Social Story Intervention for Children with Autism to Decrease Challenging Behaviors During Homework

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Social Story Intervention for Children with Autism to Decrease Challenging Behaviors during Homework

An honors thesis presented to the
Department of Psychology,
University at Albany, State University of New York
in partial fulfillment of the requirements
for graduation with Honors in Psychology
and graduation from The Honors College.

Arianna Doss
Research Advisor: Kristin V. Christodulu, Ph.D.

May, 2013
Abstract

Researchers have created interventions to improve the social behavior and communication of children with autism spectrum disorder. One such intervention is called Social Stories, which describes social situations and their corresponding appropriate behaviors in order to help children with autism better understand social cues. Although several studies indicate the usefulness of this intervention, more evidence is needed. This study aimed to evaluate the effectiveness of social stories in decreasing challenging behaviors of first-graders with autism during homework time and to measure changes in parental stress and family quality of life. Homework time was chosen because children with autism experience homework difficulties which can lead to stress within a family. It was expected that the Social Story intervention would decrease challenging behavior and parental stress and increase family quality of life. This study used a case study design and did not observe significant changes in behavior, stress, or quality of life. Reasons for these findings are investigated.
SOCIAL STORY HOMEWORK INTERVENTION

Acknowledgements

I’d like to thank my faculty advisor, Dr. Christodulu, for accepting me as an honors student when no one else would. She has supported me throughout this process and without her help I could not have completed this research. I’d also like to thank Dr. Rinaldi and Laura Hiruma, who have helped me every step of the way and have taught me more than they know. Lastly, I’d like to thank my parents for their continued love and support.
SOCIAL STORY HOMEWORK INTERVENTION

Table of contents

Abstract ........................................................................................................................................2
Acknowledgements ..................................................................................................................3
Introduction ..................................................................................................................................5
Methods ......................................................................................................................................9
Results ........................................................................................................................................12
Discussion ..................................................................................................................................13
References ...................................................................................................................................15
Appendices ..................................................................................................................................19
Tables ..........................................................................................................................................24
SOCIAL STORY HOMEWORK INTERVENTION

Social Story Intervention for Children with Autism to Decrease Challenging Behaviors during Homework

Homework is something that almost all school-age children and their parents deal with frequently. American students devote 20 percent of their total time spent on academic tasks on homework, and the amount of homework assigned is increasing (Westchester Institute for Human Services Research, 2002). Students who experience difficulties with homework completion could fall behind in school or endure stressful relationships with parents.

The subject of homework has been a source of debate for decades, with public opinion on the topic oscillating between support and opposition since the 1940s (Cooper, 2007). Cooper (2007) defines homework as “tasks assigned to students by school teachers that are intended to be carried out during non-school hours” (p. 4). In support of homework, Cooper, Lindsay, Nye, and Greathouse (1998) found that the amount of homework completed by students is positively associated with achievement. The link between homework and grades is especially strong in high school (Keith, 1982). Homework also has long-term positive effects on study skills and attitudes toward school (Westchester Institute for Human Services Research, 2002). However, the link between homework and grades is not as strong in lower levels of education, perhaps due to poorer concentration and less effective study skills of younger children, and the fact that teachers use homework at this age primarily to teach fundamental study skills (Cooper & Valentine, 2001). However, the average time spent on homework is two hours and fifteen minutes per week for elementary students (Westchester Institute for Human Services Research, 2002). This could be a considerable amount of time, especially if a child is having complications with homework completion, and these complications could interfere with other aspects of a child’s life.
SOCIAL STORY HOMEWORK INTERVENTION

Homework can increase stress within a family. Over two-thirds of Canadians feel that homework is a source of household stress (Canadian Council on Learning, 2007). Xu and Corno (1998) found that a majority of parents reported that helping their child with homework required a great commitment and prevented them from doing other tasks. Most families experienced episodes of frustration during homework as well. Stress from homework can damage family interactions. Soloman, Warin and Lewis (2002) had parents of teenagers identify where homework help stood in the parent-child relationship context. About 25% indicated that it signifies anxiety about the future and 8.2% reported that it symbolizes conflict, which both result in tension. Homework can have an adverse effect on some families.

