Identifying Mechanisms of Change: Utilizing Single-Participant Methodology to Better Understand Behavior Therapy for Youth Depression

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IDENTIFYING MECHANISMS OF CHANGE: UTILIZING SINGLE-PARTICIPANT METHODOLOGY TO BETTER UNDERSTAND BEHAVIOR THERAPY FOR YOUTH DEPRESSION

by

Andrew R. Riley

A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Doctor of Philosophy
Department of Psychology
Advisor: Scott Gaynor, Ph.D.

Western Michigan University
Kalamazoo, Michigan
August 2012
WE HEREBY APPROVE THE DISSERTATION SUBMITTED BY

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ENTITLED Identifying Mechanisms of Change: Utilizing Single-Participant Methodology to Better Understand Behavior Therapy for Youth Depression

AS PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE

DEGREE OF Doctor of Philosophy

Psychology

(Department)

Clinical Psychology

(Program)

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IDENTIFYING MECHANISMS OF CHANGE: UTILIZING SINGLE-PARTICIPANT METHODOLOGY TO BETTER UNDERSTAND BEHAVIOR THERAPY FOR YOUTH DEPRESSION

Andrew R. Riley, Ph.D.
Western Michigan University, 2012

The study’s primary goal was to provide a model for studying therapeutic mechanisms of action at the single-case level. By controlling for non-specific early responses, identifying potential mechanisms of action a priori, taking frequent measures of mechanisms and dependent variables, rigorously evaluating internal validity, and using a variety of analytic methods, a unique model for analysis of potential mediators was created. Eleven depressed youths were recruited to receive first a non-directive therapy (NDT), followed by a behavioral therapy (BT) for those still displaying high levels of symptoms. Four participants responded to NDT. Of the remaining seven, all showed some improvement during BT, but for only three was that change clearly a result of the proposed mechanisms. Future implications of these findings relevant to youth depression research are discussed.
ACKNOWLEDGMENTS

It is only appropriate I acknowledge those who contributed to the environments that have shaped my behavior. First, thank you to Blue Cross Blue Shield of Michigan and the Western Michigan University Graduate College for their financial support of this project.

Special thanks to all of my academic mentors, particularly Scott Gaynor. Dr. Gaynor’s tireless effort, keen intellect, and commitment to teaching were essential to this dissertation and my overall professional development. He is a role model, colleague, and friend.

This achievement is a testament to my wonderful family. Without their influence and support, I would not have persevered. My greatest debts are owed to my parents. My mother, Debra, is a source of unconditional love, abundant encouragement, and invaluable level-headedness. She has always helped me see beyond the minutiae to what really matters in life. My father, Tim, is the best psychologist I know. If I can bring a fraction of his skill, discernment, and compassion to my work, my career will be a success. He has always known when I need to be pushed and when to let me drift, and I am a better man for it.

Finally, foremost thanks to my best friend and wife, Krystyna. The time and effort poured into this project sometimes left me wanting as a husband. With willingness, generosity, and love she accepts my shortcomings and picks up the slack where I have fallen short. She has sacrificed so I can achieve, and though I am sure to fall short, I will spend our lives trying to repay her.

Andrew R. Riley
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGMENTS</td>
<td>ii</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>vi</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>vii</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Theoretical Conceptualizations</td>
<td>4</td>
</tr>
<tr>
<td>Behavior analytic theory</td>
<td>5</td>
</tr>
<tr>
<td>Cognitive theory</td>
<td>7</td>
</tr>
<tr>
<td>Cognitive-Behavioral Therapy</td>
<td>8</td>
</tr>
<tr>
<td>Family involvement</td>
<td>11</td>
</tr>
<tr>
<td>Mechanisms of action</td>
<td>13</td>
</tr>
<tr>
<td>PURPOSE</td>
<td>16</td>
</tr>
<tr>
<td>METHOD</td>
<td>17</td>
</tr>
<tr>
<td>Recruitment and Screening Procedures</td>
<td>17</td>
</tr>
<tr>
<td>Eligibility criteria</td>
<td>18</td>
</tr>
<tr>
<td>Setting and Materials</td>
<td>19</td>
</tr>
<tr>
<td>Research Design</td>
<td>19</td>
</tr>
<tr>
<td>Procedures</td>
<td>21</td>
</tr>
<tr>
<td>Pretreatment assessment</td>
<td>22</td>
</tr>
<tr>
<td>Non-directive therapy</td>
<td>23</td>
</tr>
<tr>
<td>Post non-directive therapy assessment</td>
<td>23</td>
</tr>
</tbody>
</table>
Table of Contents - continued

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavior therapy</td>
<td>24</td>
</tr>
<tr>
<td>Post behavior therapy assessment</td>
<td>34</td>
</tr>
<tr>
<td>Continued treatment</td>
<td>35</td>
</tr>
<tr>
<td>Follow-up assessment</td>
<td>35</td>
</tr>
<tr>
<td>Measures</td>
<td>35</td>
</tr>
<tr>
<td>Participant characteristic measures</td>
<td>35</td>
</tr>
<tr>
<td>Primary dependent measures</td>
<td>35</td>
</tr>
<tr>
<td>Secondary dependent measures</td>
<td>36</td>
</tr>
<tr>
<td>Independent measures</td>
<td>38</td>
</tr>
<tr>
<td>Methods of Analysis</td>
<td>39</td>
</tr>
<tr>
<td>Procedural Integrity</td>
<td>40</td>
</tr>
<tr>
<td>RESULTS</td>
<td>41</td>
</tr>
<tr>
<td>Sample Characteristics</td>
<td>41</td>
</tr>
<tr>
<td>Treatment Integrity</td>
<td>42</td>
</tr>
<tr>
<td>Group Results</td>
<td>42</td>
</tr>
<tr>
<td>Early Responders</td>
<td>42</td>
</tr>
<tr>
<td>Participant 02</td>
<td>43</td>
</tr>
<tr>
<td>Participant 06</td>
<td>43</td>
</tr>
<tr>
<td>Participant 08</td>
<td>44</td>
</tr>
<tr>
<td>Participant 15</td>
<td>44</td>
</tr>
<tr>
<td>Non-Early Responders</td>
<td>45</td>
</tr>
</tbody>
</table>
Table of Contents - continued

Participant 01 ................................................................................................. 46
Participant 03 ................................................................................................. 50
Participant 04 ................................................................................................. 54
Participant 05 ................................................................................................. 59
Participant 11 ................................................................................................. 65
Participant 12 ................................................................................................. 68
Participant 14 ................................................................................................. 72
DISCUSSION ..................................................................................................... 76
  Limitations and Challenges ......................................................................... 80
  Future Implications ..................................................................................... 82
  Conclusion .................................................................................................. 85
REFERENCES .................................................................................................. 86
APPENDICES
  A. Script for Providing Overview of the Study ......................................... 157
  B. Behavior Therapy Manual ................................................................. 159
  C. Clinician’s Intake Summary Form ...................................................... 188
  D. Modified Environmental Reward Observation Schedule ............... 190
  E. Treatment Log ..................................................................................... 191
  F. Daily Questionnaire ............................................................................ 193
  G. Illustration of Nonoverlap of All Pairs Method ................................ 195
  H. Human Subjects Institutional Review Board Approval .................... 196
LIST OF TABLES

1. Description of session order, type, and focus ................................................. 100
2. Summary of assessments administered during each session .......................... 101
3. Demographics and clinical characteristics ..................................................... 102
4. Means, standard deviations, and results of Friedman tests for repeated measures ................................................................. 103
5. Early responders dependent measures ............................................................. 104
6. Non-early responder dependent measures ..................................................... 105
7. Summary of targeted mechanisms parent ratings for P01 .............................. 106
8. Summary of targeted mechanisms parent ratings for P03 .............................. 107
9. Summary of targeted mechanisms parent ratings for P04 .............................. 108
10. Summary of targeted mechanisms parent ratings for P05 .............................. 109
11. Summary of targeted mechanisms parent ratings for P11 .............................. 110
12. Summary of targeted mechanisms parent ratings for P12 .............................. 111
13. Summary of targeted mechanisms parent ratings for P14 .............................. 112
LIST OF FIGURES

1. Flow diagram of participant movement through the study ......................... 113
2. Mean CDRS-R, CDI, and CDI-S scores for early responders ...................... 115
3. P02’s father’s ratings of positive behavior, parent-child interactions, child activation, parent activation, and problem solving plotted with CDI-S scores over time .............................................................................. 117
4. P06’s mother’s ratings of positive behavior, parent-child interactions, child activation, parent activation, and problem solving plotted with CDI-S scores over time .............................................................................. 119
5. P08’s mother’s ratings of positive behavior, parent-child interactions, child activation, parent activation, and problem solving plotted with CDI-S scores over time .............................................................................. 121
6. P15’s mother’s ratings of positive behavior, parent-child interactions, child activation, parent activation, and problem solving plotted with CDI-S scores over time .............................................................................. 123
7. Percentage of PCA intervals coded positive for P01 and her father over time ............................................................................................................. 125
8. P01’s father’s ratings of positive behavior and child activation plotted with CDI-S scores over time .............................................................................. 127
9. CDI-S scores over time for P03 .................................................................. 129
10. Percentage of PCA intervals coded positive for P03 and his mother over time ............................................................................................................. 131
11. P03’s mother’s ratings of parent-child interactions plotted alongside CDI-S scores over time ............................................................................................................. 133
12. Percentage of PCA intervals coded positive for P04 and his mother over time ............................................................................................................. 135
List of Figures - continued

13. P04’s mother’s ratings of positive behavior (first panel), parent-child interactions, child activation (third panel), parent activation, and problem solving plotted with CDI-S scores over time........................................... 137

14. Percentage of PCA intervals coded positive and negative for P05 and his mother over time.................................................................................................................. 139

15. P05’s mother’s ratings of positive behavior, parent-child interactions, and child activation plotted with CDI-S scores over time.................................................. 141

16. P05’s mother’s answer “yes” or “no” to the occurrence of 15 min quality time, contingent praise, and non-contingent praise plotted with CDI-S scores over time ........................................................................................................ 143

17. Percentage of PCA intervals coded positive and negative for P11 and his mother over time............................................................................................................. 145

18. P11’s mother’s ratings of positive behavior and parent-child interactions, plotted with CDI-S scores over time................................................................. 147

19. CDI-S scores over time for P12........................................................................ 149

20. P12’s father’s ratings of positive behavior, child activation, and MEROS scores, all plotted with CDI-S scores over time................................................................. 151

21. CDI-S scores over time for P14........................................................................ 153

22. Percentage of PCA intervals coded positive and negative for P14 and his mother over time................................................................................................. 155
INTRODUCTION

Primary symptoms of depression include low mood, the loss of interest or pleasure in activities, and behavioral disturbances that seriously impair an individual’s functioning (American Psychiatric Association, 2000). In addition to feelings of sadness and loss of interest in activities, depressed children and adolescents are frequently irritable (Goodyer & Cooper, 1993). A meta-analysis of etiological data estimated the prevalence of depression to be 2.8% in children and 5.9% in adolescents (Costello, Erkanli, & Angold, 2006). Relapse is common (Lewinsohn, Clarke, Seeley, & Rohde, 1994), and by the age of 18, one in five persons will have met criteria for major depressive disorder at least once (Birmaher et al., 1996). For children and adolescents (or youths), depression is damaging, recurrent, and chronic condition that places them at risk for negative developmental outcomes (Costello et al., 2002). Youths who meet criteria for depression perform less well in school, have lower quality social relationships, are more likely to use drugs and to attempt suicide (Gould et al., 1998; Hammen & Rudolph, 1996; Rohde, Lewinsohn, Rohde, & Seeley, 1991), and are at greater risk for other psychiatric disorders (Angold & Costello, 1993). The chronic nature of depression suggests that depressed youths go on to be depressed adults. As a leading cause of disability worldwide (World Health Organization, 1996), depression merits continued research at all levels of analysis.

In recent years, a particular emphasis has been placed on the identification of efficacious psychosocial treatments for youth depression (Costello et al., 2002) and understanding the mechanisms by which those treatments bring about change (Kolko, Brent, Baughner, Bridge, & Birmaher, 2000). This emphasis is partly due to increased controversy over the safety of anti-depressant medications. Selective serotonin reuptake inhibitors (SSRIs) are commonly prescribed to treat youth with depression (Treatment for Adolescents with Depression Study (TADS), 2004; Weisz & Jensen, 1999); however, concerns over the possible
effects of SSRIs on suicidal behavior have led to investigation by government agencies and the
issuing of special safety guidelines. In the United Kingdom, SSRIs have been classified as
“contraindicated” for pediatric use (Committee on Safety of Medicines, 2004). In the United
States, the Food and Drug Administration (FDA; 2004) issued a “black box” warning on all
antidepressants to emphasize the risks associated with their use and promote the consideration
of other approaches to treatment. As a result, a new emphasis has been placed on the
identification of effective psychotherapies for youth depression.

A number of systematic literature reviews (Curry, 2001; David-Ferdon & Kaslow, 2008;
Harrington, Whittaker, & Shoebridge, 1998; Kaslow & Thompson, 1998) and meta-analyses
(Lewinsohn & Clarke, 1999; Reinecke, Ryan, & DuBois, 1998a; Sommers-Flanagan & Campbell,
have examined the evidence for the efficacy of psychotherapies in the treatment of youth
depression. Using the criteria developed by the Task Force on the Promotion and Dissemination
of Psychological Procedures (Chambless et al., 1998), David-Ferdon and Kaslow (2008)
concluded that CBT is a “well-established” intervention for child and adolescent depression, and
classified behavioral treatments that focus on the building of skills (e.g., problem solving,
relaxation skills) as “probably efficacious” for children. In another review of the literature, Curry
(2001) concluded that CBT was more efficacious than waitlist control conditions or alternative
psychotherapies and resulted in more rapid remission of symptoms; however, CBT failed to
maintain its superiority to other therapies at long-term follow-up. Two meta-analyses
(Lewinsohn & Clarke, 1999; Reinecke et al., 1998a) support the efficacy of CBT in the treatment
of youth depression. Reinecke et al. (1998a) analyzed the results of six studies using CBT to treat
depressed adolescents, reporting an effect size (ES) of 1.02 and later an ES of 0.97 using an
alternate calculation method (Reinecke, Ryan, & DuBois, 1998b). Again focusing on the
treatment of adolescents, Lewinsohn and Clarke (1999) reported an average ES of 1.27 for CBT across 12 treatment studies. The results of these studies would seem to provide strong evidence of the efficacy of CBT for the treatment of depressed youth, especially adolescents.

The most recent, and perhaps most comprehensive meta-analysis of psychotherapy for depression in youths (Weisz et al., 2006) provides a slightly less optimistic view of CBT. Weisz and colleagues (2006) analyzed the results of 34 treatment outcome studies using a number of methodological variations not employed in earlier reviews (e.g., inclusion of unpublished, non-peer-reviewed studies; requesting of specific data from previous authors to improve ES calculation). Among the studies they examined, Weisz et al. (2006) calculated a mean ES of 0.34, significantly different from zero, but much lower than previous reports (Michael & Crowley, 2002) and lower than the reported mean ES for psychotherapies treating other pediatric psychiatric conditions (Weisz, Weiss, Han, Granger, & Morton, 1995). Another interesting finding from Weisz et al. (2006) was that treatments utilizing cognitive techniques were no different than non-cognitive therapies. This finding suggests cognitive treatments are not unique in their ability to reduce depressive symptoms, and that the efficacy of CBT treatments may be in part due to non-cognitive procedures.

Typically, research has focused more on depressed adolescents than depressed children. David-Ferdon and Kaslow (2008) identified 18 RCTs for the treatment of adolescent depression from 1998-2007, but only 10 RCTs focusing on children. Weisz et al. (2006) identified seven studies with pre-teens compared to 21 with adolescents. Some evidence suggests treatment for adolescents is more effective than treatment for children, but the data are not conclusive (Clarke et al., 1992; Jayson, Wood, Kroll, Fraser, & Harrington, 1998; Michael & Crowley, 2002). While these populations are often considered together, it is important to recognize that developmental differences in cognitive and social development exist between them. There are
at least two plausible explanations for the inequality of research. First, most treatments for youth depression, including CBT, have been derived from existing adult treatments. Modification of those treatments for adolescents may be more easily accomplished than for children, leading to more study of adolescent depression. Second, recognition of mood disorders in children is a relatively recent phenomenon, with research of treatment beginning in earnest only in the 1980s. Regardless of the cause, and despite recent a recent increase in interest, the need for identifying developmentally-appropriate efficacious treatments for childhood depression remains strong.

In sum, the evidence for psychotherapies for youth depression is growing but inconsistent. There is good evidence that numerous psychotherapies are superior to inactive and active controls in decreasing depressive symptoms (David-Ferdon & Kaslow, 2008; Kaslow & Thompson, 1998; Weisz et al., 2006). However, depending on the methods used to evaluate treatments, effects are varied and often less than robust, indicating relatively high levels of non-responders (David-Ferdon & Kaslow, 2008). There is some reason to believe CBT is superior to other forms of therapy (Curry, 2001; David-Ferdon & Kaslow, 2008), but these results are inconclusive, and that cognitive treatments are not more effective than non-cognitive treatments (Weisz et al., 2006) further complicates the matter. Despite a lack of clear-cut evidence, CBT remains the most well-evaluated and most promising psychosocial treatment for youth depression, meriting further investigation. One complicating factor is the heterogeneity of techniques used in CBT treatments. Before examining specific CBTs, it is desirable to review the theoretical traditions from which they are derived.

Theoretical Conceptualizations

The prominence of CBT in the study of youth depression is most likely the result of successful therapies for adult depression derived from two theoretical conceptualizations of
depression: behavior analytic and cognitive. A brief review of those theoretical traditions will help to explicate the rationale of CBT for depressed youths.

Behavior analytic theory. Behavior analysts seek to explain behavior in terms of response-environment interactions. The most fundamental behavioral principle is reinforcement, which states the frequency of a behavior is largely determined by environmental changes contingent on the occurrence of that behavior. A voluminous body research supports the principle of reinforcement (Catania, 1998). From a behavior analytic perspective, the “disorder” of depression is at most viewed as a cluster of behaviors that tend to co-vary. As such, behavioral conceptualizations seek to identify the learning processes responsible for the establishment and maintenance of these behaviors. Ferster (1973) posited depressed persons could be characterized by two patterns of behavior: low rates of positively reinforced social behaviors and high rates of negatively reinforced escape and avoidance behaviors. Examples of low-rate social behaviors are smiling, making eye-contact, and conversing, whereas negatively reinforced behaviors may include avoidance of social interactions, complaining, and suicidal behaviors. A number of factors were proposed by Ferster to account for low rates of positively reinforced behavior. One possibility required that an individual’s environment supplied a dearth of positive reinforcement on a large fixed-ratio schedule. Such an arrangement might result in low levels of behavior. Ferster also suggested that major life changes, such as the loss of a spouse or relocation to a new area might result in a considerable lessening of available positive reinforcers. Empirical support for Ferster’s model was not offered and he did not suggest a treatment based on his approach. Lewinsohn (1974), however, proposed a similar theory leading to the establishment of a behavioral treatment for depression. Like Ferster, Lewinsohn largely conceptualized depression as the result of a lack of response-contingent positive reinforcement. In Lewinsohn’s model, low rates of reinforcement lead to the extinction of social
responses and other positive behaviors, while eliciting depressive behaviors such as dysphoria, complaining, and fatigue. Cognitive symptoms of depression were thought to be resulting verbal explanations or labels of the primary depressed behavior experienced by an individual. For example, “I’m a loser,” might be evoked by the observation that one has little social contact.

Lewinsohn (1974) noted three variables that determine the rate of response-contingent positive reinforcement an individual receives. First, the potential for reinforcement is a product of the number of stimuli or events that may reinforce a person’s behavior. That is, depending on an individual’s history and preferences, a wide or narrow range of potential reinforcers may exist. Second, the potential for reinforcement is dependent of the availability of those existing reinforcers. So, not only must an event function as reinforcer for a given behavior, it must also be available in the individual’s environment. Third, in the event that numerous potential reinforcers exist and those reinforcers are readily available, the individual must possess a behavioral repertoire sufficient to access those reinforcers. For example, social interaction may be a powerful and readily available reinforcer, but an individual with limited social skills may be unable to provide the responses upon which social interaction is contingent. These three factors provided a conceptual framework for depression and offered a starting point for practical interventions, but Lewinsohn’s (1974) model was limited in scope. Unlike Ferster (1973), Lewinsohn’s focused exclusively on low rates of response-contingent positively-reinforced behavior, largely ignoring the effects of negative reinforcement and punishment. Behavior analytic theory holds that topographies of behavior, such as depressive symptoms, may be arrived at through differing pathways and serve various functions. For instance, low levels of social interaction may result from a punishing social environment or negative reinforcement of avoidance behaviors.
The results of early treatment approaches based on principles of behavior (e.g., Lewinsohn & Atwood, 1969; Lewinsohn & Shaffer, 1971; Lewinsohn & Shaw, 1969; Lewinsohn, Weinstein, & Alper, 1970) were mixed (see Blaney, 1981). Despite inauspicious beginnings, early treatment research of Lewinsohn and others remains influential. Numerous CBT treatment packages include components derived from Lewinsohn’s work, and recently behavioral activation (BA) for depression, an approach entirely based on behavioral principles, has proven efficacious in the treatment of adult depression (Dimidjian et al., 2006; Dobson et al., 2008; Jacobson, Martell, & Dimidjian, 2001).

**Cognitive theory.** Whereas Lewinsohn (1974) considered the cognitive symptoms of depression to be sequelae of general dysphoria resulting from the described operant processes, Beck (1963; 1964; 1967) proposed cognitive processes central to depression. Beck argued that negative thinking, which had long been recognized as a depressive symptom, was the central feature of depression. As such, a number of cognitive constructs related to negative thinking were proposed to account for the symptoms of depression.

Beck’s model focuses on an interaction between cognitive vulnerability and environmental stress. Cognitive vulnerability is marked by patterns of negative thinking activated by certain brain structures (schemas). A particular pattern of negative thinking is the negative cognitive triad: negative thoughts about the self, world, and future (Beck, 1991). Beck’s model asserts that these dysfunctional schemas lay dormant until stressful eliciting events activate them (Clark & Beck, 1999). This activation results in a shift in thinking thought to explain depressed features such as low self-esteem, self-criticism, deprivation of rewarding activities, and suicidal ideation.

Related to the negative cognitive triad is the notion of cognitive errors. Beck (1963) found depressed patients systematically misperceived reality in a manner resulting in systematic
bias against themselves. Cognitive errors, or distortions, included arbitrary inferences, magnification of negative events, minimization of positive events, dichotomous thinking, and attributive biases. In Beck’s (1967) opinion, these kinds of cognitive patterns were responsible for the other symptoms of depression. In this way Beck conceptualized depression as a “thought disorder” rather than a behavioral or affective disturbance.

Beck’s theory and its practical implications proved influential. A number of behavioral theorists (e.g., Abramson, Seligman, & Teasdale, 1978; Lazarus, 1976; Lewinsohn, Hoberman, Teri, & Hautzinger, 1985) and therapists (McLean and Hakstian, 1979) appealed to cognitive mechanisms to drive the study of depression. While disagreement still exists as to their relative primacy, current conceptualizations of depression recognize the importance of both behavioral mechanisms and cognitive processes. This integration of diverse theoretical approaches is most evident in the proliferation of CBT.

Cognitive-Behavioral Therapy

As its name indicates, CBT focuses on identifying and challenging negative thoughts typical of depression, as well as initiating and maintaining positive patterns of covert behavior. Techniques aimed at changing children’s maladaptive thoughts include self-monitoring, cognitive restructuring, and identifying underlying assumptions. Core behavioral techniques include exposure, contingency management, activity scheduling, and relaxation training (Harrington, 2005). It is important to recognize that while different CBT treatments share many features, there is great variance in their composition. A review of several studies will illuminate this diversity.

In the first published randomized trial of a psychosocial intervention for childhood depression, Butler and colleagues (1980) compared two treatment conditions to attention placebo and no-treatment control groups. One of the treatment groups focused on cognitive
restructuring, while the other centered on role-playing social interactions and practicing problem-solving skills. Children in both of the treatment conditions showed significantly greater improvement than those in either of the comparison conditions. Stark, Reynolds and Kaslow (1987) similarly reported the superiority of a cognitive-behavioral skills treatment to a waitlist control condition. Kahn, Kehle, Jenson, and Clark (1990) compared three active treatment conditions: cognitive restructuring, relaxation training, and self-modeling, against a waitlist control condition. Participants in the self-modeling condition were taught to identify observable non-depressive behaviors, such as smiling, making eye-contact, and using positive statements. Participants were videotaped practicing these behaviors, and then watched the videotape as a model for behaving in a non-depressed manner. When compared to the waitlist controls, children in each of the active treatment conditions reported significant decreases in depressive symptomatology and increases in self-esteem. Interestingly, the gains observed in the self-modeling condition were significantly larger than those in the cognitive restructuring group, illustrating the potential importance of practicing non-depressive behaviors. These studies indicate that CBT treatments emphasizing cognitive restructuring are efficacious when compared to control conditions, as are certain behavioral components of CBT that do not emphasize cognitive change (e.g., self-modeling).

