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Effect of Behavioral Intervention Training on Parents' Stress, Parenting Behaviors and

Self-Efficacy

by

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Honors Thesis

in

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Abstract

For children with Autism Spectrum Disorders (ASDs), early intervention is incredibly important. In order for a behavioral intervention to be fully effective, it needs to be followed at all times of the day, not just during school hours. Because of this, a key factor during intervention is the involvement of parents of the child with the disorder. Parents/caregivers of children with Autism Spectrum Disorders participating in behavioral interventions at the Faison School for Autism were surveyed in order to find out more about strategies used when implementing a child's behavioral plan at home, and also their overall understanding of the plan itself. Other information of key parenting constructs was collected using the Parenting Stress Index (PSI), Parent-Child Relationship Inventory (PCRI), and Early Intervention Parenting Self-Efficacy Scale (EIPSES). These measures were collected before and after a one-session intervention in order to evaluate the impact of that training on the parents/caregivers that have a child with ASDs. Three parents participated in this study with varying profiles and responses to the intervention. Two of the parents who reported implementing the child's behavior plan at home had low levels of stress and did not have many overall changes after intervention. The other profile of parent reported not implementing the behavior plan at home and was clinically stressed in addition to having some relationship issues with her child. These results support the idea that stress levels of the parent may be associated with their relationship with their child.

Keywords: Autism Spectrum Disorders, parents, behavioral intervention training

Effect of Behavioral Intervention Training on Parents' Stress, Parenting Behaviors
and Self-Efficacy

Autism is a neurological disorder characterized by a lack of social and communication skills that affect 4-5 individuals per 10,000 births (Cummings & Mega, 2003). Autism is also the third most common childhood disorder, making it a much more common diagnosis than in the past (The Faison School, 2012). Specifically, a study done in California found increases in diagnosis especially in younger children (Hertz-Picciotto & Delwiche, 2009). Children diagnosed by age 5 went from 6.2 per 10,000 births for those born in 1990, to 42.5 for those born in 2001 (Hertz-Picciotto & Delwiche, 2009). This increase in the number of diagnoses creates a need for schools like the Faison School for Autism in Richmond, VA to treat this growing population of children with autism.

Importance of early intervention

Although there is no cure and there is limited knowledge about the causes of Autism Spectrum Disorders (ASDs), research suggests that early and sustained behavioral intervention is critical for successful adaptation for most children with ASDs (American Academy of Pediatrics, 2001). Meta- analyses have also supported this claim that early intensive intervention is an effective strategy (Reichow, 2011). Early intervention has been shown to be incredibly effective specifically on cognitive performance, adaptive behavior skills and language skills in studies done on children with ASDs (Warren, 2011). The effectiveness of early intervention has been shown in studies with toddlers in intervention programs, which found improved cognitive and adaptive behaviors and a reduced severity of ASD diagnosis over a two year time period

(Dawson, 2010). High intensity programs also have an overall greater gain in intellectual and educational functioning of the child when compared to low intensity treatments (Reed, Osborne, & Corness, 2007). Early intervention can allow a child with ASD to develop skills needed in their education to make it less likely they will struggle while in school and in life.

Effect of intervention on parents

Researchers have expansive knowledge on the direct benefits for parents of children with autism that participated in training interventions on behavioral management. Previous studies have measured the effects of training interventions and behavior management education on parents' mental health. Tongue et al. (2006) studied parents of preschool children with autism in an early intervention program. The parents' mental health and family functioning were measured before a 20-week training program, directly after the training and 6 months following the training (Tongue et al., 2006). It was found that an education program, skills training program, and counseling program aided their mental health and well-being. Another review concluded that in parents of children with developmental disabilities, training sessions targeting both parent well-being and cognitive behavioral parent training were more beneficial than training programs using just one method (Singer, Ethridge, & Aldana, 2007). It is clear that training the parents can be incredibly beneficial in their lives.

Effect of intervention on child

Research shows that training programs for parents not only benefit the parent, but the child as well. Different training programs for parents with young children with behavioral problems were reviewed by Kaminski, Valle, Filene & Boyle (2008). Many

factors promote positive results for the child including focus on emotional communication skills, teaching proper time out usage, and usefulness of parenting consistency. It was also found that parents who train directly with their own child have better outcomes. This allows the instructor to verify mastery of the skills learned during training. Studies have also focused directly on the training of parents of pre-school children with autism. One study of this type found that children with trained parents made more progress with their language than those using local services alone (Drew et al, 2002). Another study of children ages 24 to 48 months who were suspected to have ASD found similar effects, with both parents and children improving greatly on communication skills and children developing increased vocabulary after the parent received training (Mcconachie, Randle, Hammal & Lecouteur, 2005). The benefits of having a trained parent for a child with autism can give them a great advantage in their lives.