Furthermore, family problems as a result of homework can be exacerbated if a child has a disability. Children with disabilities experience more homework-related problems than their nondisabled peers (Polloway, Foley & Epstein, 1992; Power, Werba, Watkins, Angelucci & Eiraldi, 2006; Gajria & Salend, 1995). This could be because students with learning disabilities have more motivation and distraction problems than their nondisabled peers (Polloway et al., 1992). In addition, mothers of first and third-graders who suspect their child as having a learning disability report more disappointment, frustration, and fatigue and more tension than those who do not suspect their child of having a learning disability (Levin et al., 1997). Grossman (2001) indicates that academic struggles experienced by a child with a learning disability can lead to marital tension, which may result in parents identifying the child as the scapegoat. Students with ADHD experience problems with homework as well (Power et al., 2006). Kalyn (2011) summarizes the statistics found by ADDitude Magazine from a national survey of parents of children with ADD/ADHD. For over half of the 1,003 participants, homework time was considered the most difficult time (for children not taking medication). Also for children not
SOCIAL STORY HOMEWORK INTERVENTION

taking medication, parents reported difficulty completing homework or chores as the second most common behaviors present in their child during difficult times. The most common behavior was not listening and the third most common was defiant or oppositional behavior, which can both lead to homework completion difficulties.

Students with autism also experience homework difficulties. Children with autism spectrum disorder (ASD) typically have difficulty socializing and communicating and may exhibit repetitive behaviors (American Psychiatric Association, 2000). They may also have health problems and attention problems (Autism Speaks, 2013). Students with autism have to work harder to interpret social cues at school, so homework difficulties may be due to the stress from school (Attwood, 2000). Individuals with autism also have impaired executive functioning, which inhibits effective planning and organization, and is related to more homework problems (Attwood, 2000; Endedijk et al., 2011). In addition, parents of children with ASD perceived their children to have more homework difficulties than parents of students without ASD (Endedijk, Denessen & Hendriks, 2011). This could influence parental stress or the way parents interact with their child. Children with autism may have difficulty completing homework due to not understanding why they must complete schoolwork while at home, inaccurately recording assignments, being exhausted from the school day, being distracted at home, or having difficulties with organization (National Autistic Society, 2011). Social Stories could address some of these issues.

A Social Story is an intervention for children with autism first designed by Carol Gray in 1991 (Gray, 2010). Social Stories follow a specific format and are used to describe social situations and appropriate responses to situations, and to prepare children for new or undesired activities. There is some research evaluating the effectiveness of this intervention, but results
SOCIAL STORY HOMEWORK INTERVENTION

remain inconsistent. Some studies show improvement in all subjects (Burke, Kuhn, & Peterson, 2004), but others do not (Scattone, Tingstrom & Wilczynski, 2006). Furthermore, some studies do not follow the Social Story guidelines precisely and some use co-interventions (Ali & Frederickson, 2006). Kokina and Kern’s (2010) meta-analysis on Social Story interventions found overall that the interventions had low to questionable effectiveness, but that they worked better “when addressing inappropriate behaviors than when teaching social skills, (p. 812).” Researchers also found that Social Stories were more effective with elementary students, when using brief interventions of 1-10 sessions, when using more than one story per participant, when using stories with illustrations, and when using comprehension checks. Ali and Frederickson’s (2006) meta-analysis used data from 16 studies to evaluate Social Stories. Results indicated that all studies, including case study designs, AB single case designs, ABAB designs and multiple participant designs, had positive effects of varying degrees. The results, though positive, implicate the need for further investigation. Adams, Gouvousis, VanLue, and Waldron (2004) evaluated Social Stories in decreasing frustrating behaviors during homework time which is what the present study aims to do, but Adams et al. (2004) used an ABAB research design, which has ethical concerns. Social Story research shows positive effects, but each study differs in methods which is why more research is needed.

Research shows a relationship between homework and academic variables and indicates that children with disabilities experience more homework problems, which can lead to family stress. Social stories may help students with autism with homework difficulties. The purpose of the current study was to evaluate the effectiveness of Social Stories in decreasing challenging behaviors of first-grade students with autism during homework and to investigate changes in parenting stress and family quality of life as a result of the intervention. In the existing Social
SOCIAL STORY HOMEWORK INTERVENTION

Story literature, these measures have not been studied. It is hypothesized that the intervention will result in a decrease of the targeted behavior, a decrease in parental stress, and an increase in family quality of life.