The Primary and Secondary Control Enhancement Training for Youth Depression (PASCET) treatment developed by Weisz et al. (1997) nicely exemplifies the integration of cognitive and behavioral techniques to treat child depression. The PACSET approach utilizes a skills-and-thoughts approach, emphasizing behavioral skill deficits and thinking patterns that contribute to the maintenance of depression (Weisz, Southam-Gerow, Gordis, & Connor-Smith, 2003). Skill deficits to be identified and targeted include poor problem-solving skills, maladaptive activity selection, inadequate social skills, and inferior performance on valued
activities, such as schoolwork or sports. Maladaptive thinking patterns include cognitive distortions, poor perspective taking, rumination, and perceived lack of control (i.e., an external locus of control).

The PASCET model emphasizes ideographic case conceptualizations which highlight the skill deficits and patterns of thought most detrimental to the child. It is assumed that ineffective thoughts and skill repertoires not only make the child ill-equipped to deal with stressful events, but also directly result in unpleasant experiences. When the relationship between a child’s deficits and depressive symptoms has been assessed, children are trained to better control their mood using two approaches. **Primary control** focuses on helping the child cope by making changes to the objective environment (e.g., solving problems, engaging in more pleasant activities, etc.). **Secondary control** strategies involve changing one’s own expectations, beliefs, or interpretations to improve the subjective experience of an event or condition. Techniques used to teach control strategies include didactic instruction, modeling, and role-playing.

In a large randomized controlled trial (RCT), Weisz et al. (1997) compared CBT using the PASCET manual to a no-treatment control condition for 48 school children. Children receiving the active treatment displayed significantly greater reductions in depressive symptomatology at immediate post-treatment and 9-month follow-up. In two open trials, Eckshtain and Gaynor (2009; 2012) augmented the PASCET manual with Caregiver-Child Relationship Enhancement Training (C-CRET) by teaching parents behavioral skills to support the changes target by the PASCET manual. In the first study (Eckshtain & Gaynor, 2009), 5 out of 5 participants who completed the treatment displayed a significant decreases in depressive symptoms. In the second study (Eckshtain & Gaynor, 2012), 15 children and parents received the PASCET + C-CRET treatment, resulting in significant decreases in depressive symptoms at the group level. When benchmarked against other studies, the PASCET + C-CRET treatment was equivalent or superior
to other approaches, suggesting the potential importance of training parents to support non-depressed behavior of the child. In addition, Eckshtain and Gaynor (2012) reported that younger age predicted greater symptom change, suggesting parental involvement may be especially indicated for younger children.

**Family involvement.** A number of other CBT treatments for youth depression include parents and other members of the child’s family as active participants in therapy. There is substantial evidence to suggest that family dynamics, and particularly the parent-child relationship, are important in the development and maintenance of youth depression. Family psychiatric history, especially maternal depression (Birmaher et al., 1996), is associated with a youth’s risk of developing depression (Beardslee et al., 1996; Weissman & Jensen, 2002).

Maternal depression has been hypothesized to contribute to youth depression through genetic/neurological and environmental mechanisms (Goodman & Gotlib, 1999). A longitudinal study by Hammen, Shih, Altmann, and Brennan (2003) found that depressed adolescents of depressed mothers had poorer interpersonal functioning and social skills than depressed adolescents of non-depressed mothers, suggesting a possible mediating relationship. It is interesting to note that in a study of moderators of youth risk (Brennan, LeBrocque & Hammen, 2003) mothers who exhibited low psychological control and high levels of warmth with their child moderated the relationship between maternal and youth depression.

The broader family environment has also been implicated in youth depression (Restifo & Bögels, 2009). Depression is predicted by high levels of family discord, low cohesion, and high affectionless control (Nomura, Wickramaratne, Warner, & Weissman, 2002). Negative family interactions contribute to depression (Goodman & Gotlib, 1999), and a number of other family characteristics including health, stress, and education have been connected to youth depression.
These interactions may be mediated by the child’s coping style (Jaser et al., 2005).

Familial factors have been considered within the CBT framework. The risk of youth depression is associated with cognitive errors (e.g., overgeneralization) and endorsement of the negative cognitive triad on the part of the parent (Alloy et al., 2001; Stark, Schmidt, & Joiner, 1996). Stark et al. (1996) found children’s views of self, world, and future are correlated with their parents’ views. In fact, there is evidence to suggest parents communicate these views through interactions and comments in a manner that influences children’s outlooks. Clark et al. (1999) speculated that early childhood experiences contribute to the development of maladaptive schemas regarding the self and others. A more behavioral interpretation might hypothesize that depressed parents tend to model and differentially reinforce verbal behavior that is perceived as representative of maladaptive schemas. In a finding consistent with Lewinsohn’s (1974) theory of depression, Cole and Rehm (1986) reported that depressed children received fewer rewards from their mothers than non-depressed children, and mothers of depressed children required a higher standard of behaviors to give rewards.

Such findings have led many authors to advocate the involvement of family members in therapy. Recent practice parameters released by the American Academy of Child and Adolescent Psychiatry (AACAP) recommend that parents be involved in all phases of treatment (AACAP Work Group on Quality Issues, 2007). Herring and Kaslow (2002) suggest treatment strategies that seek to establish secure attachments among family members, and Stark et al. (1996) proposed a model attempting to establish positive family interactions through teaching parents skills such as behavior management techniques, strategies to increase their child’s self-esteem, and conflict resolution.
CBT treatments vary in their inclusion of family members as therapy participants. The multifamily psychoeducation groups program (MFPG; Fristad, Gavazzi, & Soldano, 1996; 1998) seeks to help parents learn about depression, and improve problem-solving and communication skills. Kahn et al. (1990) and Ecksttain and Gaynor (2009) provided parents with descriptions of the cognitive and behavioral skills imparted to their children so they could monitor their child’s progress and offer assistance to the child as needed. These studies exemplify the use of parental involvement to facilitate the therapeutic process. Asarnow, Scott, and Mintz (2002) augmented CBT with a family education component. Parents received psychoeducation, watched videotapes of their children practicing learned skills, and received training to help facilitate the therapeutic process. Asarnow et al. (2002) reported high levels of child and parent satisfaction, indicating the desirability of family involvement. Recently, Tompson et al. (2007) evaluated a family-focused treatment for child depression in an open clinical trial. The 12-week family intervention focused on an interpersonal model of depressive symptoms, borrowing from both family-focused treatment and CBT approaches. Families were taught skills such as problem solving and enhanced communication to improve the interpersonal interactions of the family. Of the nine children participating, six no longer displayed a clinical level of symptoms at post-treatment and seven had recovered at nine months follow-up.

**Mechanisms of action.** With establishment of CBT as an efficacious treatment for youth depression, interest has developed in better understanding the mechanisms through which CBT exerts its effects. Superiority of CBT to non-specific control treatments, such as nondirective supportive therapy (e.g., Brent et al., 1997), suggests that CBT exerts therapy-specific effects. The accepted strategy for identifying mechanisms of action is to conduct an analysis of mediators. Such analyses involve identifying mediating variables that account (at least in part) for an observed relationship between an independent variable and dependent variable. For
instance, cognitive theory would predict that cognitive restructuring technique (i.e., the independent variable) causes decreases in depressive symptoms (dependent variable) by decreasing maladaptive cognitions (mediating variable) of the depressed individual (see Baron & Kenny, 1986).

Despite numerous calls for increased study of the mediators of change in youth psychotherapy (David-Ferdon & Kaslow, 2008; Eckshtain & Gaynor, 2009; Kazdin & Nock, 1999; Kazdin & Weisz, 1998; Weersing, 2006; Weersing & Weisz, 2002; Weisz & Jensen, 2001), surprisingly few studies have directly examined therapy process in treating youth depression (Weersing & Weisz, 2002). Brent and colleagues (1997) have conducted several studies examining the mechanisms of action in CBT for depressed adolescents. In an RCT comparing CBT, nondirective supportive therapy, and systematic-behavioral family treatment, CBT produced specific changes on measures of cognitive distortion, general family functioning, and parents’ feelings of behavioral control (Kolko et al., 2000). However, the changes in cognitive distortions did not mediate the effects of CBT on the participants’ measures of depression, suggesting CBT did not exert its effects through the proposed mechanism. Another study (Renaud et al., 1998) found that a significant number of youth (31%) showed a pretreatment rapid response to treatment unrelated to any active therapy ingredient. These data suggest that the inclusion of conditions controlling for non-specific factors is essential in identifying therapeutic mechanisms of action. Gaynor et al. (2003) expanded on the findings of Renaud et al. (1998) by investigating sudden gains that occurred during therapy, which were hypothesized to be the results of CBT specific mechanisms of action. Results of the study showed that sudden gains were not specific to CBT. In addition, for youth who failed to achieve sudden gains, CBT was more effective than the comparison conditions. While these studies did not reveal the
specific mechanisms of action, taken together they provide valuable information about manner in which CBT exerts effects.

A potential reason for the relative lack of study of mechanisms of action is the methodological challenges inherent in such analysis. Doss and Atkins (2006) asserted that the growing emphasis on effectiveness studies and use of active control conditions (e.g., treatment-as-usual) is mismatched to the study of mechanisms. In a review of youth psychotherapy, Weersing and Weisz (2002) found a majority of studies included measures of potential mediators in their design, but only 6% included those measures were included in formal analyses. Very often, treatment efficacy studies assess dependent variables at pre-treatment and post-treatment, and perhaps mid-treatment. While this paradigm is appropriate for evaluating efficacy, it is relatively insensitive to the time-course (e.g., gradual versus sudden) of change. Ideally, in order to evaluate potential mediating variables, frequent repeated measures of the dependent variable, as well as the specified mediator, are desirable. In addition, in order to draw strong conclusions about meditational relationships, studies must demonstrate strong internal validity. This requires not only documentation of treatment fidelity, but also measures of to what degree participants received and engaged in treatment. When internal validity is strong and dependent and mediator variables are tracked over time, meditational analyses are at their strongest.

Gaynor and Harris (2008) described procedures for assessing treatment mediators in single-participant designs. Such procedures involve documenting the receipt of treatment, that the participant improved during treatment, that the proposed mediator variable changed in the direction expected at a time commensurate with the protocol, and that the change on the mediator variable preceded a considerable proportion of the observed clinical improvement. In a single-participant trial of BA for adolescent depression, Gaynor and Harris (2008) examined
two potential mediators of change: dysfunctional cognitions and behavior activation. Of the four
participants reported, data for two suggested increased activation as a plausible mediator,
whereas change in dysfunctional thinking never appeared to mediate change. Gaynor and Harris
(2008) illustrate the usefulness of single-participant research in the assessment of mediators of
treatment outcome. No such study has been conducted with behavioral treatments for children
with depression.

PURPOSE

While multiple efficacious treatments for youth depression have been identified (David-
Ferdon & Kaslow, 2008; Reinecke, et al., 1998a; Watanabe et al., 2007; Weisz et al., 2006),
relatively little is known about the mechanisms by which they cause change. Both multi-
component CBT packages (e.g. Weisz et al., 2003) and relatively simple behavioral procedures
(e.g., Kahn et al., 1990) have compared favorably to control conditions. However, the
magnitudes of treatments’ effects have varied greatly (David-Ferdon & Kaslow, 2008; Weisz et
al., 2006), indicating the overall efficacy of CBT is moderate at best. “Remarkably little”
(Weersing & Dirks, 2007) is known, and a better understanding of mechanisms of action is
necessary to refine treatment and further the field. Kazdin and Nock (1999) called the study of
mechanisms of treatment, “probably the best short-term and long-term investment for
improving clinical practice and care” (p. 1117). Greater knowledge of treatment mechanisms will
provide for more efficient treatments and better theoretical understanding.

The present study sought to examine potential mediators of a behavioral treatment for
youth depression, and in doing so, provide an example of a methodology especially designed to
allow for analysis of mediation. To do this, the study employed behavioral treatment
components designed to change specified behaviors on the part of the child and parent.
Measures of change on those behaviors and measures of depression were administered
frequently in order to identify any temporal relationships between them. In addition, rigorous measures of internal validity were applied to evaluate the degree to which treatment is delivered with integrity and received by the participants. Whenever possible, the study verified change with direct observation and behavior-art factual data to measure change processes in order to avoid the problems associated with verbal reports (see Alessi, 1988; Eyberg & Johnson, 1974; Patterson, 1982).

The treatment used was designed to exert its effect through four general mechanisms of action: (1) increased “positive” (i.e., nondepressive) behavior on the part of the child, (2) increased positive interactions between the parent and child, (2) increased participation in pleasurable or meaningful activities on the part of the parent and child, and (3) improved problem solving skills. A number of measures were employed in an attempt to track change on those potential mechanisms over time. It was hypothesized that the effects of treatment on depressive symptoms would be mediated by the degree to which participants’ displayed change on those measures. Those who received the treatment but show little or no change on the hypothesized mechanisms of action were expected to display little change in depressive symptoms, while those who demonstrated the most change (i.e., those who engaged in the treatment to the highest degree) were expected to benefit the most.

METHOD

Recruitment and Screening Procedures

Recruitment occurred from March of 2010 through April of 2011. Youths between the age of 8-13 years and at least one corresponding custodial caregiver for each were recruited from a rural community school district near Kalamazoo, MI. Participants were referred by school counselors from three elementary schools and one middle school. After receiving permission from parents, school counselors administer the Children’s Depression Inventory (CDI; Kovacs,
1992) to children with symptoms of depression as part of their regular school protocol. In order to be eligible for study participation, potential participants were required to obtain a score on the CDI indicative of at least mild to moderate depression (i.e., a score of 12 or higher). This criterion is consistent with previous research and recommendations in the literature (Szigethy et al., 2004; Weisz et al., 1997). When a student met the CDI criterion, the school counselor alerted the student’s parent to the existence of the study and gave them the opportunity to receive more information. Parents who indicated interest were provided with a brief overview of the study (Appendix A) as well as a description of other available treatment options. Then, the parent was given the option to contact the researcher or allow the researcher to contact them. Upon initial contact, the researcher provided a more detailed description of the study, and gave parent the option to schedule a pretreatment assessment.

Eligibility criteria. All participants who received services obtained a score of at least 12 on the CDI, and at least 40 on the Children’s Depression Rating Scale-Revised (CDRS-R; Posnanski & Mokros, 1996), which is generally accepted in the literature as a clinical cutoff.

A number of exclusion criteria precluded participation in the study. Participants with primary symptoms of severe conduct disorder, schizophrenia-spectrum disorders, autism-spectrum disorders, severe mental retardation, or displays of acute suicidal behavior were excluded, as they were likely in need of services that are more intensive. Suicidality was screened for by examining items on the CDI and CDRS-R relevant to parasuicidal behaviors. Children who indicate suicidal ideation were not excluded. Children who indicated intense suicidal ideation with a plan, means, and potential intent to commit suicide would have been referred to more appropriate resources; however, no participants were excluded on this basis. Children taking psychoactive medications were included if they have been on the same medication and dose for at least 2 months prior to enrollment in the study, continued to meet
that criterion, and consented to the investigators contacting the prescribing physician to discuss medication management during the study protocol.

**Settings and Materials**

The majority of sessions took place at the student’s school. On occasions when school access was unavailable, sessions were held on the campus of Western Michigan University in Wood Hall. Exact setting characteristics varied, but all locations contained at least one small table and two or three chairs.

A number of materials were used during the intervention. All sessions were videotaped using a small digital camcorder. The therapy manual (Appendix B) and appropriate copies of handouts or worksheets were present during sessions. Several age-appropriate board games were used to conduct parent-child activities (PCAs) and for the therapist to play with the child. A child’s workbook was utilized in order to distribute and organize therapy materials for the child. The workbook contained a progress chart on which the child and therapist will tracked the child’s attendance and homework compliance. A variety of small toys and trinkets were available for the child to earn. The workbook also contained general therapy materials such as handouts and homework worksheets. Finally, the workbook contained a number of blank sheets and served as a parent-child “scrapbook.” The scrapbook was organized chronologically and various behavioral artifacts of parent-child interactions (e.g., photos, drawings, ticket stubs, etc.) will be affixed the pages as therapy progressed. Other materials aided in the collection of behavioral artifacts. These devices included digital cameras and a portable photograph printer. Cameras were loaned to participants if they did not possess one.

**Research Design**

This study utilized an open-trial design augmented with features of single-participant methodology. It was designed to address the need for more methodologically rigorous
experimentation in this field (Weisz, McCarty, & Valeri, 2006) by including measurements of internal validity that surpass those in previous research. Such data allow for meditational analyses that provide information about how treatments work. Table 1 summarizes the order and content of sessions. After recruitment and consent procedures took place, an initial assessment session was conducted to orient the parent and child to the structure of therapy, collect descriptive information about the child and family, and establish baseline data points for treatment-relevant behaviors. After that, assuming inclusion criteria were met, the child attended three weekly non-directive therapy (NDT) sessions. During the first of these sessions, the therapist asked gatekeeper question from the Schedule for Affective Disorders and Schizophrenia for school-age children-present and lifetime version (K-SADS-PL; Kaufman, et al., 1997) in order to screen for any psychopathology that would prevent further participation. The inclusion of NDT sessions served multiple functions. Previous trials (Gaynor et al., 2003; Renaud et al., 1998) treating adolescents for depression indicate that a significant number of participants will show large sudden improvements prior to the receipt of active treatment components. These sudden gains are significant and lasting. Including the NDT condition allowed participants an opportunity to benefit from least invasive procedures and served to ensure that participants entering the Behavior Therapy (BT) portion of the study were resistant to non-specific treatment, strengthening the interpretation of any effects of BT. In this way, NDT should be thought of as an active, extended baseline. When three NDT sessions were complete, a post-NDT assessment session with parent and child was conducted. Children who showed a clinically significant change (CSC) on the CDRS-R at this time did not continue to BT. In accordance with normative data available for the CDRS-R, CSC was defined as a change of at least 11 points which results in a score of 37 or less. Those who did not display a CSC continued into BT.
Behavior Therapy sessions were designed to teach certain sets of skills to the child and parent, and to give them a context in which to practice those skills and receive feedback. As such, BT sessions were structured so that the therapist met separately with the child and the parent one week, then jointly with the child and parent the following week. This allowed the therapist to teach the child the target behaviors, teach the parent how to support those child behaviors, and finally, see both parties practice in order to provide support and feedback. Three primary child skills were targeted: *Presenting a Positive Self*, *Activity Scheduling*, and *Problem Solving*.

When BT was complete, a post-BT assessment session was conducted. For participants who did not meet CSC criteria, up to four additional sessions of continued treatment was recommended. When held, continued treatment sessions focused on reviewing and practicing target skills that were not sufficiently fluent. The therapist suggested skills that still needed improvement based on the available data. For those who met CSC criteria post-BT, no additional sessions were recommended; however, booster sessions were available if the parent desired further practice and feedback.

Participants were invited to attend a follow-up assessment session two months following their final therapy session. This session was identical to the post-NDT and post-BT assessment sessions, providing information about the maintenance of any effects.

**Procedures**

All assessments and therapy were conducted by a doctoral level graduate student in clinical psychology with extensive experience in the assessment and treatment of children. In addition, the therapist’s supervisor, a licensed psychologist who previously supervised a number of youth depression clinical trials, provided supervision and consultation as needed.
**Pretreatment assessment.** The initial meeting with potential participants lasted 50-90 minutes beginning with the therapist presenting information about the study to the parent and child. The parent was offered the opportunity to consent to participation and the child the opportunity to assent to participation in accordance with procedures approved by the Western Michigan University Human Subjects Institutional Review Board. When consent and assent were obtained, the session commenced with the administration of several assessments.

The CDI (Kovacs, 1992) and CDRS-R (Posnanski & Mokros, 1996) were administered first. If the child failed to meet inclusion criteria based on those instruments, no further assessment took place. Those who met inclusion criteria next moved on to an in-session Parent-Child Activity (PCA). The therapist communicated part of the assessment involved seeing how the parent and child interact with one another during a fun activity. The parent and child were asked to pick one of several activities (board games, drawing, etc.). The therapist instructed them to do their best to behave as they might at home. PCAs lasted 10-15 minutes and were videotaped for later coding (discussed below).

Once the PCA has ended, the child met with the therapist investigator in order to complete the Family Interaction subscale of the Family Quality of Life Scale (FQOLS-FI; Hoffman, Marquis, Poston, Summers, & Turnbull, 2006) and the Modified Environment Reward Observation System (MEROS).

As the therapist was meeting with the child, the parent was asked complete a number of pencil and paper assessments. These included the Clinician’s Intake Summary Form, the Family Resource Scale (FRS; Dunst & Leet, 1987), the Strength and Difficulties Questionnaire-Parent Form (SDQ-PF; Goodman, 1997; Goodman & Scott, 1999), the Parenting Stress Index-Short Form (PSI-SF; Abidin, 1995), and the Beck Depression Inventory-II (BDI-II; Beck, Steer, &
Brown, 1996). At the end of the session, the therapist quickly reviewed these assessments and clarified any questions the parent had.

Prior to the end of the session, the therapist discussed options for completing the Daily Questionnaire. Email was the preferred method for distributing the Daily Questionnaire, but it was also available by phone. Participants whose assessment results were consistent with inclusion criteria advanced to the NDT phase of the study.

**Non-directive therapy.** Children received three sessions of NDT. At the beginning of each NDT session, the child was asked to complete the CDI-short form (CDI-S) and MEROS. Non-directive therapy was designed to provide aspects of therapeutic intervention not specific to any one therapy. The primary goal of these sessions was for the therapist to build rapport and become familiar with the child’s life circumstances. The therapist was supportive (e.g., “That must be tough” or “I hope you feel better”) but did not offer any interpretations of the child’s feelings or behaviors, nor offer any advice on how a child should go about trying to feel better. In addition to building rapport, the therapist focused on empathic listening, reflecting the child’s statements, and offering sympathetic feedback.

**Post non-directive therapy assessment.** Following three sessions of NDT, another assessment session was conducted to determine if the child met criteria for a CSC. This session content was identical to the pretreatment assessment, except that the introductory content was not necessary and some measures (e.g., Clinician’s Intake Summary Form and FRS) were not repeated. The session began with a 10 min PCA. Then, therapist administered the CDRS-R, CDI, FQOLS-FI, and MEROS to the child. During this time, the parent completed the SDQ-PF, PSI-SF, and BDI-II.

Results of these assessments were compiled and the child’s need for further services was evaluated. Parents of children showing a CSC on the CDRS-R were informed of the
improvements and told they would be assessed again in two months. Families were provided referrals to additional services if they so desired. Children who did not evince a CSC matriculated to the BT phase of the study.

**Behavior therapy.** The BT protocol was largely based on components of the PASCET (Weisz et al., 1997) and C-CRET manuals (Eckshtain & Gaynor, 2009; 2012). In addition, procedures were augmented by incorporating features inspired by Behavioral Skill Training (BST; see Miltenberger, 2007) and parent-training therapies such as Parent-Child Interaction Therapy (PCIT; Eyberg, 1988; Eyberg & Boggs, 1998). Behavior Therapy sessions were ordered so the therapist met individually with the child and the parent one week, then with both jointly the next week. While the specific content of sessions varied, a general session format was used.

Behavior therapy-child (BT-C) sessions began by using the child’s sticker chart to reward the child for attending, bringing his or her workbook, completing homework assignments, and any other behaviors the therapist wished to increase or maintain. For older children, more age-appropriate markers (e.g., graphs, checkmarks) were used. When a child earned a prize, he or she selected one from the available pool. The child then completed the CDI-S and MEROS. Brief discussion of the homework and any needed problem solving took place. This was followed by a conversational introduction to the target skill, accompanied by supplemental materials. The therapist then modeled the target skill and asked the child to practice the skill with assistance and feedback. When the child demonstrated understanding and the skill was practiced, homework was assigned. Children received stickers for good participation throughout. Time allowing, sessions ended with a fun activity.

Parent sessions (BT-P) were organized in a similar fashion. At the beginning of each session, the therapist will dedicated a few minutes to discussing any general matters with the parent in order to build rapport and lessen any anxiety the parent may feel. Next, the therapist
reviewed any homework the parent may have had, and updated progress on the Daily Questionnaire. Then, a target skill for the parent was introduced in the context of how that skill might be used to improve the child’s functioning. When the target skill was understood, the therapist modeled, role played, or otherwise practiced the skill with the parent, continually checking for understanding and providing any needed clarification and feedback. At the end of the session, homework task was assigned.

Joint sessions (BT-J) began by examining any behavioral artifacts that were collected in the prior weeks and by reviewing progress with the previous skill. Then, a PCA was conducted. Next, the child and parent were oriented to the target task for the session. The therapist guided the child and parent through practice of that task in a fashion similar to the individual sessions, and homework was assigned.