Effects of ABA

The Faison School for Autism, like many schools for children with autism, uses the Applied Behavioral Analysis (ABA) approach to early intervention. ABA is based on B.F. Skinner's ideas about operant conditioning (Skinner, 1965). It involves providing tangible rewards to children once they have successfully completed a small task, such as raising a hand before speaking, related to their overall goal of mastering a certain behavior, such as improving listening skills (Autism Speaks, 2010). These small tasks are objectively measured and graphed in order to see the progress made by each student (McGee, 2008). Eikeseth, Smith, Jahr and Eldevik (2007) did a study comparing the ABA treatment technique and an eclectic group (including a mixture of ABA, Treatment

and Education of Autistic and Communication Related Handicapped Children (TEACCH), sensory integration and others). Eikeseth, Smith, Jahr and Eldevik (2007) reported a greater increase in IQ and greater decrease in deviant behaviors in the ABA group. These results show that the early intervention with ABA was effective and while it does not discredit other methods, it does support that ABA is more commonly successful than other treatments.

Importance of parent involvement

This ABA treatment is meant to span throughout the entirety of a child's day. However, the Faison School has little control over what happens after school hours when the children are at home with their guardians. One way to resolve this problem is to have parents participate in trainings previously described in order to improve behavioral management interventions at home. Studies on specific interventions have shown that when the parent and staff are both involved in implementing the intervention, problem behaviors are reduced, and language and communication skills increase (Fava et al., 2011). Another study confirmed that parent involvement in training and continuous treatment at home increases success for the children with ASD (Strauss et al., 2012). Strauss et al. (2012) also found that parental stress decreases with low-intensity interventions and increases with high intensity interventions. While high intensity interventions may be more stressful, they are also found to be more effective. However, when a parent is stressed there may also be negative repercussions for the child.

Effects of stress on intervention

Caregiver stress can come from a variety of sources. It has been shown that child's behavioral problems, conduct problems and lack of prosocial behaviors were

strongly correlated with caregiver stress (Lecavalier, Leone, & Wiltz, 2006). Stress of a parent is one factor that could also impact the child's intervention program. Osborne, McHugh, Saunders, and Reed (2008a) found that highly stressed parents were less effective with their child's early interventions. Similarly, Dunn, Burbine, Bowers, and Tantleff (2001) found that certain coping styles of parents such as avoidance can contribute to negative outcomes, while positive coping strategies lead to more successful parenting. This is extremely important because parenting stress and coping strategies are factors that can be improved and would benefit both the parent and the child.

Connection of parent and child behaviors

Specific parent behaviors have also been connected to certain behaviors of the child. Osborne, McHugh, Saunders, and Reed (2008b) investigated parent relationships with their children and parenting behaviors in a longitudinal study and found a link from parental behaviors to behaviors exhibited by the child. Specifically, limit setting by parents was found to reduce problem behaviors in the child. This particular aspect of the parent child relationship is important to note since it is such a critical aspect of many behavior plans.

Importance of parenting self-efficacy

Parenting self-efficacy is another factor that can influence the success of an intervention. It has also been found that mothers' anxiety and depression as well as the child's behavior problems were mediated by parent self-efficacy (Hastings & Brown, 2002). Parents having confidence in the decisions they make for their child and having positive coping strategies can significantly improve the life of that child. The importance of providing parents with behavioral management skills in order to increase child

compliance and parenting self-efficacy can be seen by how greatly both the parents and children can benefit from it.

Current study

The purpose of the current study is to find out how a single treatment session focusing on behavioral intervention techniques can impact a parent of an autistic child's stress levels, parent-child relationship, self-efficacy in interventions, and overall understanding of the child's behavioral intervention plan. It is hypothesized that parent stress will decrease after implementation of the training. It is also hypothesized that parent self-efficacy will increase. Having a child with autism can be incredibly challenging, and this research could potentially help identify and provide solutions for some of the challenges parents face. The different profiles of these parenting variables will also be examined in order to better understand the variety of parents and how to target the various profiles for future interventions. In addition, the research will inform staff at the Faison School as to the impact of this intervention on key parenting variables shown to be predictive of positive child outcomes.

Method

Participants

Three parents of children that attend the Faison School for Autism completed self-report measures. The sample included three female caregivers; two were mothers and once was a grandmother. This grandmother took care of the child for a significant portion of the day, making her one of the primary caregivers. Of the participants, two were Caucasian, and one was Asian. The sample had children that were diagnosed with Autism and Severe Autism. All children were males diagnosed at the age of two.

Presently, two of the children are eleven and one is ten years old. All three students are in emergent speaker and emergent listener classrooms at the Faison School. Only two of the participants completed the post-intervention assessment.

Measures

Several constructs were measured before the intervention and at two weeks post-intervention, including: understanding of behavior plan, situational responses, parenting stress, parent-child relationship, and parenting self-efficacy. The intervention is also described below.

Understanding of behavior plan. First, the parents' basic understanding of how the behavioral plan is to be implemented was measured. They were asked about any previous training they may have received and their confidence level of their correct implementation of the behavioral plan. They were also asked about their use of the behavioral plan at home after school hours and on weekends. The answers were recorded with 4 and 5-point Likert scales with two yes or no questions as well. The full list of questions is located in the Appendix.

Situational Responses. Vignettes were included to get a better sense of how parents typically respond to a child's problem behaviors in real life situations. The vignettes described a situation where the child's behavioral plan could be implemented and asked the parent to describe how they would respond. The vignettes are included in the Appendix.