Methods

The researcher aimed to recruit three first-grade children diagnosed with autism spectrum disorder (ASD) for this study. First-grade students were chosen because children ages six to eight experience the largest increase in the amount of assigned homework (Westchester Institute for Human Services Research, 2002). Also, first-grade students were chosen because this is the age at which parents start to really help their children with homework (Levin et al., 1997). Furthermore, Social Stories interventions have been shown to be most effective with 6 to 11 year olds (Kokina & Kern, 2010). Because of low enrollment in the study, a multiple baseline across participants design could not be used. Rather, a single subject AB design was used instead.

Participant

Ben (name has been changed) is a 7-year-old Caucasian male diagnosed with Pervasive Developmental Disorder-Not Otherwise Specified at the age of four by his primary physician. He attends first-grade in a regular general education classroom, and has a special education teacher as well. Ben’s mother learned about the study from his special education teacher. Ben’s mother felt that Ben got too much homework and found that he would often get frustrated during homework and would verbally refuse to complete it, or would crumple his papers up. Ben’s teacher had a homework rule for her students which indicated that if students did not finish their homework after 20 minutes they could stop, but would then need to complete it at school in the morning. Ben’s mother liked this rule, but thought it made Ben anxious about completing his
homework so that he would not miss out on activities in school the following morning. Ben lived with his mother, father, and younger brother.

**Experimental design**

A single-subject AB design was used to determine the effectiveness of Social Stories in decreasing challenging behaviors during homework time. The experiment was divided into two phases of five homework sessions each. The first phase of the study was the baseline phase, during which the participant’s mother observed and recorded the frequencies of disruptive behaviors during homework time. The second phase was the treatment phase, during which the Social Story intervention was used to target the participant’s most frequent challenging behavior.

**Targeted behaviors.** Ben’s mother identified four behaviors that were disruptive during homework time. These were crumpling paper, verbal refusal to complete homework, yelling, and hitting. These were all operationally defined before data collection. *Crumpling paper* was defined as any time Ben crumpled up his homework, *verbal refusal to complete homework* was defined as any time Ben verbally expressed that he did not want to do his homework or would not do his homework, *yelling* was defined as loud vocalizations or verbalizations, and *hitting* was defined as any time Ben hit an object or a person. Ben’s mother completed the Prevent-Teach-Reinforce (PTR) Behavior Rating Scale using frequency to measure the occurrence of challenging behaviors (Dunlap et al., 2010). After baseline data was collected, hitting occurred most frequently so hitting was chosen as the target behavior for the intervention. Hitting only occurred one more time than yelling during baseline, but only one target behavior was chosen so as to keep the Social Story clear and concise.

**Social Story.** A five page Social Story with pictures was created for Ben and was read by Ben out loud to his mother every day prior to homework during the intervention phase. Ben
SOCIAL STORY HOMEWORK INTERVENTION

read the story instead of his mother because research has shown that student involvement in the Social Story intervention implementation is more effective than adult-run interventions (Kokina & Kern, 2010). The story explained that sometimes homework is hard and may make him want to hit but instead he can ask his mom for help (see Appendix A for a copy of the Social Story). Ben’s mother asked him one comprehension question each day after he was done reading the Social Story. If he answered the question correctly, then he could begin homework. If he did not answer correctly or refused to answer, he would read the story again. During the homework period Ben’s mother completed the PTR Behavior Rating Scale and answered questions about the day’s homework session.

Measures

**Stress.** Studies show that behavior problems in children with autism are associated with parent stress (Lecavalier, Leone, & Wiltz, 2005). Furthermore, parents label homework as a significant source of stress (Canadian Council on Learning, 2007). Parental stress was assessed using the *Parenting Stress Index: Short Form* (PSI/SF; Abidin, 1995), which contains 36 items. A Total Stress score is calculated from three sub-scales: Parental Distress, Parent-Child Dysfunctional Interaction, and Difficult Child. It was used at pre- and post-test to measure parental stress.