**Child session 1: Presenting a positive self.** The goal of the first BT1-C session was to teach the child how to behave in a positive and confident manner, while explicating the impact such behavior can have on interpersonal interactions. The therapist and child discussed how presenting a positive, upbeat, and confident version of one’s self leads to feeling good and makes others more comfortable, while presenting gloomy or negative exterior results in feeling bad and makes other feel uncomfortable. Presenting a positive self was portrayed as a skill to be practiced and honed. The therapist worked with the child to identify specific behaviors portraying positive (e.g., making eye contact, sitting up straight, using a clear voice) and negative (e.g., avoiding eye contact, slouching, mumbling) versions of one’s self. The therapist used himself as an example, modeling positive and negative behaviors and recalling the effects they have on others. The therapist interacted with the child in both positive and negative styles and discussed with the youth how the two are experienced differently. The therapist and the child identified several behaviors typical of both a negative and positive self.
When behaviors were identified and the child demonstrated an understanding of positive and negative self, the therapist helped the child make a video recording demonstrating the difference between positive and negative presentation of self. First, while being videotaped, the child was instructed to act as sad and gloomy as possible as the therapist asked general questions. Once the negative video was complete, the procedure was repeated, this time with the child asked to present a positive self. During the making of both videos, the therapist provided coaching and reminders of the identified negative and positive behaviors. After making both videos, they were played and discussed. The therapist stopped the playback to comment on how well the student performed or ask the student to identify positive and negative behaviors. The therapist asked the child how he or she would feel acting each of these ways all day, and how they think others would feel interacting with the negative and positive presentations of the child.

For homework, the child was asked to practice presenting a positive self. The child was provided with a worksheet on which to record instances of practice. After assigning homework, a short enjoyable activity chosen by the child took place. During the activity, the child was instructed to present a positive self and the therapist provided labeled praise for such behavior when it occurred.

**Caregiver session 1: Providing a positive environment.** Session BT1-J was designed to foster a positive family environment and increase the frequency of positive interactions between the parent and child through the introduction of contingent positive attention, non-contingent positive attention, and Special Time. The therapist introduced contingent and non-contingent positive praise to the parent, explaining the importance of communicating to children their worth. That children are good and loved should be provided non-contingently. In addition, the therapist described positive attention is to be provided when the child displays
positive mood and behaviors. It was articulated that providing positive attention when the child engages in positive behaviors increases the likelihood of those behaviors continuing in the future. The parent and the caregiver discussed examples of positive behaviors to be reinforced, as well as various ways to give positive attention. The parent was supplied with a handout summarizing how to provide non-contingent and contingent attention.

Parents were then presented a rationale for Special Time. Special Time was described as an opportunity to practice positive attention skills and to have a good experience with the child. A number of rules about Special Time were introduced. For example, Special Time should occur at a specified time and should be non-contingent (i.e., Special Time is always available to the child during the specified interval). Parents were provided with handouts specifying those rules. Parents were given the opportunity to agree to work on Special Time with their child at least once per week for 15 min, but the more the better. When the parent agreed to try Special Time, the therapist asked the parent to participate in a role play in which the parent plays the role of the child and the therapist plays the role of the parent. The therapist modeled examples and non-examples of the behavior desired of the parent during Special Time. Then the roles were reversed as the parent practiced Special Time and the therapist provided correction and positive feedback until the parent demonstrates an understanding of how to conduct Special Time.

For homework, parents were asked to provide one instance of non-contingent positive attention and one instance of contingent positive attention to the child each day.

**Joint session 1: Special time.** Session BT1-J was designed to help the parent and child better understand their respective roles in Special Time and to help them identify and schedule fun activities. Special Time was introduced to the child. If comfortable, the parent explained Special Time to the child with the therapist adding to the description as needed. When the child
understood Special Time, the therapist asked to quickly meet alone with the parent and then with the child. When the child has left the room, the therapist briefly reminded the parent how to behave during Special Time and which child behaviors should be especially praised. Then, the parent left the room and the child re-entered. The therapist presented Special Time as an opportunity for the child to practice using a Positive Self.

The parent and child then participated in a PCA using the rules of Special Time. For at least 10 min, the therapist refrained from providing direction or specific feedback. This portion of the PCA was later coded for child and parent behaviors. After 10 min, the therapist provided individual feedback to both the parent and child, praising their positive behavior and making suggestions. After providing feedback, the therapist could opt to join the activity in order to provide a model for the parent, especially attempts to reinforce positive behavior on the part of the child, or to evoke target child behaviors. The activity continued for as long as time allowed with the therapist providing positive feedback and support to both the parent and child. With about 10 min remaining in the session, the activity was stopped and the therapist led the parent and child in generating a list of possible activities to engage in during Special Time for the next week.

Finally, a description of behavioral artifacts was presented. It was explained tracking their experiences together would provide them with a memento of the important work they will do together. Examples of behavioral artifacts and types of experiences to be recorded were described. The therapist offered the use of a digital camera to document child-parent experiences, or participants opted to use an existing camera. They were asked to bring the camera or memory card to subsequent BT-J sessions.

**Child session 2: Activity scheduling.** The goal of session BT2-C was to help the child identify activities that might be enjoyable or otherwise desirable to participate in. The session
began by asking the child about Special Time and reviewing previous homework. Then, the therapist introduced the idea of staying active and doing pleasant things in order to feel better. The therapist suggested that participating in enjoyable activities leads to feeling good, whereas being inactive or engaging in unpleasant activities leads to feeling bad. The therapist cited examples from his own life and then asked the child to identify a few times when doing something fun helped to improve his or her mood. Then, the therapist helped the child fill in the “Ten Things I Can Do to Feel Good” worksheet. The therapist assisted in this process and offered ideas. Three main types of activities were discussed: activities with someone you like, activities that keep you busy, activities that help someone else. After completing the list, the child and therapist picked one activity to try for 2-3 min. When the activity was complete, the therapist asked the child how it feels to engage in the activity.

For homework, the child was asked to complete at least one of the pleasant activities for homework in the following week. The child recorded the activity and his/her mood prior to and after the activity.

*Caregiver session 2: Activity scheduling.* Session BT2-P covered activity scheduling with the caregiver. The goals of the session were introducing activity scheduling to the parent, instructing the parent in how to support the child’s activation, and to identify and schedule pleasant activities for the caregiver. The session began by reviewing progress from the previous session and addressing any issues relevant to conducting Special Time at home. The therapist then briefly explained activity scheduling and how it was introduced to the child in the previous session. The therapist communicated the importance of being active in improving the child’s mood. Parents were encouraged to apply contingent reinforcement to help the child remain active. Providing suggestions for child activities and showing approval of child activation were two important jobs of the parent.
Next, the therapist discussed the connection between child mood and parent mood. The therapist explained that, generally, in order for a child to feel good, it is important for the parent to feel good and have positive experiences. In order to accomplish this, it is desirable for the parent to engage in enjoyable and meaningful activities. It was stressed to the parent that participating in simple meaningful activities allows for reduction of stress, elevated mood, and subsequently better parenting practices. The therapist briefly assessed how often the parent engages in pleasant activities, using Daily Questionnaire responses when available. The therapist helped identify possible activities as well as times at which the parent could engage in them. Brief, easily engaged in activities were emphasized. Throughout this conversation, the parent and therapist completed a parent version of the “Ten Things I Can Do to Feel Good” worksheet, on which Special Time with the child was included.

When time allowed the therapist previewed session BT2-J for the parent, which focused on family activity scheduling. The parent was told that in addition to Special Time and individual activity scheduling, it is desirable for the entire family to engage in pleasant activities. The therapist noted the difficulty of coordinating the schedules of several individual, but suggested it usually can be accomplished if approached deliberately. Simple, affordable activities were emphasized. Parents were assigned two tasks to help prepare for family activity scheduling. First, when applicable, the parent was asked to meet with his or her spouse to convey the importance of family activities and to identify at least one time every two weeks during which the entire family could meet for at least 30 min. In addition, the parent was asked to generate a list of potential activities for the family to engage in. The therapist provided the parent with a list of example activities. The therapist suggested organizing family activities was one way for the parent to be active and feel good, and that while trying to coordinate a family may not
always be pleasant, the parent should feel good about taking deliberate steps towards promoting a positive family environment.

**Joint session 2: Family activity scheduling.** The goals of session BT2-J were to introduce the child to family activity scheduling, clarify the rules of family activities, brainstorm potential family activities, and begin scheduling family activities. The session was tailored to fit the characteristics of the given family. For instance, larger families required more time dedicated to coordinating family schedules, whereas a family consisting of only a child and single-parent spent more time planning specific activities. The content of the session was somewhat dependent on how much the parent had done to prepare since the previous session. If feasible times and activities were identified, more time was spent discussing the child’s role.

Session BT2-J began by conducting a 10 min PCA and reviewing any behavioral artifacts. Then, a discussion of family activity scheduling was conducted. Family activity was presented to the child as a fun way for the whole family to share time together. Some guidelines of family activities were discussed and the list of potential activities created by the parent was explored. The child was placed into the role of helper to the parent. The child was told that the parent had begun preparations for family activities but that the child’s help was needed to think of fun activities, engage other family members, and coordinate activities. One way in which the child was asked to be helpful was to use the presentation of a positive self when discussing and engaging in family activities. When the parent and child endorsed a number of potential activities, the therapist discussed how to present the activities to the other members of the family focusing on enthusiasm and inclusiveness. Family members were not to be coerced into participation, rather invited to participate and enthusiastically included whenever they chose to participate. The therapist instructed the parent and child to present the list of potential activities, but also solicit ideas for other activities from each family member.
If the parent or child offered concerns, a quick plan to deal with the issue was devised. When all potential problems were addressed, the therapist assigned engaging in at least one family activity the next two weeks as homework. If possible, the time and activity were identified. Parents received a handout highlighting some of the rules of family activity scheduling. Finally, the therapist asserted that family activities were not a replacement for parent-child Special Time, which should continue.

**Child session 3: Problem solving.** The goal of session BT3-C was to teach the child a model for solving problems. The session began with a review of the child’s activity log. If the child did not complete the assigned homework, the therapist inquired as to what prevented completion of the activities and reminded the child of their importance. The therapist then introduced Problem Solving by explaining universality of experiencing problems. It was proffered that working to solve one’s problems often leads to feeling better, while not working to solve problems leads to feeling bad. The therapist offered examples from his own life in which solving problems made him feel better. Then, the therapist introduced the STEPS model of problem solving. The acronym STEPS was used to help the child recall the components of problem solving: Say what the problem is, Think of solutions, Examine each one, Pick one and try it, and See if it worked. The therapist used a problem from his own life to illustrate each part of the STEPS approach. After elucidating each step, the therapist helped the child generate a list of current problems the child faces. When several were identified, one was selected for processing using STEPS. The therapist led the child through STEPS while filling the “Five STEPS to Problem Solving” worksheet. If the child routinely failed to complete therapeutic homework, this problem was addressed with STEPS. If the child was unable to identify a problem, the therapist supplied a hypothetical problem with which to practice STEPS. For homework, the
child was assigned practice applying STEPS to a problem and told his/her caregiver could help if need be.

**Caregiver session 3: Problem solving.** The goals of session BT3-J were to communicate the importance of problem solving to the parent as it relates to child depression, provide a framework for solving family problems, and introduce the STEPS model as it was communicated to the child. It was explained to parents that problems in the household amplify stress and contribute to depressive patterns of behavior. As such, approaching problems in a purposeful and deliberate manner helps to prevent the development and maintenance of depression. The potential effects of Problem Solving on depressive symptoms were discussed. First, actively solving problems is one way for a child to activate, rather than passively avoiding solutions to problems. Second, symptoms of depression can be viewed as problems in themselves. Learning a system to solve those problems can lead to an alleviation of symptoms. Third, solving problems together provides the parent another context in which to engage with the child positively and reinforce desirable behaviors.

The parent was instructed in facilitation of Problem Solving, first and foremost modeling a positive attitude and encouraging the child by using statements such as, “It’s okay,” or, “We can handle this.” Such statements model an upbeat confident attitude for the child. Parents were also instructed to use contingent attention for any behaviors on the part of the child perceived as confident or positive. Next, the therapist conveyed the STEPS model by briefly summarizing the components, and then guiding the parent through an example. The therapist communicated some specifics of problem solving that were not initially described to the child, such as avoiding blame when identifying the nature of the problem. The therapist noted that STEPS is a simple model designed for use by all members of the family, but flexible enough to be useful for personal problems the parent might experience.
When the parent demonstrated a good understanding of STEPS and practice was complete, the therapist assigned two tasks for the following week: assisting the child with his or her problem solving homework, and generating a list of at least five family problems for discussion the following week. The parent was encouraged to identify concrete and easily defined problems.

**Joint session 3: Problem solving.** Session BT3-J served to consolidate the problem solving skills learned by the child and parent in order to address a family problem. The session began with a review of homework, examination of behavioral artifacts, and PCA. Then, the therapist discussed the importance of being able to solve family problems. The therapist noted solving problems using STEPS with the family provides an opportunity to engage positively with others. The child and parent identified one family problem to attempt to solve. When the problem was identified, the therapist quickly met alone with the child, and then the parent to remind them of the target skills. Then, the therapist directed use of STEPS to identify potential solutions to the problem. Ideally, the parent led this activity, with the therapist providing only positive feedback and noting specific instances of the target behaviors. Potential solutions were not “tried out” during session, but the therapist asked the parent and child to imagine trying one of their potential solutions to see what the outcome might be. When the session closed, the parent and child possessed a plan for communicating their solution to the problem to the family (if applicable), and how to implement it.

**Post behavior therapy assessment.** The post-BT assessment session was very similar to the post-NDT assessment. The session began with a PCA. The therapist administered the CDRS-R, CDI, FQOLS-FI, and MEROS to the child while the parent completed other measures. Parents of children who evinced a CSC were informed of this improvement and told they have the option for up to two booster sessions, or receive a follow-up assessment in two months. Parents
of children who failed to demonstrate a CSC were informed that the child still showed significant symptoms, and, when feasible, continued treatment was suggested.

**Continued treatment.** Continued treatment sessions were flexible and individualized in their structure and content. The therapist identified the skills likely to be most beneficial for the parent and child. No new skills were targeted. Instead, certain skills were refocused upon.

**Follow-up assessment.** The follow-up assessment was identical to the post-NDT and post-BT assessments.

**Measures**

**Participant characteristic measures.**

*Child Clinician’s Intake Summary Form.* Completed by the parent, this measure (see Appendix C) assesses general demographic information including the child’s presenting problem, medical history, social history, academic history, major stressors and coping strategies, and the family history.

*Family Resource Scale.* The FRS is a parent-completed 31-item rating scale that provides information about the quality of resources (e.g., food, health care, time for self) in the child’s household using a 5-point Likert scale, ranging from 1 (not at all adequate) to 5 (almost always adequate). This scale has demonstrated solid internal-consistency reliability and acceptable concurrent validity (Dunst & Leet, 1987).

**Primary dependent measures.** Table 2 summarizes which dependent measures were administered during each session. The primary dependent measures were the CDI and the CDRS-R.

*Children’s Depression Rating Scale-Revised.* The CDRS-R is a semi-structured interview, conducted with the child, assessing 17 symptom areas, including those required for a diagnosis of MDD according to the DSM-IV-TR (American Psychiatric Association, 2000), as well as
symptoms such as low self-esteem, social withdrawal, and guilt. Scores, based on ratings by interviewers have shown acceptable internal consistency and test-retest reliability (Ponzanski & Mokros, 1996).

**Child Depression Inventory.** The CDI is based on the Beck Depression Inventory (Beck, Steer, & Brown, 1996), adapted for use with children. It is the most commonly used self-report measure of depression for children aged 7 to 17 years (Kaslow, Stark, Printz, & Ling-Tsia, 1992). It consists of 27 items completed by the child assessing for the presence and severity of depressive symptoms in the two weeks prior to assessment. Each CDI item consists of three choices, keyed 0, 1, or 2, with higher scores indicating increasing severity. The CDI total score can range from 0 to 54 (Kovacs, 1992). The CDI has good internal consistency (range from 0.71 to 0.89; Kovacs, 1992) and reliability coefficient of 0.82 for two weeks interval and 0.66 and 0.67 for longer intervals of four and six weeks (Finch, Saylor, Edwards, & McIntosh, 1987).

**Secondary dependent measures.**

**Family Quality of Life Scale-Family Interactions Subscale.** The FQOLS-FI (Hoffman, Marquis, Poston, Summers, & Turnbull, 2006) consists of six items ranked on a 5-point scale to measure a child’s satisfaction with family interactions. The Family Quality of Life Scale (Hoffman et al., 2006) was developed to ask children with disabilities about the quality of their family life. Cronbach’s alpha for the FQOL subscales on satisfaction ratings was 0.88. The Family APGAR (Smilkstein, Ashworth, & Montano, 1982), a 5-item measure of family functioning, was significantly correlated with the satisfaction mean for the FQOLS-FI subscale, r (87) = .68, p < .001 (Hoffman et al., 2006).

**The Strengths and Difficulties Questionnaire.** The SDQ (Goodman, 1997; Goodman & Scott, 1999) is a 25-item inventory that yields scores on five subscales: conduct problems, hyperactivity, emotional symptoms, peer problems, and prosocial behavior. Test-retest
reliability of the SDQ-PF ranges from .70-.80. Internal consistency ranges from .51-.76 (Goodman, 1997).

**Modified Environmental Reward Observation Schedule.** MEROS (Appendix D) is a version of the Environmental Reward Observation Schedule (Armento & Hopko, 2006), a 10-item questionnaire is designed to measure response-contingent positive reinforcement. Responses are on a 4 point Likert scale (1 = strongly disagree to 4 = strongly agree). Scale development studies with college student samples suggest strong internal consistency, test-retest reliability, and convergent, discriminant, and ecological validity. The MEROS was modified for use with children for this study. Modifications involve simplifying the language and wording items in the past tense (to ask the child about experiences in the recent past). In addition, in order to devote more session time to treatment, the MEROS was condensed to four items specifically assessing enjoyment of activities.

**Parenting Stress Index-Short Form.** The PSI-SF (Abidin, 1995) is a 36-item scale designed to measure the amount of stress a parent is experiencing the in the domains of parent distress, parent-child dysfunctional interaction, and difficult child. The PSI-SF has acceptable test-retest reliability of 0.84 for the total score and a range of 0.68 to 0.85 for the subscales scores. The PSI-SF is a short version of the long Parenting Stress Index and has a correlation of .94 with it. (Abidin, 1995).

**Beck Depression Inventory-II.** The BDI-II, a 21-question multiple-choice self-report inventory, is one of the most widely used instruments for measuring the severity of depression. A meta-analysis of the BDI's internal consistency estimates yielded a mean coefficient alpha of 0.86 for psychiatric patients and 0.81 for non-psychiatric subjects (Beck, Steer, & Carbin, 1986). The BDI-II was also highly correlated with the Hamilton Psychiatric Rating Scale for Depression (HRSD). The mean correlations of the BDI-II samples with clinical ratings and the HRSD were 0.72
and 0.73, respectively, for psychiatric patients. With non-psychiatric subjects, the mean correlations of the BDI-II with clinical ratings and the HRSD were 0.60 and 0.74, respectively.

**Independent measures.**

**Treatment Log.** Following each session, the therapist completed a Treatment Log (Appendix E) to evaluate the extent to which treatment was delivered according to protocol, done so competently, and received by the participant. The Treatment Log is an 18-item rating scale, developed for this study, which asks the therapist to assess aspects of therapy. Certain item-were reverse scored, depending on NDT or BT.

**Attendance.** The number of sessions attended and weeks needed to complete them was recorded.

**Parent-child activities.** Video of each completed PCA was coded to evaluate change in parent-child interactions over time. For each PCA, the first 10 min were divided into 30-sec intervals. Intervals were coded “positive,” “negative,” or “neutral.” Positive intervals were defined as those intervals in which the majority of time was characterized by low amplitude positive behaviors (e.g., smiling, eye contact, good posture, clear speaking, etc.) or neutral behavior punctuated with high amplitude positive behavior (laughing, positive statements about self/others/future, exclamatory statements, physical affection, etc.). Negative intervals were defined as those intervals in which the majority of the time was characterized by low amplitude negative behavior (e.g., frowning, pouting, avoiding eye contact, extreme slouching, refusal to speak, etc.) or neutral behavior punctuated by high amplitude negative behavior (e.g., whining, yelling, crying, negative statements about self/others/future, etc.). Neutral intervals were defined as those intervals in which most of the time was characterized neither by positive or negative behavior, or an equal amount of positive and negative behavior.
Behavioral artifacts. Any object presented to the therapist by the child or parent that the parent and child claimed to be evidence of engagement in treatment was considered a behavioral artifact. Examples of received behavioral artifacts are photographs, movie ticket stubs, or a cookie baked by parent and child.

Daily Questionnaire. The Daily Questionnaire (Appendix F) was administered through email or over the phone and was designed to measure processes directly targeted by treatment. The questionnaire consists of “yes or no” and Likert scale questions designed to measure the degree to which therapy increases certain behaviors that may be responsible for symptom change.

Methods of Analysis

Group level analyses were conducted using an intent-to-treat approach whenever possible. In order to detect significant differences on the dependent variables at different assessment points, Friedman tests (Friedman, 1937) were conducted. The Friedman test is the non-parametric equivalent of a repeated measures analysis of variance. When the Friedman test produced statistically significant results, a Wilcoxon Sign-Ranked Test corrected for multiple comparisons was used to test for significant differences between particular points in time.

Mediator analyses were conducted to in an attempt to identify any potential therapeutic mechanisms of action. The study design allowed for examination of several potential mediators including increased positive behavior, improved parent-child interactions, increased activation, and improved coping skills. Both statistical and visual analyses of mediators were conducted. For all relevant repeated measures, mean scores for baseline and NDT (BL+NDT) were compared with mean scores during BT. Mean scores for mechanism measures were also calculated for all time prior to targeting of that skill in therapy (pre-skill) and all time after targeting of that skill (post-skill). A second statistical method was the calculation of
individual effect sizes from BL+NDT to BT and pre-skill to post-skill. Effect sizes were calculated using the Nonoverlap of All Pairs (NAP) method (Parker & Vannest, 2009). The NAP method compares each data point in each phase to each data point in another phase, and identifies each potential data point pair as overlapping, nonoverlapping, or tied (half overlapping). See Appendix G for an illustration. The higher the percentage of nonoverlapping pairs between phases, the more powerful the effect. Parker and Vannest offer tentative interpretive ranges of 0-65% = weak, 29-66% = moderate, and 67-100% = strong. As most mechanism measures were small Likert scales with a limited range of response, the NAP method may be a particularly conservative approach in this instance. Effects sizes calculated pre-skill to post-skill represent a statistical approximation of a multiple baseline across potential mediators analysis.

In addition to statistical analyses, frequent repeated measures were conducive to visual analysis of graphical data. Visual analyses were conducted to assess changes in dependent and mechanism variables over time, and to examine the temporal relationship of those changes.

**Procedural Integrity**

A doctoral-level student in clinical psychology familiarized with the treatment protocol independently observed 30 of 92 (33%) therapy sessions and completed a Treatment Log for each. Sessions observed were determined quasi-randomly to ensure a cross-section of types of sessions was viewed. An intraclass correlation coefficient (ICC) was calculated across all items to determine the level of agreement between therapist and coder. Results suggest that agreement was very strong (ICC = 0.93, \( p < .001 \)).

Thirteen of 33 (39%) CDRS-Rs were randomly selected to be subjected to inter-coder agreement. A second doctoral-level student in clinical psychology who had previous experience administering CDRS-Rs in a research context independently viewed and scored each. The coder
was blind to the phase of treatment at which the assessments occurred. An ICC for the CDRS-Rs was calculated across total raw scores and showed good agreement (ICC = 0.84, \( p < .001 \)).

Fifteen of 57 (26%) PCAs were randomly selected to be subjected to inter-coder agreement. A bachelor’s level research assistant blind to the purpose of the study viewed and coded the recorded PCAs. The research assistant was trained by having her code twenty 30 s interval clips selected by the researcher as exemplary of positive, negative, and neutral. She was required to code 95% of those clips correctly prior to coding entire PCAs. An ICC calculated across all coded intervals (N = 636) showed excellent agreement (ICC = 0.90, \( p < .001 \)).

**RESULTS**

**Sample Characteristics**

Eleven of fifteen youths screened for the study participated, averaging nine years, eleven months of age. Table 3 summarizes demographic and clinical characteristics at the time of initial assessment. Mean CDRS-R and CDI scores at intake were 55.36 (SD = 12.36) and 22.73 (SD = 9.29), respectively, indicating a moderately depressed sample. Nine of 11 participants were male. Four lived with only one primary caregiver. None were currently taking psychiatric medication. Figure 1 summarizes their movement through the study. Of the eleven participating youths, four showed a CSC response to NDT, and did not receive BT. Of the seven who received BT, all but one had at least one parent attend all BT-P and BT-J sessions. Circumstances dictated that P12 receive only BT-C sessions, as his parents were not available for therapy (detailed below). In several instances, a second caregiver provided some assessment data or attended some therapy sessions, but in no instance did both parents attend all sessions. As such, group level results only consider data from the parent who designated the primary informant, whereas individual results consider data from the secondary informant when available.
Treatment Integrity

Overall, therapist ratings indicate NDT and BT were delivered with adherence to the treatment manual and done so competently. All therapist ratings were made on a six-point scale, with “6” being the best attainable score. The average total adherence scores during NDT was 6.0 ($SD = 0.0$) for NDT items and 0.0 ($SD = 0.0$) for BT-specific items, indicating NDT was delivered with fidelity for all participants. The average adherence score was 5.85 ($SD = 0.14$) for BT. Average total competency scores were 5.98 ($SD = 0.04$) and 5.80 ($SD = 0.13$) for NDT and BT, respectively. Ratings for individual participants are reported below.