Parenting stress. Their stress levels relating to the child were also measured before and after training to see if the training program had any effect on stress using a standardized measure, the Parenting Stress Index Short Form (Abidin, Flens, & Austin,

1995). The PSI is a 36 item survey measuring total stress, parental distress, parent-child dysfunction, and the difficulty of the child.

Parent-child relationship. The Parent-Child Relationship Inventory (Gerard, 1994) is a 78 item standardized inventory that includes two validity scales. It was given in order to measure the parents' feeling about their child and attitudes towards the task of parenting. The specific subscales included in the PCRI are Parental Support, Satisfaction with Parenting, Involvement, Communication, Limit Setting, Autonomy, and Role Orientation. Only selected subscales were used in analysis due to the nature and presentation of ASDs.

Parenting self-efficacy. Another survey used was the Early Intervention Parenting Self-Efficacy Scale (EIPSES), which is a 20 item measure to provide information on the self-efficacy of parents during their child's early intervention program (Guimond, Wilcox, & Lamorey, 2008). This measure was designed specifically for use in populations with ASDs.

Intervention

The staff at the Faison School conducted the one-session intervention. It started with an explanation of the current behavioral plan, highlighting any parts that had recently changed. Next, the parent went into their child's classroom and observed the teachers working with their child and implementing the behavior plan when necessary. Parents were given the opportunity to participate in some of the ABA programs being run with the child in order to practice appropriate responses to their child's behaviors. Parents were given the opportunity to ask questions. The parent and teacher also worked together to troubleshoot any difficulties the parent expressed with implementing the plan.

Procedure

This study involves a partnership with the Faison School for Autism, a non-profit autism center located in Richmond, VA. All procedures were reviewed and approved by the Institutional Review Boards of the University of Richmond and the Faison School.

Parents were recruited using letters sent home in their child's home-logs that are checked nightly. If interested in participating, they returned a form giving their contact information to the teacher. The researcher then contacted the parent and the first session was scheduled. After completion of the survey the participant was given ten dollars at time one and then again at time two.

Parents of students who participated in the study first gave consent and then completed a series of questionnaires, described above, twice: once before and then again two weeks after the single-session parent training intervention. Parents completed the first survey at the Faison School just before their intervention session. The survey—except for the PCRI, was created using Qualtrics, an online data collection tool, and completed by parents on an iPad. The second data collecting session involved the parents coming in to the Faison School and completing the survey for a second time. One parent completed this second survey on paper in her home due to being unable to come into the Faison School at an agreeable time.

Results

Because of the small sample, we compared the different parents' scores that participated in the study at baseline and their change in scores after the intervention in order to see variety across the measures taken by visually inspecting graphs of pre- and post-results.

The *Parent understanding of behavior plan* measures set up the profiles for each of the parents. Parent A and C were similar in their high self-reported level of understanding of their child's behavioral management plan used at the Faison School (*Figure 1*). Their scores stayed the same after the intervention for this measure. They were also both confident that they were following the plan correctly at home (*Figure 2*). After intervention both Parent A and C boosted their confidence level by one point on the 5 point Likert scale (*Figure 2*). These two parents also reported that they indeed did follow the plan after school hours and on weekends. Parent B reported having little overall understanding of the behavioral plan and was not confident that she was implementing it correctly (*Figure 1 & 2*). She also reported that she did not follow the behavioral plan after school hours and on weekends. All three parents reported that they understood the importance of following the behavior plan while at home and the impact it could have on their child's education.

The *Situational Responses* also gave a good idea of the different parenting profiles for the participants. In response to the two vignettes Parent A gave specific examples from the behavior plan, including using her child's "first and then" board. Parent C also gave the specific example of redirecting her child's undesired behaviors, a very important part of her child's behavior plan. Parent B reported reactions that were not included in the behavioral plan. She reported carrying her child away from situations and meeting her child's demands, which would provide positive reinforcement for undesired behaviors.

The *Parenting stress* measures indicated the levels of total stress from parenting that the mothers were experiencing at the time of the surveys. Both Parent A and Parent

C did not have substantially different stress levels before and after the training intervention and were both below the clinically significant level (*Figure 3.*). Parent B had total stress levels that were clinically significant according to the PSI at the first assessment (*Figure 3.*).

The *Parent-child relationship* measure showed similar results across the different subscales for each participant individually. Parent A had fairly small changes in her scores between each report and they are not very often near the low *T*-score threshold. Her subscale scores indicated that she enjoys being a parent, receives support as a parent, and has interest in her child's activities (*Figure 4a,b,c.*). While Parent B only had one data point for each subscale, many of them are below the *T*-score threshold, indicating she perceives parenting as a burden, derives little satisfaction from being a parent and has low interest in her child's activities (*Figure 4a,b,c.*). Parent C's scores appeared lower after the intervention session (*Figure 4a,b,c.*). Her Parental Support and Satisfaction with Parenting scores stayed above or at the *T*-score threshold indicating that she enjoys being a parent, and receives support as a parent. The only score that dropped below the *T*-score threshold was the Involvement score, indicating that she has less than average interest in her child's activities. None of the parents showed Limit Setting that was in the significantly low range, indicating that the parent perceived that she has effective discipline technique, an important factor in the behavioral interventions.