**Quality of life.** Past studies have not assessed the effects of Social Stories on family quality of life. The *Family Quality of Life Survey* (FQOL; Summers et al., 2005) was used at pre- and post-test to evaluate family life. This is a 25-item measure containing five subscales: Family Interaction, Parenting, Emotional Well-being, Physical/Material Well-being, and Disability-Related Support.
SOCIAL STORY HOMEWORK INTERVENTION

Behavior. The Prevent-Teach-Reinforce Behavior Rating Scale (Dunlap et al., 2010) was used to assess behavior across phases of study, and to evaluate effectiveness of the intervention in decreasing the targeted behavior.

Parental satisfaction. A Parent Satisfaction Questionnaire was created to assess how satisfied the participant’s parent was with the intervention. It contained 10 statements such as “The intervention met my needs and/or the needs of my family” and was answered using a Likert scale from one (Strongly disagree) to five (Strongly agree). See Appendix B for a copy of the Parent Satisfaction Questionnaire.

Fidelity. The mother completed a homework fidelity check list every day after homework indicating who helped Ben with his homework and how easy it was to complete the homework. A Likert scale from one (Strongly agree) to five (Strongly disagree) was used. See Appendices C and D for copies of fidelity check lists.

Results

Results did not reveal the expected decrease in challenging behavior. However, Ben did not display many challenging behaviors overall; most of his challenging behaviors occurred zero to once a day even during baseline, as shown in Table 1. Mean score of the targeted behavior decreased slightly, from 2.0 to 0.5, as shown in Table 2. During the study, Ben’s mother noted that most of his challenging behaviors occurred immediately after homework, but that during the intervention phase, he completed homework every day for the first time in months. Overall, there was a minimal decrease in parental stress. Total stress score on the Parenting Stress Index: Short Form (PSI/SF; Abidin, 1995), as shown in Table 3, decreased from 106 to 103. A raw score above 90 on this measure signifies that the family is experiencing clinically high levels of stress. Family quality of life did not significantly increase. Total family quality of life score, as
SOCIAL STORY HOMEWORK INTERVENTION

shown in Table 4, decreased by two points, from 90 to 88. However, the Family Interaction sub-scale increased from 17 to 19 and the Emotional Well-being sub-scale increased from 9 to 10. The fidelity check lists indicated that Ben’s mother helped him with homework each day and implemented the intervention correctly (i.e., made sure he read the Social Story and answered comprehension question, etc.). On the fidelity check lists, Ben’s mother also mentioned that homework was easy to complete every day, however the time immediately after homework was difficult. Results from the Parent Satisfaction Questionnaire indicated that Ben’s mother was satisfied with the intervention, benefitted from the intervention, and thought it was worth the time and effort.

Discussion

Some literature exists on the effectiveness of Social Stories in decreasing frustrating behaviors during homework, but this study aimed to avoid ABAB statistical design for ethical reasons and also aimed to assess parental stress and family quality of life (Adams et al., 2004). Parental stress did decrease slightly, but overall the hypotheses of this study, that the Social Story intervention would result in a decrease in challenging behavior, a decrease in parental stress, and an increase in family quality of life, were not confirmed. There are several reasons that may account for this. Results may have been different if a multiple baseline design across participants was used, as originally planned. This is recommended for future research on Social Story interventions because single-subject AB designs lack internal validity. Another possible reason for why there was no significant decrease in challenging behaviors during homework time is that Ben’s mother indicated that most of his frustrating behaviors occurred after homework, not during it, for the duration of this study. Perhaps a Social Story targeting behavior after homework time would have been more effective in this case. Furthermore, the target behavior,
SOCIAL STORY HOMEWORK INTERVENTION

hitting, only occurred one more time than yelling during baseline so perhaps a Social Story addressing both behaviors would have been more effective. Future research should directly assess whether Social Stories targeting multiple behaviors are more effective than those targeting only one behavior because research on this is limited.