Group Results

Table 4 displays group level results for primary and secondary dependent measures. An alpha level of .05 was used for all statistical tests. Because follow-up assessments have not been conducted for the entire sample, only pretreatment, post-NDT and post-BT scores are included in the group analyses. When analyzing the entire sample, only pretreatment and post-NDT scores were included, as the Early Responder group did not receive BT. For the entire sample, there were no significant effects on any measures, meaning on the whole, and NDT did not have a significant impact on dependent measures.

Early Responders

Not surprisingly, those who responded to NDT were significantly different on several measures post-NDT. Scores for the CDRS-R ($\chi^2(1) = 4.000, p = .046$), CDI ($\chi^2(1) = 4.000, p = .046$), PSI-SF ($\chi^2(1) = 4.000, p = .046$), and BDI ($\chi^2(1) = 4.000, p = .046$) were all significantly improved after NDT. These findings are more a function of the change-based criterion for group membership than of the efficacy of NDT.

Individual scores of Early Responders on all dependent measures can be found in Table 5. Figure 2 shows average CDRS-R, CDI, and CDI-S scores over time. As is evident, change for this
group occurred early and suddenly. While specific mechanism of change were not targeted during BL+NDT, it is possible they changed indirectly or irrespective of treatment, leading to the observed improvement of symptoms. Assessing potential mechanisms of change for Early Responders was difficult as a sufficient baseline was not established, specific mechanisms were not targeted, and no distinct phase changes occurred. As a result, calculation of means or effect sizes was not possible. Nonetheless, Daily Questionnaire responses and CDI-S scores were graphed individually for each Early Responder in order to inspect visually for relationships between hypothesized mechanisms of change and depressive symptoms.

**Participant 02.** Daily Questionnaire responses and CDI-s scores for P02 are displayed in Figure 3. An immediate and lasting improvement in CDI-S scores was observed, with all change occurring between the initial assessment and NDT1 sessions. The first, second, third, fourth, and fifth panel display P02’s father’s ratings of child positivity, parent-child interactions, child activation, parent activation, and problem-solving, respectively, alongside CDI-S scores. No Daily Questionnaire responses were provided prior to NDT1, and as such no mechanisms data is available prior to symptom improvement. Further, P02’s CDI-S scores remained stable throughout NDT and did not correspond to any changes in Daily Questionnaire responses. While it is possible hypothesized mechanisms changed from Pre to NDT1, the available data do not provide any evidence of a mediating relationship.

**Participant 06.** Daily Questionnaire responses and CDI-s scores for P06 are displayed in Figure 4. As with P02, P06 experienced an immediate and lasting improvement in symptoms, with all meaningful change occurring between the initial assessment and first NDT session. As displayed in the first panel, P06’s mother’s ratings of child positivity were generally high during this time, but there is no evidence a change in positivity preceded change in CDI-S scores. Further, evident variation in P06’s mother’s responses throughout NDT was not associated with
meaningful change in CDI-S scores. A similar pattern is observed for P06’s mother’s ratings of parent-child interactions, child activation, and parent activation in the second, third, and fourth panels respectively. The fifth panel indicates P06’s mother rarely reported encountering problems, and while there is some variation in her ratings of problem-solving, it is not associated with variation in CDI-S symptoms. Overall, while measures of potential mechanisms were high for P06 during BL+NDT, there was insufficient evidence to suggest a marked change from baseline or a temporal relationship between potential mechanisms and symptoms change. As such, no convincing evidence of a mediating relationship was captured.

**Participant 08.** Daily Questionnaire responses and CDI-s scores for PO8 are displayed in Figure 5. As displayed in each panel, CDI-S scores decreased from Pre-treatment to NDT1, regained the previous level of NDT2, and then decreased steadily to Post-NDT. In the first panel, PO8’s mother’s ratings of child positivity trend downward, and in no instance is improvement in CDI-S scores preceded by improvement in positivity ratings. The same can be said of PO8’s mother’s ratings child activation and parent activation in the third and fourth panels, respectively. In the second panel, PO8’s mother’s ratings of parent-child interactions correspond somewhat to changes in CDI-S scores, but in the opposite direction than what was hypothesized: As symptoms decrease, ratings of parent-child interactions do as well. The fifth panel shows a similar finding for ratings of problem-solving, where improvement in CDI-S scores is accompanied by a decrease in problem-solving ratings. No evidence for hypothesized mechanisms of change was evident for PO8.

**Participant 15.** Daily Questionnaire responses and CDI-s scores for P15 are displayed in Figure 6. Depressive symptoms as measured by the CDI-S were stable from Pre-treatment to NDT2 and then decreased steadily to Post-NDT. Ratings of child positivity and child activation were high at Pre-treatment, decreased to lower levels at NDT1 and NDT2, and then rebounded
and stabilized at previous levels at NDT3. Subsequently, a decrease in CDI-S scores was observed. At first glance, the temporal relationships of the observed changes suggests potential mediation; however, as neither child positivity or child activation stabilized at a level significantly higher than that observed NDT1, it is difficult to draw strong conclusions. Because P15’s mother’s rating of child positivity and child activation were initially very high, a ceiling effect may have prevented sensitivity to subsequent change. Other potential mechanisms for P15 were either stable over time (parent-child interactions) or reported two infrequently to assess change (parent activation and problem-solving).

**Non-Early Responders**

For those participants who did not evince a CDC after NDT, CDRS-R scores were significantly different across Pre-treatment, Post-NDT and Post-BT ($\chi^2(2) = 10.571, p = .005$). Post-hoc analysis using the Wilcoxon Sign-Ranked Test corrected for multiple comparisons indicated a significance level set at $p = .025$. CDRS-R scores Post-BT were significantly lower than those at Pre-treatment ($Z = -2.371, p = .018$) and Post-NDT ($Z = -2.371, p = .018$). While statistical significance was not replicated by the child-reported CDI scores, a trend in the desired direction approached significance ($\chi^2(2) = 5.429, p = .066$). Other non-significant but notable trends were seen on the MEROS ($\chi^2(2) = 4.333, p = .115$) and FQOLS ($\chi^2(2) = 5.429, p = .066$). It should be noted that, given the use of non-parametric analyses and small sample sizes, obtaining significant results is difficult.

The results of all primary and secondary dependent measures for Non-Early Responders can be found in Table 6. In order to assess potential mechanisms of action, all Non-Early Responders were considered individually.
Participant 01.

**Description.** P01 was a 10-year old, Euro-American female recruited in the spring of her 5th grade year in school. Her parents were divorced and shared custody of P01 and her two younger brothers, one of whom was P02. P01’s father was the primary adult participant in the study. Her mother consented to participate in the study and provided baseline information and parent ratings for some time; however, she chose not to participate in the BT portion of the study. At the time of initial assessment, P01’s parents’ primary concerns were low mood, academic under performance, and sibling conflict. P01 was greatly concerned with her parents’ often angry interactions, and also noted a chaotic home environment, especially at her mother’s house.

**Delivery and receipt of treatment.**

**Attendance.** After her initial assessment, P01 attended three NDT sessions in three weeks. Having not responded to NDT, P01’s parents requested a break from the protocol over the summer break from school. At the end of that time, P01 was reassessed, and still met entry criteria for the study. As such, she was invited to enter the BT phase, attending all six sessions over the course of 12 weeks. P01’s father also completed six sessions in 12 weeks. All delays were due to difficulties scheduling the BT-P and BT-J sessions with the father.

**Therapist ratings.** Therapist ratings for P01 indicate the NDT and BT protocols were adhered to, with scores of 6.0 (SD = 0.0) and 5.62 (SD = 0.27), respectively. Competency ratings of NDT averaged 6.0 (SD = 0.0) and averaged 5.63 (SD = 0.17) in BT. Both P01 and her father were rated highly receptive to treatment, with and overall score of 5.89 (SD = 0.29), 5.67 (SD = 0.0) for BT-C sessions, 5.89 (SD = 0.19) for BT-P sessions, and 6.0 (SD = 0.0) for BT-J sessions.

**Behavioral artifacts.** In the final eight weeks of BT, P01 and her father produced six behavioral artifacts, indicating moderate engagement in the prescribed treatment.
**Clinical improvement.** Intake scores (CDRS-R = 59, CDI = 30) did not decrease to sub-clinical levels when assessed after NDT (CDRS-R = 56, CDI = 30). After an extended hiatus from treatment, P01’s symptoms decreased (CDRS-R = 50, CDI = 18), but did not meet criteria for CSC. Post-BT scores (CDRS-R = 34, CDI = 11) indicate CSC occurred during BT and was maintained at follow-up (CDRS-R = 36, CDI = 10). CDI-S scores in NDT+BL averaged 6.71 (SD = 3.04) and 1.00 (SD = 1.83) during BT. Examination of CDI-S scores using the NAP method yields an ES of 95.92% nonoverlapping data point pairs. All the available data suggest a significant change in depression during BT; however, the significant gap in time and data between NDT and BT reduces the confidence of this conclusion.

**Mechanism measures.**

*Child’s positive behavior.* Table 7 summarizes the Daily Questionnaire data received from P01’s father. He provided 91 responses in BL+NDT and 38 in BT. During BL+NDT, P01’s father’s ratings of her happiness averaged 3.60 (SD = 0.63), which increased to 4.03 (SD = 0.29) during BT. In the two weeks following introduction of Positive Self, the rating averaged 4.33 (SD = 0.52). The NAP method produced an ES of 70.17% nonoverlapping data point pairs between the BL+NDT and BT phases. These data support the conclusion that P01’s positive behavior increased during BT and at the expected time.

*Parental praise.* P01’s father indicated use of contingent and non-contingent praise on 100% of responses during both phases, so there was no opportunity to assess an increase in praise.

*Parent-child interactions.* When answering, “Did you spend 15 min of quality time with your child today?” P01’s father responded positively on 97.1% of responses in BL+NDT and 100% of the time in BT. Given the extremely high frequency in BL+NDT, it is difficult argue that BT increased the frequency of “quality time.” P01’s father’s ratings of that quality time averaged
3.94 ($SD = 0.57$) during BL+NDT and 4.00 ($SD = 0.24$) during BT. From pre-skill ($M = 4.00; SD = 0.51$) to post-skill ($M = 3.95, SD = 0.22$) were relatively stable. In the two weeks following introduction of Special Time, ratings averaged 4.00 ($SD = 0.0$). The NAP method produced an ES of 52.8% nonoverlapping data point pairs between BL+NDT and BT, and 49.2% between pre- and post-skill.

Figure 7 displays the percentage of PCA intervals coded positive for P01 and her father over the course of treatment. During BL+NDT, no positive intervals were coded for either of the dyad, but during BT and at follow-up, P01 averaged 38.67% intervals, and her father averaged 29.44%. No intervals were coded negative. So, while any improvement in the parent-child relationship was not reflected by P01’s father in his ratings, the in vivo evidenced suggests that BT at least was successful in altering the behavior of P01 and her father in the desired fashion. The PCA results also bolster the finding that P01’s positive behavior increased in BT.

**Child activation.** P01’s father rated her level of activity at an average of 3.58 ($SD = 0.64$) during BL+NDT and 3.97 ($SD = 0.37$) during all of BT. Ratings average 3.67 ($SD = 0.62$) pre-skill and 3.88 ($SD = 0.34$) post-skill. In the two weeks following Activity Scheduling, the rating averaged 3.83 ($SD = 0.41$). The NAP method produced an ES of 68.72% nonoverlapping data point pairs between BL+NDT and BT, and 60.9% between pre- and post-skill. These data suggest a mild change in child activity levels in the desired direction during BT.

**Parent activation.** P01’s father reported engaging in a pleasant or meaningful activity on 90 of 91 responses (98.90%) during NDT+BL, and 38 of 38 responses (100%) during BT. During BL+NDT, P01’s gave those activities an average rating of 3.78 ($SD = 0.47$), whereas in BT the rating averaged 4.0 ($SD = 0$). Prior to Activity Scheduling ratings averaged 3.92 ($SD = 0.35$), which did not differ greatly post-skill ($M = 4.0, SD = 0.0$)The NAP method produced an ES of 55.56%
nonoverlapping data point pairs between BL+NDT and BT, and 56.9% from pre- to post-skill. The data indicated no significant change in parent activation occurred.

*Problem-solving.* P01’s father reported experiencing a problem 19 or 91 responses (20.88%) during BL+NDT and 4 of 37 responses (10.81%) during BT. It should be noted that all reports of problems from BL+NDT were before the 3-month break in treatment. In the six weeks P01’s father continued ratings before BT began, no problems were reported. Ratings of preparedness in dealing with those problems averaged 3.73 (SD = 0.45) during BL+NDT and 3.5 (SD = 1.00) during BT. No problems were reported after the introduction of Problem Solving.

*Timing of mechanism change and relation to symptom change.* The data for P01 indicate increased child positive behavior and increased child activation are the best candidates for potential mediators of clinical improvements. Figure 8 displays those two potential mechanisms, as measured by P01’s father’s ratings, plotted with CDI-S scores over time. The rating data paths are shown with closed data points until the date at which the specific skill was targeted in treatment, at which point data points are displayed as open. The top panel displays a relatively stable pattern of both the CDI-S scores and father ratings of displayed happiness throughout BL+NDT. Upon the phase change to BT, an immediate rise in displayed happiness is seen. While the highest ratings do not maintain, thereafter only one score lower than “4” was recorded. Commensurate with the increase and stabilization of happiness ratings is a decrease and stabilization of CDI-S scores. The bottom panel of Figure 8 indicates the time course of change for child activation is nearly identical to that of displayed happiness. The immediate increase in activation seen in BT, however, does not occur at the expected time, rather several weeks earlier. It is unclear whether this change is indicative of generalization from Positive Self, a result of decreasing depression, or reflective of control of P01’s father’s ratings by some other variable.
Given the available data, temporal precedence of the mechanism change cannot be determined. However, because the timing of the mechanism increase occurs exactly when predicted, a sensible interpretation is that increasing P01’s positive behavior lead to decreases in depressive symptoms. Child Activation, while having increased ratings associated with decreases on CDI-S scores, did not change at the predicted time, and therefore garners less confidence as a potential mediator.

Participant 03.

Description. P03 was an eight year-old Euro-American male recruited near the end of his 2nd grade school year. He lived with his married parents and five year-old sister. P03’s mother was the primary caregiver involved at the study. She reported a history of depression and was actively taking antidepressant medication. Primary concerns at the time of initial assessment included attentional problems, poor academic performance, and frequent periods of extended irritability. P03 had previously been prescribed a psychostimulant, but discontinued use due to undesirable side effects.

Delivery and receipt of treatment.

Attendance. P03 attended three NDT sessions over the course of three weeks. After the post-NDT assessment, both P03 and his mother attended six BT sessions over the course of 18 weeks. Delays were generally due to difficulties scheduling parent sessions as well as the family being out of town during the summer break.

Therapist ratings. Therapist ratings indicate the NDT and BT protocols were adhered to, with scores of 6.0 (SD = 0.0) and 5.73 (SD = 0.18), respectively. Competency ratings of NDT averaged 6.0 (SD = 0.0) and averaged 5.82 (SD = 0.11). Both P03 and his mother were rated moderately receptive to treatment, with and overall score of 5.32 (SD = 0.76), 5.64 (SD = 0.26) for BT-C sessions, 5.08 (SD = 0.65) for BT-P sessions, and 5.24 (SD = 0.63) for BT-J sessions.
Behavioral artifacts. Over the final 10 weeks of BT, P03 and his mother produced 4 behavioral artifacts, indicating relatively low engagement in treatment.

Clinical Improvement. Therapist rated CDRS-R scores improved considerably for P03 from pretreatment (41) to post-NDT (32). While his post-NDT score was below the clinical cut-off, the magnitude of change was not large enough to meet CSC criteria. CDI scores over that time did not change. At the post-BT assessment, P03’s CDRS-R and CDI scores decreased to 27 and 8, respectively. The improvement in scores suggests depressive symptoms decreased in response to BT; however, visual analysis of CDI-S scores indicates otherwise. Figure 9 displays CDI-s scores across time. At first glance, BT seems to have produced a dramatic level change, but nearly all of this change occurs by the first sessions of BT, when no active treatment components have yet been initiated. This, combined with the improvement of CDRS-R scores at post-NDT, indicates the majority of clinical change occurred prior to and independent of BT.

At follow-up, all measures of depressive symptoms for P03 were higher than at any previous assessment. P03’s mother indicated she had failed to continue recommended strategies (e.g., Special Time), citing the demand and stress of a new job. Anecdotally, she associated P03’s deteriorated behavior with cessation of the prescribed activities. So, while the data indicate BT was not responsible for initial improvements, it is possible a lack of reinforcement for positive behavior contributed to relapse.

Mechanisms Measures. As the evidence suggests P03’s symptoms improved prior to BT, the targeted mechanisms likely did not serve as mediators; however, it is still of interest to determine if BT had the desired effect upon those mechanisms. Table 8 summarizes P03’s mother’s responses to the Daily Questionnaire. She responded on 39 occasions in BL+NDT and 40 occasions in BT.
Child’s positive behavior. During BL+NDT, P03’s mother’s mean rating of his positive behavior was 3.10 ($SD = 0.45$). In BT, the mean rating increased marginally to 3.18 ($SD = 0.59$), with the two weeks following introduction of Positive Self averaging 3.33 ($SD = 0.50$). The NAP method produced an ES of 52.3% nonoverlapping data point pairs. So, while BT may have initially slightly increased P03’s positive behavior, change did not maintain.

Parental praise. During BL+NDT, P03’s mother indicated using non-contingent praise on 39 of 39 occasions (100%), and this rate continued through BT (40 of 40). Contingent praise was reported on 34 of 39 occasions (87.18%) during BL+NDT and 38 of 40 occasions (95%) during BT. In the two weeks following introduction of contingent praise, 9 of 9 reports (100%) were positive. So while any increase in non-contingent praise is unapparent, contingent praise may have increased.

Parent-child interactions. During BL+NDT, P03’s mother answered in the affirmative to the question, “Did you spend 15 min of quality time with your child today?” on 30 of 39 occasions (76.9%). During BT, a marginal increase to 33 of 40 occasions (82.5%) was seen. In the two weeks after introduction of Special Time, 9 of 10 reports (90.0%) were positive. P03’s mother’s ratings of interactions with P03 averaged 3.06 ($SD = 0.44$) during BL+NDT and 3.45 ($SD = 0.71$) in BT. Ratings increased from 3.18 ($SD = 0.50$) pre-skill to 3.45 ($SD = 0.83$) post-skill. In the two weeks following introduction of BT, that rating averaged 3.55 ($SD = 0.88$). The NAP method produced an ES of 64.5% nonoverlapping pairs between BL+NDT and BT, and 57.4% pre-to post-skill.

Figure 10 shows the percentage of positive intervals during PCAs for P03 and his mother across the course of treatment. In the two PCAs prior to BT, P03 averaged 25% positive intervals, while his mother averaged 35%. During BT, average percentage of positive intervals raised to 51.7% and 60% for P03 and his mother, respectively. At follow-up, those gains maintained.
In combination, the PCA and Daily Questionnaire data suggest BT may have increased quality interactions between P03 and his mother, and that his mother experienced these interactions as more pleasant, but effects were likely small.

Child activation. P03’s mother’s mean rating of his activity level was 3.26 (SD = 0.55) during BL+NDT and 3.35 (SD = 0.66) during BT. Pre-skill ratings averaged 3.31 (SD = 0.56) and 3.30 (SD = 0.73) post-skill. The mean rating was 3.71 (SD = 0.76) in the two weeks following introduction of Activity Scheduling. The NAP method produced an ES of 52.08% nonoverlapping pairs between BL+NDT and BT, and 48.1% between pre- and post-skill. During BL+NDT, mean MEROS score was 15.80 (SD = 2.59), which increased to 16.71 (SD = 1.89) during BT, and averaged 18.0 (SD = 1.00) in the two weeks following Activity Scheduling. Analysis of MEROS scores using the NAP method produced an ES of 60% nonoverlapping data pairs. These data indicate no meaningful change in child activation occurred.

Parent activation. P03’s mother reported engaging in pleasant or meaningful activities on 29 of 39 occasions (74.36%) during BL+NDT and 30 of 40 occasions (75.0%) during BT. In the two weeks following Activity Scheduling, she reported affirmatively on 6 of 7 occasions (85.71%). During BL+NDT, her mean rating of activities was 3.38 (SD = 0.49), which increased to 3.60 (SD = 0.56) during BT. An increase was also seen from pre- (M = 3.43, SD = 0.50) to post-skill (M = 3.65, SD = 0.61). In the two week immediately following Activity Scheduling the mean rating was 4.0 (SD = 0.63). Using the NAP method, an ES of 60.0% nonoverlapping pairs between BL+NDT and BT was obtained. Between pre-skill and post-skill, 59.2% of data point pairs were nonoverlapping. BT did not increase the frequency of P03’s mother’s activity, nor did it significantly affect the enjoyment she derived from it.

Problem solving. During BL+NDT, P03’s mother reported the occurrence of a problem on 17 of 39 occasions (43.59%). In BT, a problem was reported on 17 of 40 occasions (42.50%).
P03’s mother’s rating of her preparedness to deal with those problems averaged 2.94 (SD = 0.42) during BL+NDT and 3.00 (SD = 0.50) during BT. Prior to Problem Solving, ratings averaged 2.93 (SD = 0.45). From the introduction of Problem Solving to the end of treatment, a problem was reported on 4 occasions. The mean rating for preparedness on these occasions was 3.25 (SD = 0.50). An ES of 52.6% nonoverlapping pairs between BL+NDT and BT. From pre-skill to post-skill, the ES was 64.2%. The rate of problems did not differ from BL+NDT to BT. Preparedness to deal with problems may have increased after Problem Solving, but the sample is too small to draw strong conclusions.

**Timing of mechanism change and relation to symptom change.** As the majority of clinical change occurred prior to BT, there was no opportunity for the targeted mechanisms to serve as mediators. Nonetheless, graphical data of mechanism variables and CDI-S scores was examined to screen for any noticeable change patterns. Figure 11 displays P03’s mother’s ratings of parent-child interactions concurrent with CDI-S scores over time. During BL+NDT, improvements in CDI-S scores are accompanied by higher ratings of parent child interactions. This inverse relationship, while not total, seems to continue into BT, where ratings are highest and CDI-S scores stabilize at their lowest level. While no directionality of the relationship between parent-child interactions and CDI-S scores can be inferred, the time course of data is supportive of the interconnectedness of parent-child relations and depression.

**Participant 04.**

**Description.** P04 was a 10 year-old Euro-American male recruited in the fall of his 5th grade school year. He resided primarily with his mother, who was on disability and reported serious chronic health issues. She had previously received individual treatment for depression. P04 spent summers and every other weekend in his father’s household, roughly 75 miles away. At initial assessment, P04 expressed dissatisfaction with his living arrangements, preferring to
stay in one location year round. P04 reported having very few friends and being generally
disliked by other children. He indicated a predominant sense of sadness and dissatisfaction.
P04’s mother’s primary concerns at initial assessment were his low mood, behavioral
disruptions at school, and disagreement of parenting practices with his father. P04’s father did
not participate in the study, but he was occasionally updated by the therapist as to P04’s
progress and kept abreast of the content of treatment.

**Delivery and receipt of treatment.**

**Attendance.** After his pretreatment assessment, P04 attended three NDT sessions in the
course of three weeks. Having not responded post-NDT, he and his mother completed all BT
sessions over the course of 13 weeks. P04’s mother’s commitment to attendance was generally
poor. On several occasions she failed to attend scheduled sessions. In other instances she
cancelled scheduled sessions, citing flaring health issues.

**Therapist ratings.** Therapist ratings indicate the NDT and BT protocols were adhered to,
with scores of 6.0 (SD = 0.0) and 6.0 (SD = 0.0), respectively. Competency ratings of NDT
averaged 6.0 (SD = 0.0) and averaged 5.92 (SD = 0.11 during BT). Both P04 and his mother were
rated highly receptive to treatment, with and overall score of 5.85 (SD = 0.30), 5.93 (SD = 0.10)
for BT-C sessions, 5.88 (SD = 0.20) for BT-P sessions, and 6.0 (SD = 0.0) for BT-J sessions.

**Behavioral artifacts.** In the 11 weeks after introduction of Special Time, P04 and his
mother produced 14 physical products of engaging in treatment. This indicates that, while
attendance was sporadic, P04 and his mother seemed to comply with treatment
recommendations outside of session.

**Clinical improvement.** P04’s reported severe symptoms at pretreatment, with a CDRS-R
score of 77 and CDI score of 30. Post-NDT, P04’s CDRS-R score improved significantly to 54, but
was still well above the clinical cutoff. His CDI score decreased marginally to 26. When assessed
post-BT, P04’s CDRS-R score dropped to 37, meeting criteria for CSC. That change was replicated on the CDI, which decreased to 11. Those improvements were maintained at follow-up, where P04’s CDRS-R and CDI score were 40 and 13 respectively. Comparing CDI-S scores across phases, the NAP method yields an ES of 93.3%, suggesting a strong improvement in symptoms during BT.