The *Parenting self-efficacy* measure showed various results for each parent (*Figure 5.*). There was a high level of parenting self-efficacy for Parent A sustained throughout both surveys. Parent B had a lower self-efficacy on the 7-point scale. Parent

C also had a lower self-efficacy score at survey time one, but her self-efficacy increased by almost 2 points on this 7-point scale for survey time two.

Discussion

One main conclusion that is supported by the data presented is that Parents A and C, who were more knowledgeable about their child's behavior plan and more active in administering it when appropriate, were less stressed than Parent B who was less involved with the behavior plan and clinically stressed. The stress levels of the parents did not change between survey sessions, but the initial scores were different across parents. Both parent A and C had stress levels within the normal range. Parent B however was clinically stressed. This level of stress could potentially be negatively impacting her relationship with her child and her ability to carry out the behavior plan at home. These stress levels could potentially be having negative effects on her child's education. The parenting strategies being used by this particular participant could also be contributing to her stress levels because they may be less effective in managing the child's behavior. When not using effective strategies it not only affects the child's behavior but also the parent's stress.

The situational responses to the hypothetical vignettes provided an even more detailed picture of the parent and child interactions. Parent A and C both reported specific examples of their child's behavior plan in how they would respond to the hypothetical situations, indicating that they are familiar with it and understand how to implement it in difficult behavioral situations. Parent B's reported responses deviated from her child's behavior plan and indicated use of positive reinforcement for problem behaviors.

The PCRI scores again show the differences in the parents surveyed. Parent A had high scores that stayed high between the two survey times. Parent B had many scores below the *T*-score threshold. This again could be due to her increased stress or a lack of quality time with her child. Parent C mostly had scores above the *T*-score threshold, but between times one and time two all of her subscales scores appeared to decrease. The cause for the lowering of scores on the PCRI for Parent C could be due to an increased awareness of the quality of her relationship with her child from taking the survey and participating in the intervention. However, from these data, we cannot rule out the unlikely possibility that the intervention had an iatrogenic impact on the quality of the parent-child relationship for Parent C.

The parents also showed different patterns with the parenting self-efficacy scale. Parent A did not show much change in her parenting self-efficacy. This could be due to the fact that it was already high at the time of the first survey. Parent B had fairly low parenting self-efficacy. One reason this could be low is due to the nature of the survey and how questions about the parent's implementation of the behavior plan preceded the self-efficacy questions, potentially making the participant less confident of her abilities as a parent. Parent C's self-efficacy score increased greatly over the two week time period. While it is impossible to directly link it to the survey and intervention, it is possible that by being more active in her child's behavioral intervention, she became more confident in her parenting abilities. Knowing that she is implementing the behavior plan correctly and getting positive reinforcement from the Faison supervisor could be causing the greater self-efficacy.

Overall, while it is difficult to draw strong conclusions about the effects of the intervention, it is possible to make preliminary conclusions. The intervention appeared to have little to no effect on Parent A. This was predicted by the supervisor administering the intervention based on Parent A's high level of participation in her child's education. Parent A came into the classroom on a regular basis and had a very high level of communication with the school. The intervention may have helped Parent C improve her self-efficacy but also be more aware of parenting issues. With no data for Parent B after the intervention, it is impossible to tell if it had any impact on her stress levels, her relationship with her child, or self-efficacy. Parent B was difficult to contact and was unresponsive after many attempts to gather her second survey responses. Interventions and clinical research that is focused on these highly stressed parents are often difficult to conduct due to their lack of responsiveness. This is difficult to handle because these are the parents that need to be studied and need these interventions the most.

These results could potentially provide information on how to design interventions for these different profiles of parents. It could be possible that someone like Parent C needs more training on how to be confident in the decisions she makes as a parent. She could benefit from an intervention that validates that what she's doing at home is correct, based off her great increase in self-efficacy after only one training intervention. Other parents, like Parent B, may need to focus more on dealing with stress related to their child before they can move onto implementation of the behavior plan. This intervention could include stress management classes, with great incentives to ensure the parents would be motivated to participate. Providing childcare for their other children during the intervention sessions would also be a great way to persuade more

parents to participate. With a larger sample size and a broader range of information about the profiles of different parents, it may be possible to design these different types of interventions specialized for each type.

The sample size is a large limitation in this research project. Being able to see different parenting profiles or find more trends amongst different parents would have benefited the conclusions drawn from the current study. The current research project was also limited by the lack of a control group who did not receive the intervention. Finally, it would have been interesting to compare the parents in the current study to parents of typical children.

Given these findings, there are many potential future research projects that could follow in order to gain a better picture of effects of intervention training on parents. First, this study could be done in a longitudinal style and start gathering data when the child enters a particular school. Future research could also include other measures for the parent stress level besides just the Parent Stress Index. There is also potential to broaden the range of parents in order to compare the parenting profiles found across different developmental disabilities.