Overall, Ben’s mother did notice a positive effect on behavior. She noted that the reward aspect of the treatment motivated Ben to complete his homework, and she even brought the reward aspect of the treatment to his school environment. Ben’s teacher agreed to give Ben a small reward on Fridays if he completed all of his homework during the week. It is recommended for future research with Social Stories interventions that a reward component is included.
References


SOCIAL STORY HOMEWORK INTERVENTION


My name is Sam. During the week, I usually go to school. At school, my teacher usually assigns me homework to do at home. Sometimes, the homework may be hard. Sometimes, the homework may take a long time. Sometimes, I may get upset when my homework is hard. This is okay. When I get upset I may want to hit. Mom is sad when I get upset and start hitting. Mom can help me with my homework when I get upset. When I get upset I can stay calm and ask Mom for help. I don’t have to hit. I can say “Can you help me please?” to Mom. It makes mom happy when I ask for help when I need it!
## Social Story Homework Intervention

### Appendix B

**Parent Satisfaction Questionnaire**

1. Overall I am satisfied with the intervention.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree/disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

2. I and/or my family benefitted from the intervention.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree/disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

3. I would recommend the intervention to a friend or relative.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree/disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

4. The intervention helped me more effectively deal with the stress of being a caregiver of a child diagnosed with an autism spectrum disorder.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree/disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

5. The intervention met my needs and/or the needs of my family.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree/disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

6. My/my family’s overall quality of life has improved because of the intervention.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree/disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

7. The intervention was easy for me to implement.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree/disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
SOCIAL STORY HOMEWORK INTERVENTION

8. The intervention taught me something new.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree/disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

9. I thought the intervention was worth the time and effort.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree/disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

10. I am happier because of the intervention.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree/disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Other comments?________________________________________________________________________
SOCIAL STORY HOMEWORK INTERVENTION

Appendix C

Homework Fidelity Check: Phase 1

Directions: At the end of each homework session, please answer questions 1 & 2.

Date:

1. Who helped child with homework today? _______

2. Please circle the number below that best expresses the extent to which you agree with the following statement: It was easy to complete homework with my child today.

   Strongly Agree     Agree     Undecided     Disagree     Strongly Disagree
   1                   2         3             4             5
Appendix D

Homework Fidelity Check: Phase 2

Directions: At the end of each homework session, please answer questions 1-4.

Date:

1. Who helped child with homework today? _______
2. Was the Social Story read to the child today? _____ If not, why not? _______________
3. If the story was read, was the reward given to the child? If not, why not? ____________
4. Please circle the number below that best expresses the extent to which you agree with the following statement: It was easy to complete homework with my child today.
   | Strongly Agree | Agree | Undecided | Disagree | Strongly Disagree |
   | 1             | 2     | 3         | 4        | 5               |


SOCIAL STORY HOMEWORK INTERVENTION

Table 1

Data from Behavior Rating Scale during Baseline Phase

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<th></th>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hitting</td>
<td>10+ daily</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
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<tr>
<td></td>
<td>7-9</td>
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<tr>
<td></td>
<td>4-6</td>
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<td>3</td>
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<td>3</td>
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<td>2-3</td>
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<td>2</td>
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<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>0-1/day</td>
<td>♦</td>
<td>♦</td>
<td>♦</td>
<td>♦</td>
<td>♦</td>
<td>♦</td>
<td>♦</td>
<td>♦</td>
<td>♦</td>
<td>♦</td>
</tr>
</tbody>
</table>

Table 2

Mean Scores of Challenging Behavior during Homework

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Baseline (mean)</th>
<th>Intervention (mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hitting</td>
<td>2.0</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Table 3

Score from Parenting Stress Index: Short Form

<table>
<thead>
<tr>
<th>Sub-Scale</th>
<th>Baseline</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental Distress</td>
<td>40</td>
<td>34</td>
</tr>
<tr>
<td>Parent-Child Dysfunctional Interaction</td>
<td>27</td>
<td>31</td>
</tr>
<tr>
<td>Difficult Child</td>
<td>39</td>
<td>38</td>
</tr>
<tr>
<td>Total Stress</td>
<td>106</td>
<td>103</td>
</tr>
</tbody>
</table>
Table 4

Scores on Family Quality of Life Survey

<table>
<thead>
<tr>
<th>Sub-Scale</th>
<th>Baseline</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Interaction</td>
<td>17</td>
<td>19</td>
</tr>
<tr>
<td>Parenting</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Emotional Well-being</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Physical/Material Well-being</td>
<td>24</td>
<td>20</td>
</tr>
<tr>
<td>Disability-Related Support</td>
<td>18</td>
<td>17</td>
</tr>
<tr>
<td>Total</td>
<td>90</td>
<td>88</td>
</tr>
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</table>