**Mechanism measures.**

*Child’s positive behavior.* Table 10 summarizes the Daily Questionnaire ratings reported by P04’s mother. Her ratings of P04’s positive behavior increased from BL+NDT ($M = 3.40, SD = 0.83$) to BT ($M = 4.31, SD = 0.66$), with the first two weeks post skill averaging 4.36 (0.66). The NAP method resulted in an ES of 78.8% nonoverlapping data point pairs. These data indicate an increase in positive behavior of moderate strength.

*Parental praise.* P04’s mother reported using contingent and non-contingent praise on 100% of occasions in BL+NDT and BT. As such, there was no opportunity to evaluate any increase in the frequency of parental praise.

*Parent-child interactions.* P04’s mother reported spending quality time with her son on 100% of occasions in BL+NDT and BT, so no increase in interactions was apparent. P04’s mother’s ratings of the quality of that time increased from 3.47 ($SD = 0.83$) in BL+NDT to 4.31 ($SD = 0.49$) in BT. A similar increase was seem from pre-skill ($M = 3.81, SD = 0.80$) to post-skill ($M = 4.31, SD = 0.50$). In the two weeks immediately post-skill, ratings averaged 4.31 ($SD = 0.50$). The NAP method produced an ES of 72.5% nonoverlapping data point pairs between BL+NDT and BT, and 63.9% between pre and post-skill.

Figure 12 shows the percentage of positive intervals during PCAs for P04 and his mother across the course of treatment. During the two PCAs prior to BT, P04 averaged 37.5% positive intervals, while his mother averaged 15.0%. During BT, the average percentage of positive
intervals raised to 51.0% and 60.0% for P04 and his mother, respectively. As both the Daily Questionnaire and PCA data are indicative of change, there is strong evidence that BT resulted in improvements in parent-child interactions.

*Child activation.* P04’s mother’s ratings of his activity level increased from BL+NDT \((M = 3.53, SD = 0.64)\) to BT \((M = 4.33, SD = 0.63)\), and from pre-skill \((M = 3.94, SD = 0.80)\) to post-skill \((M = 4.37, SD = 0.56)\). In the two weeks immediately post-skill introduction, ratings averaged 3.83 \((SD = 0.39)\). The NAP method produced an ES of 79.8% nonoverlapping data pairs between BL+NDT and BT and 64.5% between pre-skill and post-skill. MEROS scores averaged 9.25 \((SD = 2.22)\) during BL+NDT and 16.11 \((SD = 1.36)\) during BT. The NAP-generated ES for MEROS scores between BL+NDT and BT was 100% nonoverlapping data point pairs. These data indicate a moderate to strong change in child activity from BL+NDT to BT, though change may have begun prior to Activity Scheduling.

*Parent activation.* P04’s mother’s ratings of her own activation increased from BL+NDT \((M = 3.87, SD = 0.74)\) to BT \((M = 4.31, SD = 0.52)\), and from pre-skill \((M = 3.97, SD = 0.62)\) to post-skill \((M = 4.40, SD = 0.50)\). In the two weeks immediately following Activity Scheduling, ratings averaged 4.00 \((SD = 0.0)\). The NAP method produced an ES of 66.7% nonoverlapping data pairs between BL+NDT and BT and 67.6% between pre-skill and post-skill.

*Problem solving.* P04’s mother reported experiencing a problem 8 of 15 responses (53.3%) during BL+NDT and 13 of 72 responses (18.1%) during BT. Her ratings of preparedness to deal with those problems increased from BL+NDT \((M = 3.25, SD = 0.46)\) to BT \((M = 3.77, SD = 0.83)\), and from pre-skill \((M = 3.33, SD = 0.49)\) to post-skill \((M = 5.00, SD = 0.00)\). In the two weeks immediately following Problem Solving, ratings averaged 5.00 \((SD = 0.0)\). The NAP method produced an ES of 69.2% nonoverlapping data pairs between BL+NDT and BT and 100% between pre-skill and post-skill.
**Timing of mechanism change and relation to symptom change.** The data for targeted mechanisms suggest that child positivity, parent-child interactions, child activation, parent activation, and problem solving all changed in the intended direction during BT. Figure 13 displays parent rating data for each of these mechanisms plotted alongside CDI-S scores throughout treatment. For the rating data paths, open data points begin at the point in treatment the specific mechanism was targeted. The figure displays a gradual improvement in CDI-S scores during BT after a generally stable pattern during BL+NDT. The lowest CDI-S scores were obtained by Day 120, and stabilize thereafter.

The first panel of Figure 13 displays P04’s mother’s ratings of his positive behavior with CDI-S scores. Targeted in the first BT session, an immediate increase in child positivity is apparent. After some variability, this rating stabilizes at a level higher than baseline. It is worthwhile to note that during the period positivity ratings are at their lowest in BT a small increase on the CDI-S occurred. When the ratings increased and stabilized, CDI-S scores resumed improvement. The change in child positivity occurred when predicted, and proceeded the majority of clinical change. Thus, increases in positive child behavior remains a viable mediator of outcome.

The second panel of Figure 13 displays P04’s mother’s ratings of parent-child interactions with CDI-S scores. Again, the phase change to BT results in an immediate and stable change in the ratings. The improvement in parent-child interaction ratings occurs prior to enactment of Special Time; however, given the content of prior sessions, it is not unreasonable to expect interaction might improve within the first week of BT. As the improvement precedes a good deal of clinical change, improving parent-child interactions is a viable mediator of outcome for P04.
The third panel of Figure 13 displays P04’s mother’s ratings of his activity level and CDI-S scores. A time course of change similar to the previous ratings is seen: Immediate increases after the phase change and stabilization at the highest level in the second half of BT. This pattern is repeated in the fourth panel, which displays P04’s mother’s ratings of her own activities. Again, the improvements begin before the predicted time, indicating possible generalization from the early BT skills or some other general factor that influences the ratings.

Unlike the previous mechanisms, the fifth panel of Figure 13 shows that P04’s mother’s ratings of her preparedness to cope with problems did not differ significantly from baseline until Problem Solving was introduced. This may indicate that problem solving was a skill separate from the others that tended to co-vary. Although the change in coping with problems was strong and time-specific, it occurred after the majority of clinical change, and thus cannot be considered as a mediator.

**Participant 05.**

**Description.** P05 was a 10-year old, Euro-American male recruited in the fall of his 4th grade school year. He lived with his married parents, along with 7 and 18 year-old brothers. P05’s mother provided data and participated in treatment. At the time of initial assessment, P05’s mother’s was primarily concerned with his low mood, negative interactions with his younger brother, and lack of peer relationships. Additionally, P05 reported very frequent sleep difficulties and significant under-eating.

**Delivery and receipt of treatment.**

**Attendance.** P05 attended three NDT sessions over the course of four weeks. Not having met CSC criteria post-NDT, P05 and his mother attended six sessions of BT each, over the course of six weeks. After the post-BT assessment, continued treatment was recommended (explained...
in detail below). Two additional sessions were scheduled, over four weeks. Attendance at these sessions was perfect.

**Therapist ratings.** Therapist ratings indicate that the NDT and BT protocols were adhered to with fidelity and delivered competently. Adherence ratings for NDT averaged 6.0 ($SD = 0.0$), whereas BT adherence ratings averaged 5.79 ($SD = 0.21$). Therapist competency ratings averaged 6.0 ($SD = 0.0$) and 5.96 ($SD = 0.11$) for NDT and BT, respectively. P05 and his mother were rated highly receptive to treatment. The overall average BT receptiveness rating was 5.82 ($SD = 0.28$). Average receptiveness ratings were 6.0 ($SD = 0$) for BT-C sessions, 5.89 ($SD = 0.19$) for BT-P sessions, and 5.58 ($SD = 0.38$) for BT-J sessions.

**Behavioral artifacts.** In 11 weeks of BT and continued treatment, P05 and his mother produced 13 behavioral artifacts. Most of those artifacts were concentrated in the first 4 weeks of BT and continued treatment. Overall, the evidence suggests excellent engagement in treatment.

**Clinical improvement.** Therapist ratings of depressive symptoms were stable from initial assessment (CDRS-R = 51) to post-NDT (CDRS-R = 49); However CDI symptoms worsened from 13 at initial assessment to 23 post-NDT. At the post-BT assessment both CDI (15) and CDRS-R (42) scores decreased from previous levels, but CSC criteria were not met. At the final assessment seven weeks after the post-BT assessment, a period which included two sessions of continued treatment, the CDRS-R score (43) remained stable, but the CDI decreased to 10. Using the NAP method to measure the change in CDI-S scores from post-NDT to follow-up yields an ES of 83.0% nonoverlapping pairs.

**Mechanism measures.**

**Child’s positive behavior.** A summary of P05’s mother’s ratings on the Daily Questionnaire can be found in Table 10. P05’s mother’s ratings of her son’s displayed happiness
averaged 2.91 (SD = 0.54) during NDT and 3.69 (SD = 0.79) during BT. For the two weeks immediately following introduction of Presenting a Positive Self, the ratings averaged 3.57 (SD = 0.79). The NAP method yields an ES of 78.5% nonoverlapping pairs between the NDT and BT phases. Given these results, it is likely BT was successful in increasing P05’s positive behavior.

**Parental praise.** During BL+NDT, P05’s mother reported the used of non-contingent praise on 7 of 11 (63.6%) of occasions. During BT, the rate increased to 35 of 35 (100%). The use of contingent praise was reported in 8 of 11 (72.7%) instances during BL+NDT, and increased to 34 of 35 (97.1%) positive reports during BT. These data support the conclusion that BT was successful in increasing parental praise.

**Parent-child interactions.** In response to the question “Did you spend 15 min of quality time with your child today?” P05’s mother answered “Yes” on 9 of 11 (82%) occasions that she responded during NDT and 30 of 35 (86%) occasions during BT. P05’s mother’s rating of that quality time averaged 2.89 (SD = 0.60) during NDT and 3.81 (SD = 0.75) during BT. Ratings increased from pre-skill (M = 2.80, SD = 0.63) to post-skill (M = 3.87, SD = 0.68). Ratings averaged 4.00 (SD = 0.63) in the two weeks following introduction of Special Time. Using the NAP method resulted in 82.3% of no-overlapping data point pairs between BL+NDT and BT and 86.0% from pre-skill to post-skill.

Figure 14 displays the percentage of PCA intervals coded positive and negative for P05 and his mother over the course of treatment. In the top panel, it is evident that positive intervals increased from very low levels in BL+NDT at precisely the expected time (concurrent with the introduction of Positive Self and Special Time); however, much of the gain was lost Post-BT. As is discussed below, the Post-BT assessment took place after a period of poor treatment engagement, perhaps explaining the decrease in positive interactions. There was some rebound in positivity at follow-up, but not to previous levels. The bottom panel of Figure
14 displays the percentage of intervals coded negative. A pattern similar to that of the positive intervals (though inverted) is seen, though in this case there was no variation in the mother’s behavior. P05’s negative behavior decreased from BL+NDT to BT, but reaches its highest level at Post-BT.

Considering both the Daily Questionnaire and PCA data, it is likely parent-child interactions were improved during BT, but those gains were mitigated during a period from BT3 to Post-BT.

Child activation. P05’s mother’s ratings of his activation averaged 3.27 ($SD = 0.47$) during BL+NDT, 3.74 ($SD = 0.70$) during BT. Mean ratings increased from pre-skill ($M = 3.47$, $SD = 0.52$) to post-skill ($SD = 3.77$, $SD = 0.71$). Ratings averaged 4.17 ($SD = 0.41$) in the two weeks after Activity Scheduling was introduced. Comparing BL+NDT to BT produced an ES of 69.74% nonoverlapping pairs. From pre-skill to post-skill, the calculated ES was 62.7%. P05’s MEROS scores averaged 16.3 ($SD = 5.26$) during BL+NDT, and 18.6 ($SD = 2.07$) during BT. Of the potential pairs of data points between BL+NDT and BT, 67% were nonoverlapping. Scores during BT may have suffered from a ceiling effect, as P05 reported the maximum score 6 of 10 (60%) responses in that phase. These data suggest BT may have produced modest to moderate increases in child activation at the expected times.

Parent activation. During BL+NDT, P05’s mother reported engaging in pleasant or meaningful activity on 9 of 11 (81.8%) occasions. In BT, the rate was 29 of 35 (82.9%). Her average rating of how enjoyable the activities was 3.89 ($SD = 0.60$) in BL+NDT and 4.14 ($SD = 0.58$) in BT. Prior to Activity Scheduling, ratings averaged 4.07 ($SD = 0.62$), which did not change post-skill ($M = 4.08$, $SD = 0.58$). In the two weeks following introduction of activity scheduling, her mean rating was 4.17 ($SD = 0.75$). When all potential data point pairs between BL+NDT and BT, 60.34% are nonoverlapping. Between pre-skill and post-skill, 50.4% of data point pairs were
nonoverlapping. These results indicate BT did not increase the frequency or quality of parent
activation.

*Problem-solving.* P05’s mother was reluctant to report problems, only doing so in three
instances during BL+NDT and twice in BT. No report of a problem occurred after the
introduction of Problem Solving, so there was no opportunity to assess increased coping ability.

*Timing of mechanism change and relation to symptom change.* For P05 there is
evidence positive behavior, parental praise, quality of parent-child interactions, and child
activation increased during BT at reasonably expected points in time. Figure 15 shows P05’s
mother’s rating of child happiness, quality of interactions, and child activation graphed
alongside depressive symptoms as measured by the CDI-S. During BL+NDT, P05’s CDI-S scores
were variable, averaging 6.67 (*SD* = 3.08). After an initial score of 4 in BT, CDI-S scores became
more orderly and settled at their lowest levels. In the first panel, CDI-S scores are plotted with
ratings of child positivity. Open data points begin at the point which change on the mediator
should occur, in this case, after BT1-C. From the first to second data point in BT, the rating rises
and stabilizes for several weeks at a level higher than previously seen. This change precedes and
is accompanied by the lowest and most stable CDI-S scores.

A similar pattern emerges in the second panel of Figure 15 where ratings of parent-child
interactions increase at the expected time, and depression scores bottom out correspondingly.
Temporal precedence is not apparent in this instance, but the inverse relationship between the
ratings and CDI-S scores is clear.

The third panel of Figure 15 displays ratings of P05’s activity level with CDI-S scores.
Again, the mechanism increases at the expected time (after BT2-C), and maintains that level for
about two weeks. In this case, the change on the mechanism occurs after the majority of clinical
change, so a mediating relationship is not likely; however, increased activation could have contributed to maintenance of clinical change.

After the initial lowering and stabilization of CDI-S scores in BT, a rebound is seen starting at Day 89 and peaking at Day 104. It is apparent in all three panels of Figure 15, that the increase on CDI-S scores is accompanied by a decrease on each of the mechanism variables. Temporal precedence is not immediately apparent; however, some anecdotal evidence may contribute better understanding. The increase in CDI-S scores occurred during P05’s winter break from school, a period after which P05’s mother reported extreme business, deviation from routine, and low compliance with treatment. Her verbal report is in agreement with Figure 16, which in the first panel displays P05’s mother’s report of having 15 min of quality time with P05. P05’s mother’s only reports of not having quality time after Special Time was introduced occur during the period the P05’s CDI-s scores elevated. A less pronounced but replicated pattern is seen in the second panel of Figure 16, which shows P05’s mother’s report of if she used contingent praise. The third panel shows there was no reported change in non-contingent praise.

The data shown in Figures 11 and 12 suggest that P05 and his mother ceased engagement in treatment, which lead to an increase in symptoms. In effect, an unintended reversal of the IV took place. This is particularly interesting, given that traditional logic suggests symptoms would be likely to improve during a holiday break, rather than worsen. When P05’s post-BT assessment (Day 104) occurred after his holiday break, the data lead the therapist to recommend continued treatment, and reemphasize Special Time. As evidenced in Figure 15, this reemphasis was immediately followed by an increase on each of the mechanism variables, and a corresponding decrease on the CDI-S, providing further evidence of a mediating relationship.


**Participant 11.**

*Description.* P11 was a 10 year-old Euro-American female recruited in the spring of her 5th grade school year. She lived with her two mothers and eight year-old sister. She also had a 21 year-old sister who was away at college but visited on occasion. P11’s biological mother participated in the study. Physical disability had forced her to retire early from a career as a nurse, and she indicated a history of depressive episodes. P11’s mother’s primary concerns for her daughter were low mood, poor self-image, and frequent negative interactions with her younger sister. P11 reported a non-specific but pervasive sense of sadness and a preoccupation with her physical appearance.

*Delivery and receipt of treatment.*

*Attendance.* After her initial assessment, P11 attended three NDT sessions over the course of three weeks. Once BT sessions commenced, P11 and her mother attended six sessions each over the course of nine weeks. Any delays in treatment were due to P11’s mother’s physical condition, which sometimes prevented her from leaving home. Overall, commitment to attendance was good.

*Therapist ratings.* Therapist ratings indicate the NDT and BT protocols were adhered to, with scores of 6.0 (SD = 0.0) and 5.62 (SD = 0.27), respectively. Competency ratings of NDT averaged 5.88 (SD = 0.09) and averaged 5.82 (SD = 0.22) for BT. Overall, P11 and her mother were moderately receptive to treatment, with a mean rating of 5.72 (SD = 0.33). BT-C sessions were slightly lower, averaging 5.22 (SD = 0.47). Whereas BT-P sessions (M = 5.82, SD = 0.12), and BT-J sessions 5.95 (SD = 0.8) were excellent.

*Clinical improvement.* CDRS-R scores for P11 increased from pretreatment (49) to post-NDT (61). A slight increase on the CDI from 21 to 24 was seen as well. From post-NDT to post-BT, P11’s CDRS-R decreased to 36, meeting CDC criteria. A decrease on the CDI to 17 was also
obtained, though still elevated. While CDRS-R scores and CDI scores were in agreement that improvement occurred during BT, CDI-S scores did not capture this change. BL+NDT CDI-S scores ($M = 9.00, SD = 1.83$) were not notably different than those in BT ($M = 10.11, SD = 1.05$), and only 31.9% of potential data point pairs between the two phases were nonoverlapping. Review of P11’s CDI and CDI-S responses over the course of treatment indicates that she consistently endorsed some items that were on the CDI-S, whereas as other items (i.e., items on the CDI but not the CDI-S) were not endorsed at post-BT. Because the CDRS-R and CDI are more thorough instruments than the CDI-S, it is sensible to conclude some improvement occurred during BT; however, exactly when that change occurred cannot be identified.

**Mechanisms measures.**

*Child's positive behavior.* Table 11 summarizes the Daily Questionnaire ratings reported by P11’s mother. She responded the questionnaire 7 times during BL+NDT and 39 times during BT. Her ratings of P11’s positive behavior increased from BL+NDT ($M = 3.14, SD = 1.07$) to BT ($M = 3.92, SD = 0.66$), with the first two weeks post skill averaging 4.11 ($SD = 0.78$). The NAP method resulted in an ES of 72.5% nonoverlapping data point pairs. These data indicate an increase in positive behavior of moderate strength, commensurate with the beginning of BT.

*Parental praise.* P11’s mother reported using contingent praise on 100% of responses in both BL+NDT and BT. The use of non-contingent praise was reported on 7 of 7 occasions (100%) during BL+NDT and 37 of 38 instances (97.4%) during BT. Thus, no increase in the frequency of parental praise was identifiable.

*Parent-child interactions.* P11’s mother reported spending quality time with her daughter on 7 of 7 occasions (100%) in BL+NDT and 35 of 39 occasions (89.7%) during BT, so an increase in the frequency of interactions was not found. P11’s mother’s ratings of the quality of that time increased from 3.71 ($SD = 0.76$) in BL+NDT to 4.09 ($SD = 0.56$) in BT. A similar increase
was seem from pre-skill \((M = 3.79, SD = 0.70)\) to post-skill \((M = 4.14, SD = 0.52)\). In the two weeks immediately post-skill, ratings averaged 4.43 \((SD = 0.53)\). The NAP method produced an ES of 65.1% nonoverlapping data point pairs between BL+NDT and BT, and 64.5% between pre and post-skill.

Figure 17 shows the percentage of positive intervals during PCAs for P11 and her mother across the course of treatment. At pretreatment, P11 and her mother displayed relatively high rates of positive behavior, though they dropped precipitously at post-NDT. In BT, the percentage of positive intervals was consistently similar or slightly higher than at pretreatment. During BT, the average percentage of positive intervals raised to 51.0% and 60.0% for P04 and his mother, respectively. In combination, the Daily Questionnaire and PCA data indicated mild to moderate change in parent-child interactions.

**Child activation.** P11’s mother’s ratings of her daughter’s activity level increased from BL+NDT \((M = 3.43, SD = 1.51)\) to BT \((M = 4.00, SD = 0.73)\), and from pre-skill \((M = 3.64, SD = 1.15)\) to post-skill \((M = 3.75, SD = 0.88)\). In the two weeks immediately post-skill introduction, ratings averaged 3.75 \((SD = 0.88)\). The NAP method produced an ES of 59.0% nonoverlapping data pairs between BL+NDT and BT and 58.1% between pre-skill and post-skill. MEROS scores averaged 12.00 \((SD = 3.46)\) during BL+NDT and 11.00 \((SD = 3.04)\) during BT. The NAP-generated ES for MEROS scores between BL+NDT and BT was 55.6% nonoverlapping data point pairs. These data indicate do not support the conclusion that BT increased child activation as desired.

**Parent activation.** P11’s mother’s ratings of her own activation decreased from BL+NDT \((M = 4.00, SD = 1.00)\) to BT \((M = 3.65, SD = 0.75)\), and from pre-skill \((M = 3.78, SD = 0.62)\) to post-skill \((M = 3.60, SD = 0.68)\). In the two weeks immediately following Activity Scheduling, ratings averaged 4.00 \((SD = 0.89)\). The NAP method produced an ES of 39.2% nonoverlapping data pairs
between BL+NDT and BT and 41.4% between pre-skill and post-skill. These data indicate parent activation did not improve during BT.

Problem solving. P11’s mother reported experiencing a problem 4 of 7 responses (57.1%) during BL+NDT and 22 of 39 responses (56.4%) during BT. Her ratings of preparedness to deal with those problems decreased from BL+NDT (\(M = 4.75, SD = 0.50\)) to BT (\(M = 3.73, SD = 0.63\)), and from pre-skill (\(M = 4.00, SD = 0.82\)) to post-skill (\(M = 3.70, SD = 0.48\)). In the two weeks immediately following Problem Solving, ratings averaged 3.40 (\(SD = 0.55\)). The NAP method produced an ES of 12.5% nonoverlapping data pairs between BL+NDT and BT and 39.7% between pre-skill and post-skill.

Timing of mechanism change and relation to symptom change. The data for targeted mechanisms suggest increases in positive child behavior and improvement in parent-child interactions are the best candidates for mediators of outcome. Figure 18 displays the parent rating data for both of these mechanisms plotted alongside CDI-S scores across time. Both panels show increases on the targeted mechanisms at the predicted points in treatment; however, as described above, CDI-S scores do not vary significantly across time. Thus, it is no possible to identify when clinical improvement occurred, or to see the relation of mechanism change to symptom change. So, while increased positive behavior and improved parent-child interactions cannot be eliminated as potential mediators, neither can they be confirmed as such.

Participant 12.

Description. P12 was a 10 year-old Euro-American male recruited in the spring of his 5th grade school year. At the time of initial assessment, P12 lived with his biological father and his girlfriend. Previously, P12 had lived with his mother, maternal grandparents, and multiple foster homes. Both of P12’s biological parents had a history of involvement with the legal system and
P12 had been monitored by Child Protective Services (CPS) for several years. P12’s father was the primary caregiver who participated in the study, though his involvement was minimal. At the time of initial assessment, he was unemployed and reported severe symptoms of depression. P12 presented with extremely low mood, helplessness, a sense of guilt over his parents’ separation, frequent thoughts of self-injury, and faltering academic performance.

In the weeks prior to post-NDT assessment, P12 accused his father and his girlfriend of physical and emotional abuse, notified CPS of his own volition, and attempted to run away from home. This resulted in a temporary placement at his paternal grandparents, and then a permanent placement with his paternal aunt. The post-NDT assessment occurred immediately before this move, so it was decided to extend BL+NDT in order to control for effects of the new placement. P12’s father declined participation in BT, but gave permission for P12 to continue meeting with the therapist. He continued to provide assessment information, but did so over the phone or through email. P12’s aunt declined participation in the study, as did his grandparents who frequently cared for him. As such, P12 received only the child-focused portion of BT

**Delivery and receipt of treatment.**

**Attendance.** P12 attended five NDT sessions plus the post-NDT assessment over the course of seven weeks. When BT commenced, he attended three BT sessions over the course of three weeks. His attendance can be considered very good.