It is important to remember that it is not only the child that is impacted by an intervention program, but the parent as well. Providing services that allow for the parents to thrive and be confident in their skills is incredibly important and is supported by the data in this study. In order to provide a child with the best intervention possible, parents must be involved and effectively manage stress to ensure appropriate interactions with their child. Since stress is something that can be managed it is important to continue this

research in order to be knowledgeable about the best ways to interact with and design interventions for the parents of children with autism and other special needs.

References

- Abidin, R. R., Flens, J. R., & Austin, W. G. (1995). Parenting Stress Index. *Forensic uses of clinical assessment instruments*, 297-328.
- AMERICAN ACADEMY OF PEDIATRICS (2001) 'The Pediatrician's Role in the Diagnosis and Management of Autistic Spectrum Disorder in Children', *Pediatrics* 107 (5): 1221-6.
- Autism Speaks: Treating Autism. (2010). Autism speaks. Retrieved August 29, 2012, from <http://www.autismspeaks.org/treatment/index.php>
- Cummings, J. L., & Mega, M. S. (2003). *Neuropsychiatry and behavioral neuroscience*. Oxford: Oxford University Press.
- Dawson, G., Rogers, S., Munson, J., Smith, M., Winter, J., Greenon, J., ... Varley, J. (2010). Randomized, Controlled Trial of an Intervention for Toddlers With Autism: The Early Start Denver Model. *Pediatrics: Official Journal of the American Academy of Pediatrics*, 125, E17-E23.
- Drew, A., Baird, G., Baron-Cohen, S., Cox, A., Slonims, V., Wheelwright, S., ... Charman, T. (2002). A pilot randomised control trial of a parent training intervention for pre-school children with autism Preliminary findings and methodological challenges. *European Child & Adolescent Psychiatry*, 11, 266-272.
- Dunn, M. E., Burbine, T., Bowers, C. A., & Tantleff-Dunn, S. (2001). Moderators of Stress in Parents of Children with Autism. *Community Mental Health Journal*, 37(1), 39-52.
- Eikeseth, S., Smith, T., Jahr, E., & Eldevik, S. (2007). Outcome for children with autism

- who began intensive behavioral treatment between ages 4 and 7: a comparison controlled study. *Behavior Modification*, 31(3), 264-27.
- Fava, L., Strauss, K., Valeri, G., D'Elia, L., Arima, S., & Vicari, S. (2011). The effectiveness of a cross-setting complementary staff- and parent-mediated early intensive behavioral intervention for young children with ASD. *Research in Autism Spectrum Disorders*, 5(4), 1479-1492.
- Gerard, A. B. (1994). Parent-child relationship inventory (PCRI). *Los Angeles: Western Psychological Services*.
- Guimond, A. B., Wilcox, M. J., & Lamorey, S. G. (2008). The Early Intervention Parenting Self-Efficacy Scale (EIPSES) Scale Construction and Initial Psychometric Evidence. *Journal of Early Intervention*, 30(4), 295-320.
- Hastings, R. P., & Brown, T. (2002). Behavior problems of children with autism, parental self-efficacy, and mental health. *American Journal on Mental Retardation*, 107(3), 222-232.
- Hertz-Picciotto, I., & Delwiche, L. (2009). The Rise in Autism and the Role of Age at Diagnosis. *Epidemiology*, 20(1), 84-90.
- Kaminski, J. W., Valle, L. A., Filene, J. H., & Boyle, C. L. (2008). A meta-analytic review of components associated with parent training program effectiveness. *Journal of Abnormal Child Psychology*, 36, 567-589.
- Lecavalier, L., Leone, S., & Wiltz, J. (2006). The impact of behaviour problems on caregiver stress in young people with autism spectrum disorders. *Journal of Intellectual Disability Research*, 50, 172-183.
- McConachie, H., Randle, V., Hammal, D., & Lecouteur, A. (2005). A Controlled Trial of

- a Training Course for Parents of Children with Suspected Autism Spectrum Disorder. *The Journal of Pediatrics*, 147, 335-340.
- McGee, G. (2008, October 23). What is ABA (applied behavior analysis), and how does it work? ABCNews.com - ABCNews.com: Breaking News, Politics, World News, Good Morning America, Exclusive Interviews - ABC News. Retrieved December 7, 2010, from <http://abcnews.go.com/Health/AutismTreatment/story?id=5975553>
- Osborne, L. A., McHugh, L., Saunders, J., & Reed, P. (2008a). Parenting Stress Reduces the Effectiveness of Early Teaching Interventions for Autistic Spectrum Disorders. *Journal of Autism and Developmental Disorders*, 38(6), 1092-1103.
- Osborne, L. A., McHugh, L., Saunders, J., & Reed, P. (2008b). The effect of parenting behaviors on subsequent child behavior problems in Autistic Spectrum Conditions. *Research in Autism Spectrum Disorders*, 2(2), 249-263.
- Reed, P., Osborne, L. A., & Corness, M. (2007). Brief Report: Relative Effectiveness of Different Home-based Behavioral Approaches to Early Teaching Intervention. *Journal of Autism and Developmental Disorders*, 37, 1815-1821.
- Reichow, B. (2011). Overview of Meta-Analyses on Early Intensive Behavioral Intervention for Young Children with Autism Spectrum Disorders. *J Autism Dev Disord*.
- Singer, G. H., Ethridge, B. L., & Aldana, S. I. (2007). Primary and secondary effects of parenting and stress management interventions for parents of children with developmental disabilities: A meta-analysis. *Mental Retardation and Developmental Disabilities Research Reviews*, 13, 357-369.
- Skinner, B. F. (1965). *Science and human behavior*. Free Press.

