomic status such as low education, and high life stress (Guralnick, 2000; Peterson, Carta, & Greenwood, 2005). Concerns about involving these families in parent-implemented language intervention have been follow-through and the quality of the implementation of new skills taught by the parents (Peterson et al., 2005). A few studies have investigated the efficacy of teaching parents new skills to improve their children's communication development and have found that parents of children with multiple risk factors can, in fact, learn these strategies

although generalization over time is more variable (Hancock, Kaiser, & Delaney, 2002; Peterson et al., 2005).

In conclusion, the findings of this study are both consistent with previous research and extend research in the area of parent stress as it relates to children's communication development. Specifically, this study extends research in the area of parental perceptions of their child's communication development and the role of parent-implemented interventions in that process. This study showed that there are clear benefits gained by parents participating in parent-implemented interventions where they learn new strategies to more successfully communicate with their children. Learning these strategies does not lead to increases in parent stress and may serve to reduce parent stress, especially for parents who are already highly stressed. Targeting parents' perceptions about their child's communication development can serve as an important function in reducing parent stress. When parents perceive that their child's communication difficulties are less severe and when they feel successful in impacting their children's communication development, there may be positive outcomes for parent stress.

References

Abbeduto, L., Seltzer, M. M., Shattuck, P., Krauss, M. W., Orsmond, G., & Murphy, M. M. (2004). Psychological well-being and coping in mothers of youths with autism, Down syndrome, or Fragile X syndrome. *American Journal of Mental Retardation, 109*, 237-254.

Abidin, R. R. (1995). *Parent Stress Index Manual* (Third Edition ed.). Odessa, FL: Psychological Assessment Resources, Inc.

Adamson, L. B., Romski, M. A., Sevcik, R. A., & Bakeman, R. (2000). *Parent Perception of Language Development*: Unpublished measure.

Baker, B. L., Blacher, J., Crnic, K. A., & Edelbrock, C. (2002). Behavior problems and parenting stress in families of three-year-old children with and without developmental delays.. *American Journal of Mental Retardation, 107*, 433-444.

Baker, B. L., Blacher, J., Kopp, C. B., & Kraemer, B. (1997). Parenting children with mental retardation. *International Review of Research in Mental Retardation, 20*, 1-47.

Bernheimer, L., Gallimore, R., & Weisner, T. (1990). Ecocultural theory as a context for the individual service plan. *Journal of Early Intervention, 14*, 219-233.

Brett, J. (2002). The experience of disability from the perspective of parents of children with profound impairment: Is it time for an alternative model of disability? *Disability and Society, 17*, 825-843.

Brinker, R. P., Seifer, R., & Sameroff, A. J. (1994). Relations among maternal stress, cognitive development, and early intervention in middle- and low-SES infants with developmental disabilities. *American Journal of Mental Retardation, 98*, 463-480.

Brookman-Frazee, L. (2004). Using parent/clinician partnerships in parent education programs for children with autism. *Journal of Positive Behavior Interventions, 6*, 195-213.

Byrne, E. A., & Cunningham, C. C. (1985). The effect of mentally handicapped children on families: A conceptual review. *Journal of Child Psychology and Psychiatry, 26*, 847-862.

Carpenter, B., & Phil, M. (1997). Empowering parents: The use of the parent as researcher paradigm in early intervention. *Journal of Child and Family Studies, 6*, 391-398.

Crnic, K. A., Friedrich, W. N., & Greenberg, M. T. (1983). Adaptation of families with mentally retarded children: A model of stress, coping, and family ecology. *American Journal of Mental Deficiency, 88*, 125-138.

Dyson, L. L. (1997). Fathers and mothers of school age children with developmental disabilities: Parental stress, family functioning, and social support. *American Journal of Mental Retardation, 102*, 267-279.

Fey, M. E., Warren, S. F., Brady, N., Finestack, L. H., Bredin-Oja, S. L., Fairchild, M., et al. (2006). Early effects of responsivity education/prelinguistic milieu teaching for children with devleopmental delays and their parents. . *Journal of Speech, Language, and Hearing Research, 49*, 526-547.

Frey, K. S., Greenberg, M. T., & Fewell, R. R. (1989). Stress and coping among parents of handicapped children: A multidimensional approach. *American Journal of Mental Deficiency, 94*, 240-249.

Guralnick, M. J. (2000). Early childhood intervention: Evolution of a system. *Focus on Autism and other Developmental Disabilities, 15*, 68-79.

Hancock, T. B., Kaiser, A. P., & Delaney, E. M. (2002). Teaching parents of preschoolers at high risk: Strategies to support language and positive behavior. *Topics in Early Childhood Special Education, 22*, 191-212.

Hastings, R. P., Allen, R., McDermott, K., & Still, D. (2002). Factors related to positive perceptions in mothers of children with intellectual disabilities. *Journal of Applied Research in Intellectual Disabilities, 15*, 269-275.

Hastings, R. P., Daley, D., Burns, C., & Beck, A. (2006). Maternal distress and expressed emotion: Cross-sectional and longitudinal relationships with behavior problems of children with intellectual disabilities. *American Journal of Mental Retardation, 111*, 48-61.

Hastings, R. P., & Taunt, H. M. (2002). Positive perceptions in families of chidren with developmental disabilities. *American Journal of Mental Retardation, 107*, 116-127.