**Therapist ratings.** Therapy protocols were adhered to with fidelity. Adherence for NDT averaged 6.0 (SD= 0.0) and 5.93 (SD = 0.12) for BT. Competence ratings were high, with NDT averaging 6.0 (SD = 0.0) and BT averaging 5.80 (SD = 0.35). P12 showed good receptiveness in BT, with a mean rating of 5.64 (SD = 0.48).
**Clinical improvement.** P12’s CDRS-R score while high at pretreatment (68), increased at post-NDT (79). Given the turmoil in his life, this is not entirely surprising; however, his CDI score actually decreased slightly from 40 to 37 over that time. At post-BT, P12’s CDRS-R score had improved to 56, but remained well above clinical levels. His CDI score mirrored this change, decreasing to 28. During BL+NDT, P12’s CDI-S scores averaged 14.14 (SD = 1.35), which decreased to 3.50 (SD = 2.38) during BT. At first glance, these data point to BT having a strong effect on depressive symptoms; however, visual analysis of CDI-S scores paints a different picture. Figure 19 displays CDI-S scores for P12 over across time. Again, at first glance, it appears that BT was very effective. However, the BT1 score, which represents the bulk of improvement, was taken prior to any active treatment components being enacted. Rather than attributing this change to the content of BT, a sensible interpretation is that P12’s move to his aunt’s home resulted in a stark improvement on CDI-S scores, but the effects were not immediate. An alternate explanation is that the extended NDT sessions were effective in decreasing symptoms.

**Mechanisms measures.** Although P12’s father did not participate in BT, he continued to respond to the Daily Questionnaire. There were no restriction placed on P12’s father’s visitation rights, and he typically saw P12 two or three times per week for a few hours at a time. He usually responded to the Daily Questionnaire after these visits. Table 12 summarizes his ratings. In all, he responded 35 times during BL+NDT and 8 times during BT.

**Child’s positive behavior.** P12’s father’s ratings of his son’s positive behavior increased from 2.51 (SD = 0.95) in BL+NDT to 3.57 (SD = 0.53) in BT. In the two weeks following introduction of Positive Self, ratings averaged 3.80 (SD = 0.45). Comparison of the two phases using the NAP method resulted in an ES of 81.4% nonoverlapping data point pairs. While these data are as supportive of BT increasing positivity as can be hoped, given the great instability in P12’s life, it is difficult to confidently attribute the change to therapy.
**Parental praise.** P12’s father reported using contingent praise on 13 of 35 occasions (37.1%) during BL+NDT and 2 of 7 occasions (28.6%) of occasions during BT. He reported using non-contingent praise on 18 of 35 occasions (51.4%) during BL+NDT and on 5 of 7 occasions (71.4%) during BT. P12’s father did not receive any directive to increase praise or psychoeducation about the use of reinforcement, so any change was not due to treatment.

**Parent-child interactions.** P12’s father reported spending quality time with P12 on 15 of 31 occasions (48.4%) during BL+NDT and 8 of 8 occasions (100%) during BT. This is intuitive, as all parent-child interactions in BT were the results of P12’s father expressly visiting P12. Ratings of parent-child interactions increased from 3.07 ($SD = 0.96$) in BL+NDT to 3.63 ($SD = 0.52$) during BT, producing a NAP generated ES of 43.6% nonoverlapping pairs. No significant improvement in parent-child interactions was captured.

**Child activation.** P12’s father’s ratings of his son’s activity level increased from BL+NDT ($M = 2.20, SD = 1.02$) to BT ($M = 3.14, SD = 0.69$), and from pre-skill ($M = 2.26, SD = 1.00$) to post-skill ($M = 3.25, SD = 0.96$). The NAP method produced an ES of 79.8% nonoverlapping data pairs between BL+NDT and BT and 64.5% between pre-skill and post-skill. MEROS scores averaged 9.25 ($SD = 2.22$) during BL+NDT and 16.11 ($SD = 1.36$) during BT. The NAP-generated ES for MEROS scores between BL+NDT and BT was 100% nonoverlapping data point pairs. These data indicate a moderate to strong change in child activity from BL+NDT to BT, though change may have begun prior to Activity Scheduling.

**Parent activation.** During BL+NDT, P12’s father reported engaging in pleasant or meaningful activities on 14 of 35 occasions (40.0%). He responded in the affirmation on 4 of 8 occasions (50.0%) in BT. P12’s father rated satisfaction with his own activities and average of 3.43 ($SD = 0.51$) during BL+NDT and 3.50 ($SD = 0.58$) during BT. The NAP-produced ES was 53.6% nonoverlapping pairs. As expected, there were no notable changes in P12’s father’s activation.
Problem solving. After reporting problems on 20 of 35 occasions (57.1%) during BL+NDT, P12’s father did not report any problems during BT. This likely reflect his lack of contact with P12 rather than any meaningful decrease in problems. P12’s father’s average rating of his preparedness to deal with problems was 2.59 (SD = 1.00) during BL+NDT, but no ratings were available in BT.

Timing of mechanism change and relation to symptom change. The available data indicate that P12’s positive behavior and activity level changed in the desired direction during BT and deserve further inspection as potential mediators of change. Figure 18 displays P12’s father’s ratings of positivity and activation, as well as MEROS scores, all plotted with CDI-S scores over time. The first panel show that ratings of positivity increased when expected, but because the frequency of these ratings were relatively low, temporal precedence cannot be established. So, while ratings of positivity and CDI-S scores seem inversely related, there is no indication of causal direction.

The second panel of Figure 18 displays ratings of child activation and CDI-S scores over time. Interestingly, activation ratings improve prior to BT, and in fact directly after P12’s move to his aunt’s household. Further, the increase in activation clearly precedes improvement on the CDI-S. This finding is replicated in the third panel, which show MEROS scores improved at roughly the same time as activation ratings, again preceding clinical change. These data are indicative of a mediating relationship; however, changes on the driving mechanisms were likely not caused by treatment. Rather, the placement of P12 in his aunt’s household provided a more rewarding environment, which in turn led to symptom improvement.

Participant 14.

Description. P14 was a 12 year-old Euro-American male recruited in the spring of his 6th grade school year. He lived with his married parents, 10 year-old sister, and 18 year-old brother.
P14 had a history of apraxia of speech, and a previous diagnosis of Pervasive Developmental Disorder-Not Otherwise Specified. At the time of initial assessment, P14’s speech was age-typical, with minor impediments. He performed at grade level, and did not receive any special services in or out of school. He reported an extremely low mood accompanied by flat affect, and had frequent thoughts of suicide with some consideration of methods in prior weeks.

Both P14’s mother and father participated in the study. P14’s father was a truck driver, and was away from home at least four days a week. P14’s mother reported high levels of stress and depressive symptoms when her husband was away. Their primary concerns for P14 were his recent suicidal thinking, deteriorating academic performance, low activity level, extreme under eating, and a lack of social contact. Both parents attended all session until BT3-P, at which time P14’s mother ceased her participation in the study. In the previous week, her father was killed in a tragic farming accident. According P14’s father, she was immensely grieved and largely withdrew from the rest of the family. Because P14’s mother did not participate in the post-BT assessment, only P14’s father’s responses were included in group analyses; however, as P14’s father was frequently on the road, P14’s mother was the primary informant of Daily Questionnaire, for which no responses were received after BT2.

**Delivery and receipt of treatment.**

**Attendance.** After the pretreatment assessment, P14 attended three NDT sessions in three weeks. He and his father both attended 6 sessions of BT over the course of 6 weeks, with his mother attending the first 4 of those weeks of sessions. Overall, attendance was excellent.

**Therapist ratings.** Both the NDT ($M = 6.0, SD = 0.0$) and BT ($M = 5.93, SD = 0.13$) protocols were adhered to. Competency ratings were excellent for NDT ($M = 6.0, SD = 0.0$) and good for BT ($M = 5.64, SD = 0.83$). Overall ratings of receptiveness for the family were relatively
low, averaging 5.09 (SD = 1.21). Ratings for BT-C sessions averaged 5.40 (SD = 0.20). Parent session ratings averaged 5.02 (SD = 0.20), and BT-J sessions averaged 4.85 (SD = 0.28).

Behavioral artifacts. In the final five weeks of BT, P14 and his parents produced two behavioral artifacts, indicating low engagement in treatment.

Clinical improvement. P14’s CDRS-R score increased from 72 at pretreatment to 81 at post-NDT. His CDI was stable but high over this time, coreg 32 at pretreatment and 33 at post-NDT. After BT, P14’s CDRS-R score dropped considerably, but remained well into the clinical range at 59. The CDI was again relatively stable, scoring 30 at post-BT. Figure 21 shows CDI-S scores over time. No significant or lasting changes in scores are evident. The NAP method produced an ES of 35.0% nonoverlapping pairs between BL+NDT and BT. Little to no clinical change occurred for P14.

Mechanism measures.

Child’s positive behavior. Table 13 summarizes the Daily Questionnaire ratings reported by P14’s mother. She provided 11 responses during BL+NDT and 9 responses during BT. Ratings of P14’s positive behavior in BL+NDT (M = 3.36, SD = 0.50) and BT (M = 3.44, SD = 0.53) were similar, with the first two weeks post-skill averaging 3.40 (0.55). The NAP method resulted in an ES of 54.0% nonoverlapping data point pairs. No increase in positive behavior was apparent.

Parental praise. P14’s mother reported using contingent praise on 9 of 11 occasions (81.8%) in BL+NDT and 7 of 9 occasions (77.8%) during BT. Non-contingent praise was reported 100% of the time in both phases.

Parent-child interactions. P14’s mother reported spending quality time with her son on 7 of 11 occasions (63.6%) in BL+NDT and 6 of 9 occasions (66.7%) in BT, so no increase in interactions was apparent. P14’s mother’s ratings of the quality of that time increased from 3.57 (SD = 0.53) in BL+NDT to 3.83 (SD = 0.75) in BT. A similar increase was seen from pre-skill (M =
3.60, \( SD = 0.52 \) to post-skill \( (M = 4.00, \ SD = 1.00) \). In the two weeks immediately post-skill, ratings averaged 3.50 \( (SD = 0.71) \). The NAP method produced an ES of 59.5\% nonoverlapping data point pairs between BL+NDT and BT, and 63.3\% between pre and post-skill.

Figure 22 shows the percentage of positive intervals during PCAs for P14 and his parents across the course of treatment. It is evident in the figure that all three displayed more positive behavior in the BT phase than in BL+NDT. The effect was weakest for P14’s mother, but she also did not participate in the final tow PCAs, so her ultimate progress is unknown. Available data suggest that the treatment modestly improved parent-child interactions; however, as the frequency of those interactions did not change noticeably, the impact of those improvements may be negligible.

**Child activation.** P14’s mother’s ratings of his activity level increased slightly from BL+NDT \( (M = 2.45, \ SD = 0.52) \) to BT \( (M = 2.89, \ SD = 0.93) \), and from pre-skill \( (M = 2.56, \ SD = 0.70) \) to post-skill \( (M = 3.50, \ SD = 0.716) \). In the two weeks immediately post-skill introduction, ratings averaged 3.50 \( (SD = 0.71) \). The NAP method produced an ES of 62.6\% nonoverlapping data pairs between BL+NDT and BT and 83.3\% between pre-skill and post-skill. MEROS scores averaged 11.20 \( (SD = 2.59) \) during BL+NDT and 7.86 \( (SD = 2.19) \) during BT. The NAP-generated ES for MEROS scores between BL+NDT and BT was 51.4\% nonoverlapping data point pairs. The only data indicative of change are the pre-/post-skill ratings; however, only two Daily Questionnaire responses were received post-skill, so little confidence can be placed in those results.

**Parent activation.** P14’s mother’s ratings of her own activation were not different from BL+NDT \( (M = 3.60, \ SD = 0.55) \) to BT \( (M = 3.60, \ SD = 0.55) \), and decreased slightly from pre-skill \( (M = 3.63, \ SD = 0.52) \) to post-skill \( (M = 3.50, \ SD = 0.71) \). In the two weeks immediately following Activity Scheduling, ratings averaged 3.50 \( (SD = 0.71) \). The NAP method produced an ES of 50.0\% nonoverlapping data pairs between BL+NDT and BT and 43.8\% between pre-skill and post-skill.
**Problem solving.** P14’s mother reported experiencing a problem on 7 of 11 responses (63.6%) during BL+NDT and 6 of 9 responses (66.7%) during BT. Her ratings of preparedness to deal with those problems did not change markedly from BL+NDT ($M = 3.33, SD = 0.52$) to BT ($M = 3.43, SD = 0.53$). No responses were made post-skill. The NAP method produced an ES of 59.5% nonoverlapping data pairs between BL+NDT and BT.

**Timing of mechanism change and relation to symptom change.** There was no strong evidence that change occurred on any mechanisms in the desired fashion during BT. Coupled with little to no symptom change, this precludes any analysis of potential mediating relationships.

**DISCUSSION**

The study’s primary goal was to study therapeutic mechanisms of action at the individual level in the context of a behavioral treatment for child depression. A number of methodological manipulations were made in order to accomplish this. First, all participants received three weeks of NDT in response to evidence indicating a significant portion of depressed youths show early, significant responses regardless of therapy modality (Gaynor et al., 2003; Renaud et al., 1998). Second, targeted mechanisms of action were identified *a priori*, tied directly to treatment components, and assessed with great frequency in order to obtain a more nuanced picture of their time-course of change. Third, dependent measures were also taken frequently, allowing for examination of the temporal relationships between potential mediators and depressive symptoms. Finally, in addition to therapist ratings, the use of behavioral artifacts and in-session demonstrations of target behavior (PCAs) provided more rigorous evidence for treatment delivery, receipt, and engagement.

Measures of depressive symptoms suggested a moderately to severely depressed sample was recruited. That a majority of participants had at least one parent who reported a
history of depression is another indicator of severity. A majority of participants were male, a reversal of usual sample characteristics. The preponderance of male participants may have been partly due to the relatively young sample, as gender differences in prevalence do not become apparent until onset of adolescence (Piccinelli & Wilkinson, 2000). Another potential explanation is the use of school-based referrals. Males are more likely to have externalized symptoms (Keiley, Bates, Dodge, & Pettit, 2000), and as such may be more likely to come to the attention of school staff.

Given the severity of the sample, the results of treatment were robust when compared to the existing literature. Of the seven children experiencing BT, all improved. Four (P01, P03, P04, and P11) of those seven (57%) met stringent criteria for CSC. When responders to NDT are considered, eight of eleven (73%) of participants met criteria for CSC. While the sample was small, the results are comparable or superior to the most successful clinical trials for youth depression. In three cases (P01, P04, and P05), evidence convincingly suggested the influence of BT was mediated by hypothesized mechanisms. In two instances (P03 and P12), change appeared correlated with proposed mechanisms, but was likely not spurred by treatment. So, in five of seven (71%) participants who received BT, specified mechanisms appeared related to outcomes. P11 showed CSC on the CDRS-R, but the more frequent CDI-S was stable, preventing a refined temporal analysis of change. So, while mechanisms changed at predicted times, conservatively, a conclusion of mediation could not be made. Treatment was least successful for P14, whose family received the lowest treatment acceptance ratings of any participants, and failed to display any significant change on target mechanisms. Despite efforts to collect mechanism and dependent measures with unprecedented frequency, conclusions were often tentative. As a rule, more and varied types of data are preferable; however, the more information available, the more potential for complexity and disagreement. The difficulty of
establishing temporal precedence of mechanism change contributes to the ambiguity. Variability in baseline data often makes identifying the exact moment of mechanism change difficult, although when change appears to occur at the specified time, greater confidence is merited. Even when mechanism change is clear, the corresponding change in symptoms may not be evident. There are no established criteria for how soon symptom change might follow mechanism change, and delayed effects are possible. A further complication is the “bleeding” (i.e., generalization) of mechanisms into one another. In several instances, targeted increases of children’s positive behavior were mirrored by yet untargeted improved ratings of activation. It is unclear if increasing positive behavior led to higher activity levels, or if parents ratings lacked discrimination between the two. The interplay between mediators and dependent variables is likely complex and bidirectional. As such, establishing clear directional relationships is extremely challenging, if not unlikely.

As predicted by previous findings (Gaynor et al., 2003; Renaud et al., 1998), four (P02, P06, P08, P15) of eleven youths receiving treatment showed a CSC over the course of NDT. In two other cases, CSC occurred prior to significant portions of BT. Those changes were characteristically early, sudden, and long lasting. This finding replicates previous studies, and further justifies the use of non-directive “watchful waiting” periods as a first-response strategy for treating youth depression. Using this stepped care approach (Haaga, 2000), depressed youths likely to respond to non-specific treatments can benefit from services while invasiveness of treatment and consumption of resources is minimized. Kazdin (2008; 2010) has suggested brief, minimal, low-cost, “weak” treatments can play a vital role in providing health services. The reliability of non-specific responding also suggests that future clinical trials must take into account early, sudden responses when designing methodologies. Neglecting to do so muddles data and mollifies conclusions. Those youths who are resistant to non-specific factors are most
in need of study. The Treatment of SSRI-Resistant Depression in Adolescents (TORDIA; Brent et al., 2008) is an example of a large-scale, federally funded examination recognizing the importance studying treatment-resistant youth. Additionally, large-scale adoption of non-specific phases would potentially allow for identification of moderating client characteristics predictive of early improvements. Such information would contribute valuably to treatment planning and resource allocation. Further, the consistent performance of non-directive approaches begs the question of what drives the observed change. Hypothesized mechanisms of change appeared related to symptom improvement for only one of four Early Responders (P15), suggesting responses to non-specific therapies may be driven by different mechanisms than those hypothesized for more active treatment components. Notably, parent BDI scores decreased significantly for children who responded to NDT. Given the established link between child and parental depression (Beardslee et al., 1996; Birmaher et al., 1996; Weissman & Jensen, 2002), it may be that changes in family dynamics that were not captured in this study contributed to clinical improvement. Future investigations would do well to hypothesize and track potential mechanisms of action of early responding. In that way the “non-specific” might be specified. For some participants in this study, clinical change prior to implementation of BT was accompanied by change on the hypothesized mediators. This suggests variables driving change outside of treatment (or spurred by non-specific treatments) may often be the same as those targeted in therapy.

The study’s findings are important in several ways. First, they validate and advance the single-case approach of studying mediators described by Gaynor and Harris (2008). Second, several potential mechanisms of change (e.g., increased positive behavior, improved parent child interactions, increased activations) for future study were identified. Third, the results strengthen the growing evidence for parent involvement in treatment for youth depression.
Finally, the study indicates brief interventions targeting objective skill building and based in behavioral principles may be as or more effective than traditionally dynamic approaches.

**Limitations and Challenges**

Utilizing single-participant design to study the course of psychopathological change presents numerous challenges, both clinically and scientifically. First and foremost, diagnostic abstractions such as “depression” are in many ways ill-fitted dependent variables that cannot be directly observed or influenced in the most objective sense. Well developed, psychometrically sound assessment tools mitigate this obstacle to some degree, but it is very likely the behavior assessed by those instruments is subject to influence other than the individual’s true level of “depression.” Research has shown context and item wording can influence self-report of adults (Schwartz, 1999). The specificity of screening tools for depression varies widely across studies and those involving younger children tend to less be accurate (see Williams, O’Connor, Eder, & Whitlock, 2009). More research is needed to assess the validity of such instruments, but a potential supplement to self-report is the observation of depressotypic behavior by third parties, as utilized in the present study. Indeed, those behaviors may be considered important dependent measures in their own right.

A related issue is the clinical outcome research anachronism of structuring therapy around the passage of time rather than making data-based decisions about the course of treatment. In the present study, the BL+NDT phase was defined by a number of weeks, rather than requiring a stabilization of data. From a pragmatic standpoint, this approach may be unavoidable, but it will often result in data that are difficult to interpret and at odds with the logic of single-participant design. Exacerbating this issue is the relative lack of internal validity exercised when using a broad therapeutic approach (e.g., CBT) to influence a theoretical constellation of behaviors (e.g., depression). Methods for establishing the experimental control
of single-participant designs, such as reversals of the independent variable or multiple-baselines across participants, are less apt under these conditions. Component analyses that isolate certain clinical techniques and their targeted processes may provide a better platform for single-participant analysis (see Ward-Horner & Sturmey, 2010), as they allow for more discrete independent and dependent variables.

The use of time-based phase change criteria is also relevant to receipt of treatment. This study goes beyond most in its attempt to document the acquisition of targeted skills by participants; however, the course of treatment was not contingent on the participants’ level of acquisition. A treatment that established some skill-mastery criterion, and required mastery before introduction of additional skills might prove more efficient and efficacious. Indeed, there is little evidence to suggest that teaching multiple skills is superior to teaching one skill especially well. Parent training approaches, such as PCIT (Eyberg, 1988), and other skill-building models, such as BST (Miltenburger, 2007), exist within the child psychopathology literature as models of mastery-based interventions. Elements of those approaches could be engrained in treatments for pediatric depression to a greater extent than they have here, and may be a better reflection of clinical practice.

While the therapy protocol allowed for some personalization, content was relatively similar across participants. An assumption was made a priori that the targeted mechanisms, if affected, were likely to prove beneficial based on previous research; however, the topographical symptoms of depression may be arrived at through multiple pathways and maintained by differing contingencies (Kanter et al. 2004). Kanter, Busch, Weeks, and Landes (2008) have argued for the treatment of depression informed by idiographic, functional assessment. No such treatment has been empirically evaluated for the treatment of child depression. A treatment sensitive to the contextual functions contributing to depressive behavior may be in a better
position to change that behavior than traditionally nomothetic approaches based topography of symptoms.

Measuring potential mechanisms of change with accuracy presents its own challenges. There are few psychometrically evaluated instruments available for the population and constructs of interest in this study. Several assessments were developed or modified specifically for this study, but are psychometrically untested. Others were modified from their original form or used outside their intended population. That being said, assessments were chosen conscientiously, and considering the resultant data, seem to have functioned adequately. Another issue arises with the attempt to measure therapeutic processes with great frequency: it is possible, if not probable, that assessments such as the Daily Questionnaire influence the variables they are meant to assess. While this observation effect is unavoidable, the use of an extended baseline is one way to mitigate unintended influence of measurement.

**Future Implications**

Despite limitations, this study provides a useful stepping-stone to future investigation of mechanisms of action and contributes to the youth depression treatment literature. The results demonstrate the value of studying mechanisms of change at the single-case level. In the hunt for efficacy, large-scale randomized trials emphasizing intent-to-treat analyses have become the gold standard for outcome research. As the dominant question shifts from *if* therapy works to *how* therapy works, however, new and innovative methodologies are called for. Single-participant approaches alone are not sufficient, but can provide unique and nuanced information not captured in typical group designs.

Several potential follow-up studies at the single-participant level could extend the results presented here. For instance, in order to investigate the specificity of change to certain potential mechanisms, a methodology that randomized the order of treatment components
would be useful. In the present study, increased child positivity and improved parent-child interactions were the targeted mechanisms most commonly associated with clinical change; however, they were also the first targeted, and thus had the greatest opportunity to affect change. Conversely, problem-solving was often broached after significant clinical improvement was observed, preventing the chance to establish a mediating relationship. Randomization of treatment phases would prevent such ordering effects and provide information about the importance of treatment sequencing.

Another variation of the present study would utilize baseline data to inform treatment more ideographically as described above. Results of the Daily Questionnaire or similar measures could be utilized such that the domains in which parents’ reports are most indicative of deficits would be the first mechanisms targeted. Methods of analyzing in-session behavior might be developed to further inform case conceptualization. For instance, parents and children could be made to solve a problem together and their skills analyzed to reveal strengths and weaknesses. The reliable assessment of skill deficits and demonstration of effective treatment based on those assessments would advance clinical decision-making and lead to greater treatment efficiency.

The maintenance of mechanism change and its relation to symptom levels is another area ripe for study at the single-participant level. In the present study, Daily Questionnaire responses typically were not collected through follow-up. Continued collection of mechanism data after the cessation of treatment may provide a valuable description of the processes that contribute to both maintenance and relapse.

Implications of the present study are not limited to single-participant approaches. Methods used here could be adopted for use in large-scale RCTs. While large numbers of participants would likely prevent nuanced analysis at the individual level, frequent measures of
potential mediators and dependent variables could be collected as they have here and be collapsed into more easily consumed data. This approach would yield information on the mean levels of mechanism and dependent variables prior to, during, and after different treatment components. Such data would provide a wealth of information, including the success of treatment in moving targeted mechanisms and probability of symptom improvement conditional on mechanism change. More and better data points are necessary to continue to unravel the therapeutic process.

The high response rate evidenced suggests specific clinical techniques utilized in BT merit further investigation. The therapy was notable in several ways. First, only observable behaviors were directly targeted for change. Second, the treatment was explicitly designed to give parents necessary skills for reinforcing targeted behavior. Third, parents and children were provided with time in session to practice skills extensively and receive feedback. The result is a brief, simple, highly transportable treatment that produced encouraging results. This “boiled down” style of BT should be compared with more established treatments, such as CBT packages, to determine its relative efficacy. This would be analogous to dismantling studies in the adult depression literature suggesting behavioral activation alone is as efficacious as CBT (Jacobson et al. 1996). A similar finding in the youth literature would be notable, as BT represents a more easily disseminated approach.