- Strauss, K., Vicari, S., Valeri, G., D'Elia, L., Arima, S., & Fava, L. (2012). Parent inclusion in Early Intensive Behavioral Intervention: The influence of parental stress, parent treatment fidelity and parent-mediated generalization of behavior targets on child outcomes. *Research in Developmental Disabilities, 33*, 688-703.
- The Faison School for Autism. (2012). Retrieved August 29, 2012, from <http://www.thefaisonschool.org/welcome.php>.
- Tonge, B., Brereton, A., Kiomall, M., Mackinnon, A., King, N., & Rinehart, N. (2006). Effects on parental mental health of an education and skills training program for parents of young children with autism: A randomized controlled trial. *Journal of the American Academy of Child and Adolescent Psychiatry, 45*(5), 561-569.
- Warren, Z., McPheeters, M. L., Sathe, N., Foss-Feig, J. H., Glasser, A., & Veenstra-VanderWeele, J. (2011). A Systematic Review of Early Intensive Intervention for Autism Spectrum Disorders. *Pediatrics: Official Journal of the American Academy of Pediatrics, 127*, E1303-E1311.

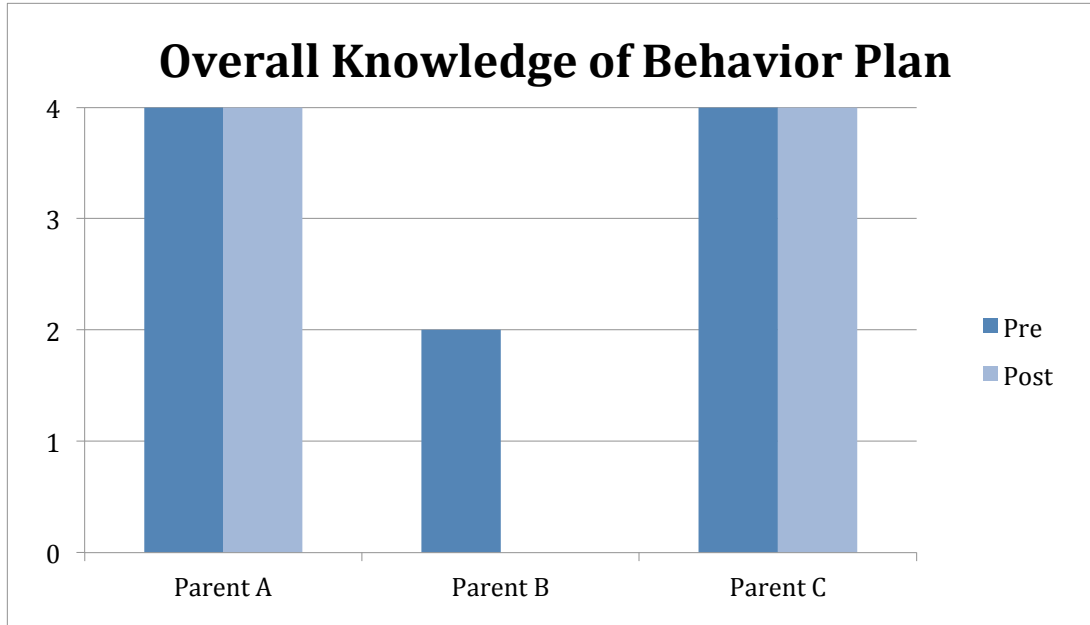


Figure 1. This graph indicates each parent's scores when asked, "How much do you know about how to use your child's behavior plan?" using a 4-point Likert scale.