Hedrick, D. L., Prather, E. M., & Tobin, A. R. (2000). *Sequenced Inventory of Communication Development Manual - Revised Edition*. Los Angeles, CA: Western Psychological Services.

Hodapp, R. M., Ricci, L. A., Ly, T. M., & Fidler, D. J. (2003). The effects of the child with Down syndrome on maternal stress. *British Journal of Developmental Psychology, 21*, 137-151.

Jobe, B. M., Glidden, L. M., Daly, K. D., & MacFarland, M. E. (2005, April). *Coping style predicts adjustment in parents of children with developmental disabilities.* Poster presented at the biennial meeting of the Society for Research in Child Development, Atlanta, GA.

Johnston, M. (1994). Models of Disability. *The Psychologist, May*, 205-212.

Judd, C. M., & Kenny, D. A. (1981). *Estimating the effects of social interventions*. New York, NY: Cambridge University Press.

Kaiser, A. P., & Hancock, T. B. (2003). Teaching parents new skills to support their young children's development. *Infants and Young Children, 16*, 9-21.

Kasari, C., & Sigman, M. (1997). Linking parental perceptions to interactions in young children with autism. *Journal of Autism and Developmental Disorders, 27*, 39-57.

Koegel, L. K. (2000). Interventions to facilitate communication in autism. *Journal of Autism and Developmental Disorders, 30*, 383-391.

Koegel, R. L., Bimbela, A., & Schreibman, L. (1996). Collateral effects of parent training on family interactions. *Journal of Autism and Developmental Disorders, 26*, 347-359.

Koegel, R. L., Schreibman, L., Loos, L. M., Dirlich-Wilhelm, H., Dunlap, G., Robbins, F. R., et al. (1992). Consistent stress profiles in mothers of children with autism. *Journal of Autism and Developmental Disorders, 22*, 205-216.

Krauss, M. W., & Seltzer, M. M. (1993). Coping strategies among older mothers of adults with retardation: A life-span developmental perspective. In J. P. Turnbull, A. P. Turnbull, S. K. Behr, D. L. Murphy, J. Marquis & M. Blue-Banning (Eds.), *Cognitive coping, families, and disability*. Baltimore, MD: Paul H. Brookes Publishing.

Lazarus, R. S., & Folkman, S. (1984). *Stress, Appraisal, and Coping*. New York, NY: Springer Publishing Company.

Lessenberry, B. M., & Rehfeldt, R. A. (2004). Evaluating the stress levels of parents of children with disabilities. *Exceptional Children, 70*, 231-244.

McCubbin, H. I., & Patterson, J. (1983). The family stress process: The Double ABCX model of adjustment and adaptation. *Marriage and Family Review, 6*, 7-37.

Mullen, E. M. (1995). *Mullen Scales of Early Learning*. Circle Pines, MN: American Guidance Service.

Orr, R. R., Cameron, S. J., & Day, D. M. (1991). Coping with stress in families of children who have mental retardation: An evaluation of the Double ABCX model. *American Journal of Mental Retardation, 95*, 444-450.

Peterson, P., Carta, J. J., & Greenwood, C. (2005). Teaching enhanced milieu language teaching skills to parents in multiple risk families. *Journal of Early Intervention, 27*, 94-109.

Poehlmann, J., Clements, M., Abbeduto, L., & Farsad, V. (2005). Family experiences associated with a child's diagnosis of Fragile X or Down syndrome: Evidence for disruption and resilience. *Mental Retardation, 43*, 255-267.

Robertson, S. B., & Weismer, S. E. (1999). Effects of treatment on linguistic and social skills in toddlers with delayed language development. *Journal of Speech, Language, and Hearing Research, 42*, 1234-1248.

Romski, M. A. (2000). Augmented Language Intervention for Toddlers. Georgia State University: National Institute on Deafness and other Communication Disorders.

Romski, M. A., Sevcik, R. A., Adamson, L. B., & Cheslock, M. (2005, March). *Parents can implement AAC interventions with young children.* Poster presented at the 38th Annual Gatlinburg Conference on Research and Theory in Intellectual and Developmental Disabilities, Annapolis, MD.

Romski, M. A., Sevcik, R. A., Adamson, L. B., & Cheslock, M. (2006). *Toddlers, parent-implemented language interventions, and communication development.* Poster presented at the 12th Biennial Conference of the International Society for Augmentative and Alternative Communication, Duesseldorf, Germany.

Romski, M. A., Sevcik, R. A., Adamson, L. B., Cheslock, M., & Smith, A. (2005, April). *Parent perception of toddler communiation development before and after language intervention.* Poster presented at the biennial meeting of the Society for Research in Child Development, Atlanta, GA.

Shonkoff, J. P., Hauser-Cram, P., Krauss, M. W., & Upshur, C. C. (1992). Development of infants with disabilities and their families: Implications for theory and service delivery. *Monographs of the Society for Research in Child Development, 57*(6, Serial No. 230).

Tomanik, S., Harris, G. E., & Hawkins, J. (2004). The relationship between behaviors exhibited by children with autism and maternal stress. *Journal of Intellectual and Developmental Disability, 29*, 16-26.

Tunali, B., & Power, T. G. (1993). Creating satisfaction: A psychological perspective on stress and coping in families of handicapped children. *Child Psychology and Psychiatry, 34*, 945-957.

Turnbull, A. P., & Turnbull, H. R. (1993). *Cognitive coping, families, and disability*. Baltimore, MD: Brookes Publishing, Inc.