This study utilized technological methods to improve assessment of engagement in treatment and potential mechanisms of change. As technology proliferates and becomes more affordable, methods of delivering treatment and assessing outcome outside of the therapy session are more available. The use of web-capable personal electronic devices is nearly ubiquitous, and most school-age children at minimum have frequent access to email. Utilization of technology allows for the incorporation of multiple informants. Given the focus on parent-
child interactions, it was appropriate for the primary mechanism measures to be completed by
the parent; however, future investigators should consider collecting more frequent mechanism
measures from the child. In addition, collecting mechanism data from other informants (e.g.,
teachers, parent not involved in treatment, etc) would provide information about the
generalization of skills. Efforts to adapt readily available technology to both delivery of
treatment and study of outcome should continue to be developed. Such procedures may be
particularly well suited to study mechanisms of change, as frequent and precise measurements
engender confident analyses.

Conclusion

This study was unique in its attempts to evaluate the mechanisms of action of a
behavioral treatment for youth depression at the individual level. It highlights the importance of
ty ing mechanisms of change to specific treatment components in an effort to understand the
therapeutic process more intricately. Including early responders, the treatment, while
comparatively simple, fared well with the most comprehensive and well-studied therapies.
Overall, proposed mechanisms of change and improvements in participant’s symptoms were
related, though the nature of the relationship was not always apparent. The obtained data were
extensive, complex, and at times difficult to interpret. Nevertheless, by controlling for non-
specific effects, vigorously documenting internal validity, and collecting frequent measures, a
model upon which future work can improve, both clinically and methodologically, was provided.
REFERENCES


R. Weisz (Eds.), *Evidence based psychotherapies for children and adolescents* (pp. 165-183). New York: Guilford Press.


Table 1
Description of content session order, type, and focus

<table>
<thead>
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<th>Week(s)</th>
<th>Session(s)</th>
<th>Type</th>
<th>Youth/Parent/Joint</th>
<th>Focus</th>
</tr>
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<td>5</td>
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<td>Joint</td>
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<td>14</td>
<td>BT</td>
<td>Joint</td>
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<td>Joint</td>
<td>Post-BT measures</td>
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<td>16-17</td>
<td>Optional Booster Sessions</td>
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<td>Practice and refine skills</td>
</tr>
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<td>18-21</td>
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<td>Joint</td>
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Note: NDT = Non-directive therapy; BT = Behavioral Therapy
### Table 2

**Summary of Assessments Administered During Each Session**

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<td>Joint</td>
<td>CDI, CDRS-R, FQOLS-FIS, MEROS, SDQ-PF, SDQ-TF, BDI-II</td>
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<td>Joint</td>
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<td>18-21</td>
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<td>CDI-SF, MEROS</td>
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<td>2-month Follow-up</td>
<td>varies</td>
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<td>Joint</td>
<td>CDI, CDRS-R, FQOLS-FIS, MEROS, SDQ-PF, SDQ-TF, BDI-II</td>
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</table>

Note: Parents were given the opportunity to complete the Daily Questionnaire each day throughout the study.
### Table 3
**Demographics and Characteristics**

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<th>Participant</th>
<th>Sex</th>
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<th>Grade</th>
<th>Ethnicity</th>
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<th>Psychiatric Meds (Now/Ever)</th>
<th>Suicidal Ideation</th>
<th>Family History of Depression</th>
<th>Primary Informant</th>
<th>Caregiver Sessions</th>
<th>Child Sessions</th>
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<tr>
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<td>Post-NDT</td>
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</table>

* = Significantly different than the Pre value at the p < 0.05 level

^ = Significantly different than the Post-NDT value at the p < 0.05 level
## Table 5

**Early Responders Dependent Measures**

<table>
<thead>
<tr>
<th>Measure</th>
<th>P02</th>
<th>P06</th>
<th>P08</th>
<th>P15</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDRS-R</td>
<td>Pre</td>
<td>Post NDT</td>
<td>F-U</td>
<td>Pre</td>
</tr>
<tr>
<td></td>
<td>41</td>
<td>19</td>
<td>27</td>
<td>56</td>
</tr>
<tr>
<td>CDI</td>
<td>12</td>
<td>6</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>MEROS</td>
<td>17</td>
<td>19</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>FQOLS</td>
<td>15</td>
<td>24</td>
<td>24</td>
<td>29</td>
</tr>
<tr>
<td>BDI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>32</td>
<td>-</td>
<td>-</td>
<td>12</td>
</tr>
<tr>
<td>Father</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>SDQ</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>17</td>
<td>-</td>
<td>-</td>
<td>27</td>
</tr>
<tr>
<td>Father</td>
<td>10</td>
<td>7</td>
<td>8</td>
<td>-</td>
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<tr>
<td>Teacher</td>
<td>11</td>
<td>9</td>
<td>8</td>
<td>-</td>
</tr>
<tr>
<td>PSI-SF</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>66</td>
<td>-</td>
<td>-</td>
<td>62</td>
</tr>
<tr>
<td>Father</td>
<td>58</td>
<td>41</td>
<td>44</td>
<td>-</td>
</tr>
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Table 6
Non-Early Responders Dependent Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>P01</th>
<th>P03</th>
<th>P04</th>
<th>P05</th>
<th>P06</th>
<th>P11</th>
<th>P12</th>
<th>P14</th>
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</thead>
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<tr>
<td>CDRS-R</td>
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<td>56</td>
<td>34</td>
<td>28</td>
<td>41</td>
<td>32</td>
<td>27</td>
<td>43</td>
</tr>
<tr>
<td>CDI</td>
<td>30</td>
<td>18</td>
<td>2</td>
<td>5</td>
<td>13</td>
<td>12</td>
<td>8</td>
<td>17</td>
</tr>
<tr>
<td>MEROS</td>
<td>14</td>
<td>15</td>
<td>20</td>
<td>18</td>
<td>12</td>
<td>15</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>FQOLS</td>
<td>16</td>
<td>18</td>
<td>26</td>
<td>24</td>
<td>26</td>
<td>15</td>
<td>30</td>
<td>28</td>
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<tr>
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<td>10</td>
<td>9</td>
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<td>-</td>
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<td>17</td>
<td>23</td>
<td>16</td>
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<tr>
<td>PSI-SF</td>
<td>99</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>119</td>
<td>105</td>
<td>107</td>
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P04-P11
<table>
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<th></th>
<th></th>
<th></th>
<th>M (SD)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>BL+NDT</td>
<td>BT</td>
<td>Pre-Skill</td>
<td>Post-Skill</td>
<td>2 wks Post-Skill</td>
<td>BL+NDT/BT</td>
</tr>
<tr>
<td>Positivity</td>
<td>3.60 (0.63)</td>
<td>4.03 (0.29)</td>
<td>3.60 (0.63)</td>
<td>4.03 (0.29)</td>
<td>4.33 (0.52)</td>
<td>70.20%</td>
</tr>
<tr>
<td>P-C Interaction</td>
<td>3.94 (0.57)</td>
<td>4.00 (0.24)</td>
<td>4.00 (0.51)</td>
<td>3.95 (0.22)</td>
<td>4.00 (0.0)</td>
<td>52.80%</td>
</tr>
<tr>
<td>C Activation</td>
<td>3.58 (0.64)</td>
<td>3.97 (0.37)</td>
<td>3.67 (0.62)</td>
<td>3.88 (0.34)</td>
<td>3.83 (0.41)</td>
<td>68.70%</td>
</tr>
<tr>
<td>P Activation</td>
<td>3.78 (0.47)</td>
<td>4.0 (0)</td>
<td>3.92 (0.35)</td>
<td>4.0 (0)</td>
<td>4.0 (0)</td>
<td>55.60%</td>
</tr>
<tr>
<td>Problem Solving</td>
<td>3.73 (0.45)</td>
<td>3.5 (1.00)</td>
<td>3.70 (0.56)</td>
<td>-</td>
<td>-</td>
<td>47.40%</td>
</tr>
</tbody>
</table>

Note: **Bold** = Meets minimum requirement for “moderate” effect size as suggested by Parker and Vannest (2009)
<table>
<thead>
<tr>
<th>Rating</th>
<th>M (SD)</th>
<th>NAP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BL+NDT</td>
<td>BT</td>
</tr>
<tr>
<td>Positivity</td>
<td>3.10 (0.45)</td>
<td>3.18 (0.59)</td>
</tr>
<tr>
<td>P-C Interaction</td>
<td>3.06 (0.44)</td>
<td>3.45 (0.71)</td>
</tr>
<tr>
<td>C Activation</td>
<td>3.26 (0.55)</td>
<td>3.35 (0.66)</td>
</tr>
<tr>
<td>P Activation</td>
<td>3.38 (0.49)</td>
<td>3.60 (0.56)</td>
</tr>
<tr>
<td>Problem Solving</td>
<td>2.94 (0.42)</td>
<td>3.00 (0.50)</td>
</tr>
</tbody>
</table>

Note: **Bold** = Meets minimum requirement for “moderate” effect size as suggested by Parker and Vannest (2009)
Table 9  
**Summary of Targeted Mechanisms Parent Ratings for P04**

<table>
<thead>
<tr>
<th>Rating</th>
<th>BL+NDT</th>
<th>BT</th>
<th>Prior Skill</th>
<th>Post Skill</th>
<th>2 wks post skill</th>
<th>BL+NDT/BT</th>
<th>Prior/Post Skill</th>
</tr>
</thead>
<tbody>
<tr>
<td>C Positivity</td>
<td>3.40 (0.83)</td>
<td>4.31 (0.66)</td>
<td>3.40 (0.83)</td>
<td>4.31 (0.66)</td>
<td>4.36 (0.50)</td>
<td>78.80%</td>
<td>78.80%</td>
</tr>
<tr>
<td>P-C Interaction</td>
<td>3.47 (0.83)</td>
<td>4.31 (0.49)</td>
<td>3.81 (0.80)</td>
<td>4.31 (0.50)</td>
<td>4.17 (0.39)</td>
<td>72.50%</td>
<td>63.90%</td>
</tr>
<tr>
<td>C Activation</td>
<td>3.53 (0.64)</td>
<td>4.33 (0.63)</td>
<td>3.94 (0.80)</td>
<td>4.37 (0.56)</td>
<td>3.83 (0.39)</td>
<td>79.80%</td>
<td>64.50%</td>
</tr>
<tr>
<td>P Activation</td>
<td>3.87 (0.74)</td>
<td>4.31 (0.52)</td>
<td>3.97 (0.62)</td>
<td>4.40 (0.50)</td>
<td>4.00 (0.00)</td>
<td>66.70%</td>
<td>67.60%</td>
</tr>
<tr>
<td>Problem Solving</td>
<td>3.25 (0.46)</td>
<td>3.77 (0.83)</td>
<td>3.33 (0.49)</td>
<td>5.00 (0.00)</td>
<td>5.00 (0.00)</td>
<td>69.20%</td>
<td>100%</td>
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</tbody>
</table>

Note: **Bold** = Meets minimum requirement for “moderate” effect size as suggested by Parker and Vannest (2009)
Table 10
Summary of Targeted Mechanisms Parent Ratings for P05

<table>
<thead>
<tr>
<th>Rating</th>
<th>M (SD)</th>
<th>NAP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BL+NDT</td>
<td>BT</td>
</tr>
<tr>
<td>C Positivity</td>
<td>2.91 (0.54)</td>
<td>3.69 (0.79)</td>
</tr>
<tr>
<td>P-C Interaction</td>
<td>2.89 (0.60)</td>
<td>3.81 (0.75)</td>
</tr>
<tr>
<td>C Activation</td>
<td>3.27 (0.47)</td>
<td>3.74 (0.70)</td>
</tr>
<tr>
<td>P Activation</td>
<td>3.89 (0.60)</td>
<td>4.14 (0.58)</td>
</tr>
<tr>
<td>Problem Solving</td>
<td>3.33 (0.58)</td>
<td>2.50 (0.5)</td>
</tr>
</tbody>
</table>

Note: **Bold** = Meets minimum requirement for “moderate” effect size as suggested by Parker and Vannest (2009)
Table 11
Summary of Targeted Mechanisms Parent Ratings for P11

<table>
<thead>
<tr>
<th>Rating</th>
<th>M (SD)</th>
<th>NAP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BL+NDT</td>
<td>BT</td>
</tr>
<tr>
<td>Positivity</td>
<td>3.14 (1.07)</td>
<td>3.92 (0.66)</td>
</tr>
<tr>
<td>P-C Interaction</td>
<td>3.71 (0.76)</td>
<td>4.09 (0.56)</td>
</tr>
<tr>
<td>C Activation</td>
<td>3.43 (1.51)</td>
<td>4.00 (0.73)</td>
</tr>
<tr>
<td>P Activation</td>
<td>4.00 (1.00)</td>
<td>3.65 (0.75)</td>
</tr>
<tr>
<td>Problem Solving</td>
<td>4.75 (0.50)</td>
<td>3.73 (0.63)</td>
</tr>
</tbody>
</table>

Note: **Bold** = Meets minimum requirement for “moderate” effect size as suggested by Parker and Vannest (2009)
Table 12
*Summary of Targeted Mechanisms Parent Ratings for P12*

<table>
<thead>
<tr>
<th>Rating</th>
<th>M (SD)</th>
<th>BL+NDT</th>
<th>BT</th>
<th>Pre-Skill</th>
<th>Post-Skill</th>
<th>2 wks Post-Skill</th>
<th>BL+NDT/BT</th>
<th>Pre/Post-Skill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positivity</td>
<td></td>
<td>2.51 (0.95)</td>
<td>3.57 (0.53)</td>
<td>2.51 (0.95)</td>
<td>3.57 (0.53)</td>
<td>3.80 (0.45)</td>
<td>81.40%</td>
<td>81.40%</td>
</tr>
<tr>
<td>P-C Interaction</td>
<td>3.07 (0.96)</td>
<td>3.63 (0.52)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>43.60%</td>
<td>-</td>
</tr>
<tr>
<td>C Activation</td>
<td>2.20 (1.02)</td>
<td>3.14 (0.69)</td>
<td>2.26 (1.00)</td>
<td>3.25 (0.96)</td>
<td>3.25 (0.96)</td>
<td>76.50%</td>
<td>76</td>
<td></td>
</tr>
<tr>
<td>P Activation</td>
<td>3.43 (0.51)</td>
<td>3.50 (0.58)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>53.60%</td>
<td>-</td>
</tr>
<tr>
<td>Problem Solving</td>
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<td>-</td>
<td>-</td>
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</tr>
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</table>

Note: **Bold** = Meets minimum requirement for “moderate” effect size as suggested by Parker and Vannest (2009)
<table>
<thead>
<tr>
<th>Rating</th>
<th>BL+NDT M (SD)</th>
<th>BT M (SD)</th>
<th>Pre-Skill M (SD)</th>
<th>Post-Skill M (SD)</th>
<th>2 wks Post-Skill M (SD)</th>
<th>BL+NDT/BT</th>
<th>Pre/Post-Skill</th>
<th>NAP</th>
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</thead>
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<tr>
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<td>3.44 (0.53)</td>
<td>3.36 (0.50)</td>
<td>3.44 (0.53)</td>
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<td>54.00%</td>
<td>54.00%</td>
<td></td>
</tr>
<tr>
<td>P-C Interaction</td>
<td>3.57 (0.53)</td>
<td>3.83 (0.75)</td>
<td>3.60 (0.52)</td>
<td>4.00 (1.00)</td>
<td>3.50 (0.71)</td>
<td>59.50%</td>
<td>63.30%</td>
<td></td>
</tr>
<tr>
<td>C Activation</td>
<td>2.45 (0.52)</td>
<td>2.89 (0.93)</td>
<td>2.56 (0.70)</td>
<td>3.50 (0.71)</td>
<td>3.50 (0.71)</td>
<td>62.60%</td>
<td>83.30%</td>
<td></td>
</tr>
<tr>
<td>P Activation</td>
<td>3.60 (0.55)</td>
<td>(0.55)</td>
<td>3.63 (0.52)</td>
<td>3.50 (0.71)</td>
<td>3.50 (0.71)</td>
<td>50%</td>
<td>43.80%</td>
<td></td>
</tr>
<tr>
<td>Problem Solving</td>
<td>3.33 (0.52)</td>
<td>3.43 (0.53)</td>
<td>3.38 (0.51)</td>
<td>-</td>
<td>-</td>
<td>59.50%</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Note: **Bold** = Meets minimum requirement for “moderate” effect size as suggested by Parker and Vannest (2009)
Figure Caption

*Figure 1.* Flow diagram of participant movement through the study.
15 screened for participation

4 excluded
- 3 deemed ineligible
- 1 declined services

11 received Non-specific Therapy

4 showed clinically significant change
- 4 received follow-up assessment

7 did not show clinical significant change
- 6 received full Behavior Therapy
- 1 (P12) received child-only BT
- 4 received follow-up assessment
Figure Caption

*Figure 2.* Mean CDRS-R, CDI, and CDI-S scores for early responders.
Figure Caption

*Figure 3.* P02’s father’s ratings (gray squares) of positive behavior (first panel), parent-child interactions (second panel), child activation (third panel), parent activation (fourth panel), and problem solving (fifth panel) plotted with CDI-S scores (black diamonds) over time.
Figure Caption

*Figure 4.* P06’s mother’s ratings (gray squares) of positive behavior (first panel), parent-child interactions (second panel), child activation (third panel), parent activation (fourth panel), and problem solving (fifth panel) plotted with CDI-S scores (black diamonds) over time.
Figure Caption

*Figure 5.* P08’s mother’s ratings (gray squares) of positive behavior (first panel), parent-child interactions (second panel), child activation (third panel), parent activation (fourth panel), and problem solving (fifth panel) plotted with CDI-S scores (black diamonds) over time.
Figure Caption

*Figure 6.* P15’s mother’s ratings (gray squares) of positive behavior (first panel), parent-child interactions (second panel), child activation (third panel), parent activation (fourth panel), and problem solving (fifth panel) plotted with CDI-S scores (black diamonds) over time.
Figure Caption

*Figure 7.* Percentage of PCA intervals coded positive for P01 (gray diamonds) and her father (black squares) over time.
Figure Caption

*Figure 8.* P01’s father’s ratings of positive behavior (top panel) and child activation (bottom panel) plotted with CDI-S scores overtime.
Figure Caption

*Figure 9.* CDI-S scores over time for P03.
Figure 10. Percentage of PCA intervals coded positive for P03 (gray diamonds) and his mother (black squares) over time.
Figure Caption

*Figure 11.* P03’s mother’s ratings (gray squares) of parent-child interactions plotted alongside CDI-S scores (black diamonds) over time.
Figure Caption

Figure 12. Percentage of PCA intervals coded positive for P04 (gray diamonds) and his mother (black squares) over time.
Figure Caption

*Figure 13.* P04’s mother’s ratings (gray squares) of positive behavior (first panel), parent-child interactions (second panel), child activation (third panel), parent activation (fourth panel), and problem solving (fifth panel) plotted with CDI-S scores (black diamonds) over time.
BL+NDT
Positivity Rating

BT
CDI-S

P-C Interaction Rating
CDI-S

Child Activation
CDI-S

Parent Activation
CDI-S

Problem Solving
CDI-S

Day
Figure Caption

*Figure 14.* Percentage of PCA intervals coded positive (first panel) and negative (bottom panel) for P05 (gray diamonds) and his mother (black squares) over time.
Figure Caption

*Figure 15.* P05’s mother’s ratings (gray squares) of positive behavior (first panel), parent-child interactions (second panel), and child activation (third panel) plotted with CDI-S scores (black diamonds) over time.
Figure Caption

*Figure 16.* P05’s mother answer “yes” or “no” to the occurrence of 15 min quality time (first panel), contingent praise (second panel), and non-contingent praise (third panel) plotted with CDI-S scores overtime.
Figure Caption

*Figure 17.* Percentage of PCA intervals coded positive (first panel) and negative (bottom panel) for P11 (gray diamonds) and his mother (black squares) over time.
Percent of Intervals

Session

Pre Post-NDT BT1 BT2 BT3 Post-BT

BL+NDT BT

0% 20% 40% 60% 80% 100%
Figure Caption

*Figure 18.* P11’s mother’s ratings (gray squares) of positive behavior (first panel), and parent-child interactions (second panel) plotted with CDI-S scores (black diamonds) over time.
Figure Caption

*Figure 19.* CDI-S scores over time for P12.
Figure Caption

*Figure 20.* P12’s father’s ratings (gray squares) of positive behavior (first panel), and child activation (second panel), as well as MEROS scores (third panel), all plotted with CDI-S scores (black diamonds) over time.
Figure 21. CDI-S scores over time for P14.
Figure 22. Percentage of PCA intervals coded positive (first panel) and negative (bottom panel) for P14 (gray diamonds) and his mother (black squares) over time.
Appendix A – Script for Providing an Overview of the Study

The following is representative of the information conveyed to a potential participant to communicate the existence of the study and basic description of what it entailed.

“There is a project ongoing in the school right now that is being done by researchers in the Psychology Department at Western Michigan University. The project is aimed at helping children who are having a difficult time with things like moodiness, sadness, irritability, lack of motivation, not finding things as fun and rewarding as in the past, solving problems, and feelings of low self-esteem. These are symptoms of depression, but they can occur for a variety of reasons. Your child does not have to be clinically depressed to participate in this project or to present with all of the symptoms I just mentioned, but he/she does seem to demonstrate some significant symptoms that appear to warrant further evaluation and intervention, either in this study or by another mental health professional, including the school professionals.

“The intervention is a behavioral therapy, which involves teaching your student some skills to help alter his/her behavior and to improve his/her mood. In addition, you or your spouse would be asked to participate in the study to learn some skills that would help support your child’s behavior. The treatment is based on the most up-to-date information available on childhood depression. The treatment includes 6 sessions that would be attended by both you and your child, 5 sessions attended by your child only, and 3 sessions attended by you only. In addition, the therapist will ask you to practice some of the skills learned in the sessions throughout the week.

“Treatments using procedures similar to this one have a promising track record with child and families, but it is important to remember you have other treatment options. Psychological practitioners in the community often use family therapy where all members of the household
participate. In addition, some therapists use primarily supportive therapy or therapy that focuses more on changing maladaptive patterns of thinking. In addition, some children with depressive symptoms are taken to see a child psychiatrist to determine if antidepressant medication may be helpful for them. If an alternative approach is more appealing to you, we can help refer you to these types of services. In addition, it is also important to keep in mind that your child can receive services from one of the school professionals, including the school counselor, school psychologist or social worker. Whatever decision you make will be respected and we will do whatever we can to facilitate your receiving your choice of treatment.

Is this something that you would be interested in setting up a meeting to learn more about and see if you would like to participate?”
Appendix B – Behavior Therapy Manual

Parent-Child Behavior Therapy for Depression

Andrew Riley and Scott Gaynor
Adapted from the Primary and Secondary Control Enhancement Training: Individual Treatment for Depressed Youth (PASCET; Weisz et al., 1999) and the Child-Caregiver Relationship Enhancement Training (C-CRET; Eckshtain & Gaynor, 2005) manuals
Objectives:

1. Continue to develop rapport.
2. Introduce behavior therapy (BT).
3. Explain the connection between being confident and calm and feeling better. Stress that presenting a positive self is a skill to be practiced.
4. Make a videotape in which C tries to act as negative and sad and gloomy as possible.
5. Make another videotape in which C does her/his best to present a positive self.
6. Have C compare the negative and positive self-videos, judging which of the two shows a self that s/he and other will like better.
7. Do an *in vivo* exercise involving practice of the positive self-skills.
8. Give a homework assignment in which C practices her/his positive self skills with others.

Materials Needed:
Corresponding pages for C’s practice book
Practice assignment stamps/stickers
Rewards
Therapist record form
Video camera with blank tapes
Goals and Procedures

Broad Goals of the Session
The session focuses on the styles of self presentation. You want to convey the idea that presenting oneself in a positive, upbeat manner is a skill that can be learned and that learning to present a positive self in interactions with others can make the interactions more pleasant for others.

Introducing the Concept of Showing a Negative and Positive Self
Tell C that presenting a confident, positive self is what you two are going to talk about today. Begin with a story (ideally about yourself) that illustrates the value of showing a positive self. For example, you might tell about a time that you woke up feeling gloomy and grouchy, and went through your day acting negative; when you did this, you noticed that you started feeling worse, and also that other people seemed not to be enjoying your company very much. So, the next time you woke up feeling gloomy and grouchy, you decided to make yourself go through your day with a positive attitude, perhaps dressing in a favorite outfit, showing other people you were enjoying being with them, etc. As the day went on, you noticed that making yourself present a positive self actually made you start feeling better; and other people seemed to enjoy being with you, as well. Etc.

In telling the story and discussing its meaning, you need to convey three main ideas: (1) if we present a negative, gloomy exterior to the world it can make us feel bad, and it can also make other people uncomfortable around us, and less likely to spend time with us. (2) Showing a positive self to the world can make us feel better, and it can also make other people more comfortable with us, and more likely to spend time with us. (3) Showing a positive self is a skill, like sports, dancing, or math. It involves specific kinds of behavior that people can practice, and get better at when they do practice. The practice assignment for the upcoming week will give C an opportunity to practice this skill, and to observe its effects.