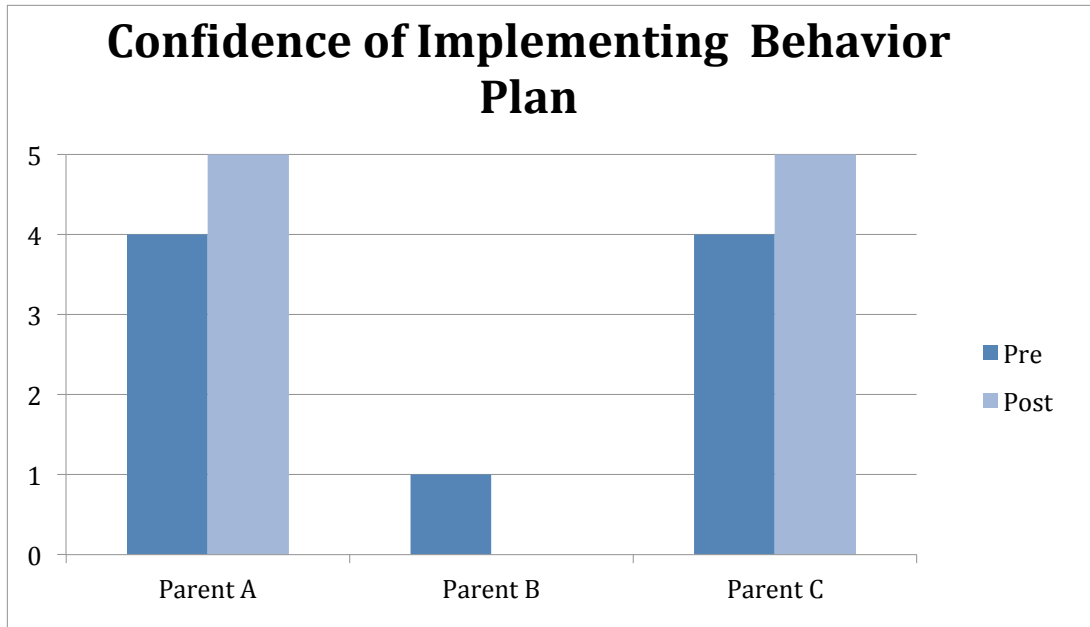


Figure 2. This graph indicates each parent's scores when asked, "How confident are you that you are using the behavior plan correctly?" using a 5-point Likert scale.

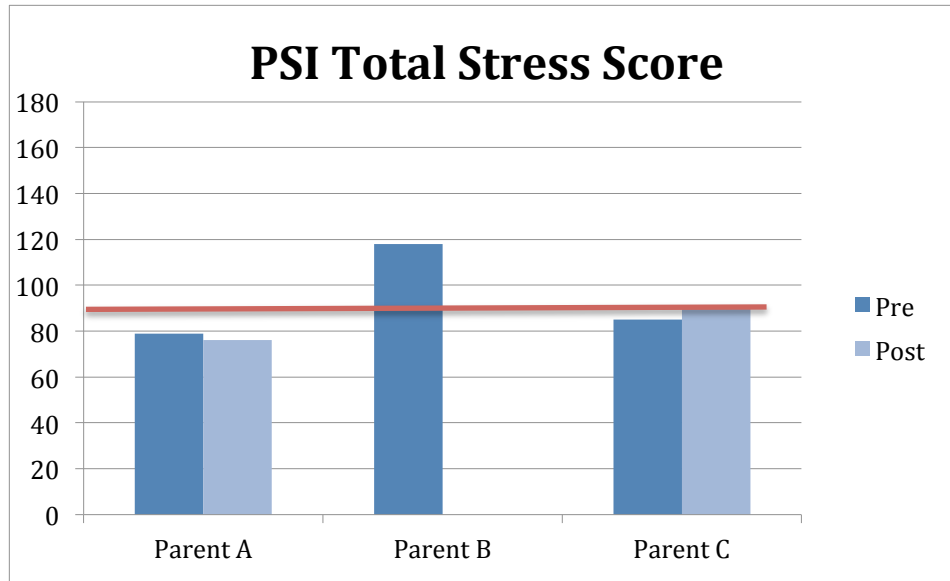


Figure 3. Each bar indicates the parent's total stress score as measured by the Parenting Stress Index. The line at 90 indicates the level that is clinically significant.

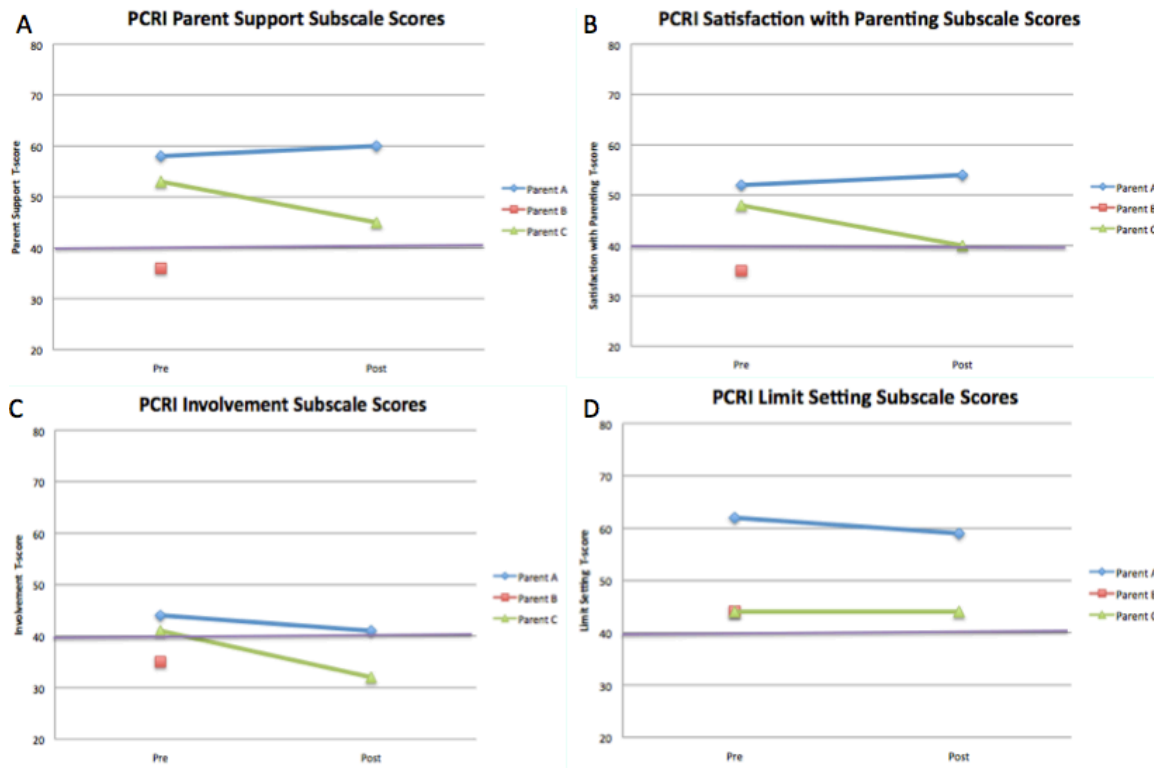


Figure 4 (a,b,c,d). This set of line graphs shows the *T*-scores of the different subscales of the PCRI; including satisfaction with parenting, limit setting, parent support, and involvement. The lines at the *T*-score of 40 indicate the *T*-score threshold that is considered low by the PCRI manual. Figure 4a is the Parent Support subscale, Figure 4b is the Satisfaction with Parenting subscale, Figure 4c is the Involvement subscale, and Figure 4d is the Limit Setting subscale.

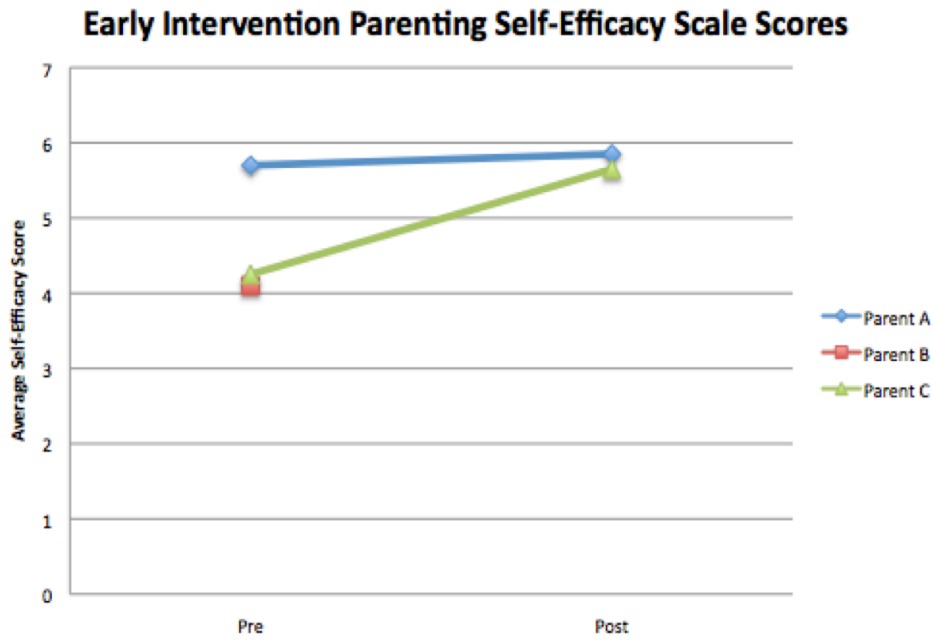


Figure 5. This line graph shows the changes in parenting self-efficacy from time one to time two as measured by the EIPSES.

Appendix

Behavioral plan implementation survey

1. How much do you know about how to use your child's behavior plan?
2. How often do you refer to or review you child's behavior plan?
3. Have you been exposed to any training on implementing the behavior plan previously?
4. How confident are you that you are using the behavior plan correctly?
5. Could you explain your child's behavior plan to someone else if they asked you to?
6. How much do you understand the importance of your child following the behavior plan outside of school hours?
7. How much do you feel your time using your child's behavior plan has an impact on their education?
8. Do you follow your child's behavioral plan while at home after school hours and on weekends?
9. If yes, how long when the child is at home after school and on weekends would you say you follow the behavior plan?
10. If you do not follow the behavior plan of the child, what other behavioral management strategies do you use instead of your child's behavior plan?
11. Are there any circumstances in which you actively choose to not follow your child's behavior plan? If so, what are they?

Vignettes

Instructions to Parents: Below are descriptions of imaginary parenting situations that you could find yourself in. Please read each description and describe how you would respond in that situation. (Note: Describe how you think you actually would respond rather than how you think others would say you should respond.)

You are in the grocery store with your child when the fire alarm goes off. Not expecting this loud noise and commotion it causes, your child gets upset. He/she begins to kick the shelves and start throwing food items in the grocery store. Your child runs away when you come close, making it hard to get control of the situation. How do you respond?

While sitting at home your child expresses the desire for gummy snacks. Gummy snacks are not available to them at the time, but the child persists and begins to scream and hit you. You've had a hard day at work and just want to have a relaxing evening at home. How do you respond?