Identifying SPECIFIC BEHAVIORS that go with C’s NEGATIVE and POSITIVE SELF
Turn next to the topic of how to show a negative and positive self. Here your task will be to identify, in collaboration with C, 3-6 specific types of behavior that convey a negative self for C in particular, and 3-6 specific behaviors that show a positive self for C in particular. Because there are cultural, familial, and age differences in the interpretation of various kinds of body language and verbal behavior, there is virtually no common set of behaviors that can be used equivalently across all youth. Thus, you will need to work with C to create individualized lists of specific behaviors that convey a negative-self and positive-self, respectively, within C's social reference group (including peers and family). You will begin this process by using yourself as an illustration.

Start by illustrating your own positive and negative self. Begin the discussion by noting, and then illustrating, the things YOU do, in your own social reference group, to convey a negative and positive self. Role-play the behaviors as you explain them. You might use lists like the following for yourself (adjust as needed to fit your preference and style):
HOW I (therapist) USUALLY SHOW A NEGATIVE SELF
(HOW I LOOK SAD AND GLOOMY)
1. Look down when I talk.
2. Be slouchy or slumpy—don’t sit or stand up straight.
3. Show a sad or grouchy face, or at least don’t look happy.
4. Use a very soft voice, so I am hard to hear.
5. Make my voice sound sad, or grouchy, or whiny.
6. Say negative things about myself—such as, “I’m no good at sports.” And “I can’t do this.”
7. Say negative things about other people—such as, “I don’t like Chris.” Or “Pat is mean.”
8. Say negative things about my activities—such as, “I hate doing this.” And “This game is no fun.”
   And “This food tastes awful.”
9. Say negative things about the future—such as, “This is going to be a terrible year.” And “I’ll never be any good at this.”

HOW I (therapist) SHOW A POSTIVE SELF
1. Look people in the eye when I talk to them.
2. Sit or stand up straight.
3. Smile and show my teeth.
4. Use a clear voice—talk loud enough that people can hear me.
5. Make my voice sound happy and confident.
6. Say positive things about myself and my activities [but no bragging!—say things like,
   • “I love shooting hoops” or “I love dancing”
   • “I’m learning lots of new things this year.”
   • “I had a great time at the movie.”
7. Say positive things about other people—such as,
   • “I like Chris.”
   • “My sister is smart in school.”
   • “We have a great soccer team this year.”
8. Say positive things about the future—such as, “This is going to be a really good year” and “I think the trip next week will be fun.”

Identify C’s ways of showing a negative and positive self
Next, work with C to come up with a list of 3-6 specific types of behavior s/he can (or does) use to show, first, a negative self, then a positive self. Each list might include something in the following categories:
- How I look (e.g., how my face looks, how my body looks)
- How I act (e.g., toward my family, toward other people)
- What I say (e.g., about myself and my activities, about other people, about the future)

You and C should record the Negative Self and Positive Self lists in the Practice Book. These lists are subdivided into three sections: How I look, how I act, and what I say. You can use these headings to guide you as you create your list.

Producing a NEGATIVE Self Video
Next, make a videotape of C acting very negative and gloomy. For this video, you will use C’s NEGATIVE SELF list, just written in the Practice Book. Work with C, coaching as needed, to help him/her display as many of these negative behaviors as seems workable, throughout the interview. The exact text of the interview that is to be used for this purpose is as follows:

1. Hello. Would you please introduce yourself? Tell your name, age, where you live, and
where you go to school.

2. OK. Now just talk about yourself. Tell what you are like, what your interests or hobbies are, anything else people should know about you. [ENCOURAGE C TO TALK FOR AT LEAST 1 MINUTE. IF S/HE STOPS, PROMPT BY SAYING "Tell something else..." AFTER THIS FREE-RESPONSE PORTION IS ENDED, CONTINUE AS FOLLOWS ...]

3. Thank you, [NAME]. Now tell how you feel about your school, and what some of your classes are like. [ENCOURAGE C TO CONTINUE FOR 30 SECONDS, THEN GO TO NEXT QUESTION.]

4. Tell about some of the kids you know, and what they are like. [ENCOURAGE C TO TALK 30 SECONDS, THEN GO TO NEXT QUESTION.]

5. Tell about some of the things you do with other kids; outside of school. [ENCOURAGE C TO TALK 30 SECONDS, THEN GO TO NEXT QUESTION.]

6. Now please tell about some people in your family [OR, IF C DOES NOT LIVE WITH HIS/HER FAMILY, ASK ABOUT "...some of the other people who live in your house."], and what they are like; also tell me about what kinds of things you do with them. [ENCOURAGE C TO TALK 1 MINUTE, PROMPTING AS NEEDED TO COVER ALL THE PEOPLE IN THE FAMILY OR HOUSE.]

7. Now, last of all, can you please tell what you would do if you had a million dollars? [ENCOURAGE C TO TALK FOR 30 SECONDS.]

**Produce a POSITIVE Self Video**

After the negative self video is completed, use exactly the same coaching/practicing procedure and the same interview wording shown above (in box) to guide C through production of a positive self video. Use the list of behaviors C has written in the Practice Book.

In producing both the videos, it is appropriate to coach and revise occasionally, to give C concrete reminders of just what s/he decided that his/her negative and positive self-presentation involves. After the videos have been preliminarily produced, replay them, pausing occasionally for feedback on things that C did to present a particularly negative or positive self and perhaps on additional things that would have made C look even more positive or negative. Then turn the discussion to the area of (a) how C would feel after acting so negative, or so positive, during the day. and (b) how other people would react to these two styles of self-presentation.

1. Avoid criticizing "depressed self." Throughout this session, it is important that you avoid certain potential pitfalls. First, you must scrupulously avoid any impression that you are criticizing any youth's "depressed" self: Instead, the exercises should be presented in the context of exploration and curiosity. That is, you really do want to know what C thinks about these two different videos, and what s/he thinks the consequences of positive and gloomy behavior may be for how we feel and how others
feel about us. The idea you want to convey is essentially, "Here is an interesting skill kids can learn, and it is a skill that can really pay off."

2. Don’t confuse "positive self" with "faking it." A second pitfall to avoid is implying in any way that "showing a positive self" is the same thing as "faking it." Instead, the key idea is that we all have the-capacity inside us to behave in lots of different ways; the positive ways seem to make us feel better, and to make other people feel better about being with us.

3. Don’t let "positive self" seem either arrogant or nerdy. A final issue that you must be aware of as you and C work on identifying "positive self" behaviors is that it is important that C’s positive self be likely to elicit a positive response both from peers and from adults. You want to avoid creating a positive self profile that might seem arrogant or obnoxious to adults, even if it is likely to evoke a positive reaction from peers. Likewise, you want to avoid coaching C to behave in a way that adults might like but that his peers may find "nerdy" or socially undesirable. Use your therapeutic judgment liberally in coaching C to come up with his or her “positive self” skills.

**Practice Assignment**

The practice assignment for this week involves C’s practicing his/her positive self. In session, you will decide who C will practice presenting his/her positive self to (the person should not know in advance that C will be doing this). Work with C to pick a person who is likely to give a positive response. On the designated day, C should show his/her positive self to the pre-selected person. Then, s/he should fill in the relevant Practice Book pages.

**Fun Activity/Skills Practice**

To end the session, engage in a brief, interactive activity with C, such as a board game. Instruct C to practice presenting a positive self during this time. When C displays positive behaviors during this time, label them and praise C. Take time to explain how the positive behaviors make you feel when interacting with C.
Parent Session 1 – Providing a Positive Environment

Objectives:

1. Introduce contingent positive attention, non-contingent positive attention.
2. Provide examples of how to reinforce good behaviors with positive attention.
3. Introduce and explain the rationale for special time.

Materials Needed:
Relevant worksheets
Video camera
Goals and Procedures

Broad Goals of the Session
The purpose of the session is to foster more positive family interactions and to improve the rate of reinforcement between the primary care taker and the child. This is accomplished by teaching the parent how to deliver contingent and non-contingent positive attention, and providing a context in which positive interaction can take place (special time).

Introduce Non-contingent Positive Attention
Tell the caregiver that you are going to discuss some ways he/she can begin to help C feel better. Explain that it is very important that children always be aware of how they are loved and appreciated. This is especially true for children with depressive symptoms because they tend to feel bad about themselves and interpret situations as being more negative than they really are. Provide examples of non-contingent praise (using the handout) and stress that it is important for children to hear such praise several times a day. Stress this kind of praise should be unrelated to how C is acting. C should hear that s/he is loved no matter what!

Indicate that this kind of praise can be useful in decreasing depressive symptoms and that it has the added benefit of causing more positive interactions in the family environment. Talk about times that are good to provide this kind of praise (e.g., bed time)

Introduce Contingent Positive Attention
Indicate to the parent that while non-contingent praise is very important, it is also important to be able to communicate to C that you are especially happy with certain behaviors. For children with depressive symptoms, this is very important, as praising non-depressive behaviors is a great way to encourage your child to act more positively.

Explain that praising these behaviors leads to increasing their frequency. Increasing these behaviors will assist the child in being involved in more positive behaviors and receive positive reinforcement from the caregivers instead of criticism and punishment. Increasing the occurrence of positive behaviors can provide the caregivers with more opportunities to reinforce the child, may improve the caregiver-child interaction, and may make the home environment more positive and pleasant. Also, it can model the caregiver ways of increasing positive behaviors by reinforcing them and not by punishing them. In addition, increasing positive feedback and reinforcement may increase the child’s self esteem and decrease depressive symptoms.

In addition, like non-contingent praise, children that present with depressive symptoms may tend to feel bad about themselves and interpret situations as more negative than they really are and tend to forget how much their caregivers love them, especially when they receive feedback, usually negative, for negative behaviors. All of us have a tendency to pay attention to negative things that others are doing and comment about them and not to pay attention to positive things that others are doing and even if we do, we usually not commenting about it. The same is in our relationships with our children. Positive attention to positive mood and positive behaviors can increase their rate but also can assist him/her in perceiving themselves in a very positive light. The idea is to increase these behaviors not by punishing the negative mood and negative behaviors but by reinforcing the positive mood and positive behaviors. Keep reinforcing positive
mood and behavior can increase (name of the child) self-esteem and improve his/her self-perception and decrease his/her depressive symptoms.

Explain that contingent praise can be delivered for anything C is doing that is positive. Discuss some examples of positive behaviors the parent might not otherwise think of. Instruct the parent that contingent praise should be descriptive. The parent should label the behavior to be praised and then communicate appreciation. Review the handout on contingent praise.

**Introduce Special Time**

When introducing special time, indicate to the parent that with all the responsibilities of life, it can be hard to find time to have positive interactions with C in order to practice providing praise. Indicate one way to balance time limitations and your desire to spend quality time with C is to schedule brief, but regular time specifically dedicated to spending time with your child. Describe this as special time for the parent and C.

Give a description of what special time is and is not using the provided handout. Describe the following aspects of special time:

1. It should be an enjoyable activity.
2. It must be completed within the special time allotment.
3. It should be highly predictable, meaning that it needs to be scheduled in advance at the beginning of the week of every week.
4. During the special time you should focus on positive behaviors and enjoying the time together with someone you love.
5. It should be non-contingent, meaning that it cannot be taken away for any behavior or misbehavior on the part of (name of the child), it should not be used as a reward or punishment and it should not be postponed based on your schedule. Within reason, of course.
6. It must have an announced beginning and end. You will tell (name of the child) at the beginning: “We are beginning now our special time together” and at the end: “The time allocated to special time is now over”. Even if you continue playing after the end of special time, just announce it and continue playing.
7. It cannot be dangerous or potentially dangerous, painful, or physically aversive to (name of the child) or others.
8. It cannot involve the destruction of property and cannot clearly violate any important rules of the household.
9. It cannot involve behavior that would be considered unethical or immoral.
10. It cannot be beyond the constraints of reality like things that you simply cannot do because of finances or limited access.
11. It cannot be television.

12. During special time phones should not be answered, again, of course, within reason.

13. There are some things that you should be aware of. Some kids might attempt to “test” the limits of special time, like asking for more special time when the special time is over, misbehave immediately before special time, taunt siblings over special time, ask for outrageous things for special time or refuse to do special time. If things like that come up that’s what you should do:
   A. Special time must always occur at the appointed time. If (name of the child) acts up immediately before special time, you postpone the punishment until after special time.
   B. If (name of the child) refuses to do special time, you still inform (name of the child) when special time starts and end.
   Then you can do whatever you want, provided that you are available for (name of the child) if he/she decides to go ahead with special time anyway.
   C. Once the special time period ends, (name of the child) cannot “make up” the special time at another time.
   D. It is fine to continue playing after special time has ended. Many families do. But you should inform (name of the child) that special time is technically ended. If you do not let (name of the child) know this, he/she may see special time as modifiable.

Ask the caretaker if s/he is willing to try. If the caregivers do not agree, understand why and solve it with them. Try to understand what exactly they do not agree with and make changes if necessary. Remember that the basis of special time needs to stay as it is.

When the caretaker agrees, inform her/him that the following joint session will be all about practicing special time. If time permits, briefly explain the structure and goals of that session.

Homework
Homework for the parent is to provide at least one instance of non-contingent and contingent praise for C each day.
Joint Session 1 – Special Time

Objectives:

1. Introduce special time to C
2. Generate ideas for special time
3. Review how to present a positive self with C
4. Review rules of special time and which behaviors to praise with caretaker
5. Practice special time
6. Provide feedback to C and the caretaker about their respective performances
7. Institute special time at home

Materials Needed:
C’s workbook and relevant pages
Board games
Special time handouts
Video camera
Goals and Procedures

Broad Goals of the Session
The major goal of the session is to practice special time in order to increase the frequency of pleasant interactions between the parent and child.

Introduction to Special Time
Explain to C with the help of the parent the idea of special time. Describe special time as an opportunity for both C and the caretaker to practice the skills that they have learned to this point. Ask the child if there are any questions or reservations and address them if necessary.

Meet with the Caretaker Individually
Tell C that you need to meet with the caretaker alone briefly, and then you will meet alone with C. When C leaves the room, quickly review the purpose of special time and remind the caretaker of his/her role. Take the time to identify several behaviors the caretaker should praise. These behaviors should be taken from the list of positive behaviors identified by C in Child Session 1. When the parent is confident and ready to try special time, ask her/him to leave the room and ask C to come in.

Meet with the Child Individually
Tell C that you want him/her to work on presenting a positive self during special time. Have C recall the positive behaviors that were identified in Child Session 1. Emphasize to C that it is his/her job to present a positive self during special time. The other job is to have fun and enjoy spending time with the caretaker. Address any questions C might have, and then invite the caretaker back into the room.

10 min Parent-Child Activity
Instruct C and the caretaker that you would like to see them try special time. Tell them that for you would like each of them to do the best they can at their assigned jobs while you observe them. Let them choose a game to play. Then observe their interactions for 10 min. Make sure the video camera is focused upon them.

Individual Feedback
When the 10 min activity is complete, tell C and the caretaker it is time to take a break from the activity. Then tell them you want to speak to each of them about what you’ve observed. First, ask the parent to step outside the room. Provide the child with positive feedback about what s/he did well. Label specific positive behaviors that the child displayed. In addition, provide suggestions about how the child might appear even more positive. Ignore any depressive behaviors the child displayed. Instead, focus on increasing the positive “counter behavior.” When you have praised the child and given him/her 1 or 2 things to work on, have the child exit and ask the parent to enter.

When the parent has reentered, provide her/him with similar positive feedback. Identify several behaviors s/he performed well and make suggestions to improve his/her performance. Be reassuring and ask the parent if they have any thoughts or need questions answered.

Continued Special Time
When the child reenters, tell the caretaker and C that you would like them to continue practicing special time, keeping in mind the suggestions you have given them. At this time, you may choose to join the parent and C in their activity. You should choose to do this if there is a particular behavior you want to model for the caretaker. During this time, it is appropriate to give feedback about the behaviors of both the caretaker and C. Be positive in your approach. If you see the caretaker struggling, praise some positive behavior of the child to model for the parent.

Continue the parent-child activity until there are about 10 min left in the session.

**Generate Ideas for Special Time**

Lead C and the caretaker in generating up with several ideas for activities. Focus on activities that are cheap and readily available within the home. When several activities have been identified, help the parent and child identify times that are available for special.

**Homework**

Homework is to engage in special time for 15 min at least 5 times week for the next two weeks. Emphasize the importance of committing to conducting special time. Also, remind the family to collect behavioral records that can be added to their scrapbook.
Child Session 2 – Activity Scheduling

Objectives:

1. Review previous homework discussing what C did and learned.

2. Discuss the relationship between things we do and how we feel, emphasizing the link between positive activities and feeling good.

3. Discuss the need to schedule activities that make us feel good.

4. Schedule activities using the “10 Things I Can Do to Feel Better” worksheet.

Materials Needed:
Corresponding pages for C’s practice book
Practice assignment stamps/stickers
Rewards
Therapist record form
Video camera with blank tapes
Goals and Procedures

Broad Goals of the Session
In this session, you will focus on kinds of activities that C can engage in to improve his/her mood. The main point to get across is that what we do – out activities – can affect our mood, or how we feel. Doing fun things, doing things with people we like, doing things that keep us busy, and doing things that help others, can all help get our mind off of sad or bad feelings and make us feel better.

Keep in mind during the sessions...

There is one problem you should watch out for: Be prepared to hear various reasons why the practice assignment and/or additional ideas from the session cannot be accomplished. Accept these reasons as legitimate possibilities, but suggest that C try the assignment and other ideas out anyway, see how they work, and discuss the experience as a part of homework review in the next session. Your role as "coach" is critical here. You think this can be done, but there is only one-way to really find out: Try. For the skeptical youth, presenting the assignment as an experiment may also be helpful.

Review of Practice Assignment
Since this is the first session that includes a review of a practice assignment, be highly supportive in your comments about the assignment that was completed. Go over the assignment and discuss with C whether his/her attempt at presenting a positive self was successful. If not, emphasize the importance of being persistent in behaving positively.

Introducing Activity Scheduling
First, you want C to grasp that doing activities we enjoy can make us feel good and that doing activities we do not enjoy (including doing nothing) can make us feel bad. There are many paths to understanding the relation between our activities and our feelings. One particularly effective way to open this topic is with a personal story in which you discuss a time when doing things you did not like made you feel bad and then doing something you did like made you feel better.

To help make this point fit C personally, turn to the page entitled "Examples of Times When I Felt BAD... Did Something I ENJOYED, and then felt BETTER". Ask C to fill in at least 2, and possibly 3, examples of times when s/he felt bad, then did something enjoyable, then felt better. Discuss these experiences with C.

Next, ask C to fill in the Practice Book page titled "Ten Things I Can Do to Feel Good." listing ten easy-to-do activities C can do to elevate his/her mood (page 8). (In the interest of time, you may want to do only four or five, leaving additional activities to be filled in later by C and caregiver). The activities must be simple, free, do-able almost any time, and virtually guaranteed to make C feel good. The list might include such activities as calling a friend on the phone, taking a bath or shower, throwing a ball outside, spending time with a pet, reading, stopping to remember a fun experience (e.g., a camping trip), or doing a simple stretching exercise. Encourage C to come up with as many as s/he can. You may make some suggestions if C has trouble thinking of activities.

[Try to make sure that the list includes at least one simple activity C can do in this session, to set up the following In Vivo exercise ....]
In Session In Vivo Exercise: Trying Out One of the Simple, Pleasant Activities
Pick out one of the pleasant activities C has listed and try it out in the session. Have C rate how s/he feels right now. Then do the simple, pleasant activity for 2-3 minutes. Next, have C discuss how s/he feels and do another and do another feelings rating. Tell C this is just what s/he will be doing for one of his/her practice assignments during the week.

In-Session Role Play
If you have time, do a role-play trial run of another kind of pleasant activity that you and C have identified. For example, if C has decided to help a specific person in a specific way, you can play the person who needs help, and C can play him/herself. That way, the two of you can try out these additional types of mood-elevating activities together.

Practice Assignment: Doing One of the Simple, Pleasant Activities Outside the Session
The practice assignment involves doing one of the activities C has listed on one day between this session and next session. C should write down what activity s/he chose, and then do a feelings rating for how s/he felt both before and after that activity. Show C the relevant parts of the Practice Book that need to be filled in for this exercise.

Leave `Em Laughing
Close with some really funny or enjoyable activity – something that will leave C either laughing or feeling great. Possibilities: America's Funniest Home Videos, tell some funny jokes, play a board game that C really loves.
Parent Session 2 – Activity Scheduling

Objectives:

1. Review previous homework and Daily Check-Ins
2. Introduce problem solving and how it was taught to C
3. Indicate the importance of supporting child activation using positive behavior management skills
4. Discuss the connection between caretaker and child mood.
5. Discuss and schedule activity scheduling for the parent
6. Preview family activity scheduling

Materials Needed:
Relevant worksheets
Video camera
Goals and Procedures

Broad Goals of the Session
There are three main goals of this session: (1) introduce the parent to activity scheduling and discuss how he/she can support C’s activation. (2) Discuss the importance of engaging in meaningful activities for the parent. (3) Preview family activity scheduling. The goal is to teach the parent to support C’s activation and to establish his/her own activation.

Introduce the Importance of Activity Scheduling
Begin by discussing the connection between activity and mood, particularly as it relates to C. Tell the parent that it is important to encourage and support C being active. There are two major ways in which the parent can do this: (1) suggest activities the child might enjoy, and (2) show approval of the child being active. Ask the parent how they might use skills they have already learned to show approval. Have the parent provide a couple of examples of what he/she might say or do to encourage child activation.

Discuss the Connection Between Child Mood and Parent Mood
Indicate to the parent that research suggests parent’s mood is an important factor in determining the mood of the child. Tell the parent that, even if he/she feels good, it is desirable for the parent to take some time to engage in enjoyable and meaningful activities on his/her own. Stress to the parent that participating in simple but meaningful activities allows for reduction of stress, elevated mood, and better parenting practices. Ask questions about how often the parent is able to do some enjoyable or meaningful activities. You can use collected Daily Check-In data to inform this assessment. If the parent is able to identify a number of activities, move on. If not, help him/her to come up with a few ideas of activities to engage in. Use the “Ten Things I Can Do to Feel Good” worksheet. Make sure to comment that the parent is already doing something very meaningful by conducting special time with the child. Include that on the list. Identify at least one 15 min period during the week in which the parent can engage in a scheduled activity.

(Note: If time is running short, the most important thing is that the parent understands individual activation. If time remains after this is accomplished, move on.)

Provide a Preview of Family Activity Scheduling
Tell the parent that the next session will have to do with finding activities that the entire family can enjoy. Explain that family activity scheduling is just an extension of individual activity scheduling, focusing on improving the amount of positive contact between family members so that the relationships between all members of the family may be enhanced, contributing to the quality of life of all involved. Doing activities as a family helps everyone to feel happier and make the family healthier. As family activity scheduling involves coordinating among several individuals, there are a few parameters for consideration.

If the parent is married, ask him/her to recruit the spouse. Have him/her explain your desire to engage in more activities involving the whole family as a unit and ask these others to help you make this happen. The next step is to discuss and brainstorm the kinds of family activities that you want to and are able to engage in. Some activities can occur on a very regular (daily, weekly, or monthly) basis. Others, like family vacations, may occur less regularly and may only occur annually or every few years. Often there is a tendency to focus on these larger more expensive...
activities, but our main focus is on getting the family to engage in small- and medium-scale activities so that family activities can occur very regularly, on a weekly or at least monthly basis. Provide the parent with the list of examples activities. Ask the parent to talk with the spouse before the next session to identify a few activities that they think the entire family would enjoy. Tie this task back to activity scheduling. Suggest that one of the activities the parent can engage in is planning of the family activity. While this may not be “pleasant” it is a meaningful and worthy activity.

**Homework**
The parent has two tasks in addition to encouraging the child’s activation. The first is to spend at least 15 min engaged in a pleasurable/meaningful activity. The second is to meet with the spouse to explain family activities and come up with ideas.
Joint Session 2 – Family Activity Scheduling

Objectives:

1. Review previous homework.
2. Practice special time.
3. Discuss Family Activity Scheduling.
4. Brainstorm and begin scheduling activities.

Materials Needed:
C’s workbook and relevant pages
Board games
Family activity scheduling handouts
Video camera
Goals and Procedures

Broad Goals of the Session
The goals of the session are to introduce family activity scheduling to the child, clarify the rules of family activity, and help C and the parent make plans for instituting family activity scheduling. These actions are designed to increase the level of pleasant interactions between all members of the family and thus improve the family environment.

Parent-Child Activity
After administering assessments, have the parent and child practice special time for 10 min. Remind each of them of their roles before beginning. After 10 min, provide them with positive feedback about what they did well.

Discuss Family Activity Scheduling
Explain to the child that, just as it is important to participate in individual activities, it is good for the whole family to do things together as well. Tell the child that you have already spoken to the parent about this, and that he/she has already started to come up with some ideas for fun things to do, but that you want C’s input too.

Next, discus the rules of family activities:
- Remind everyone of the goal of family activity: To spend time with each other because we are a family and love one another.
- Family members should participate voluntarily.
- Keep the emphasis on having fun and enjoying one another’s company.
- Roll with frustrations that can occur even during activities designed to be fun.
- Be flexible and recognize that it doesn’t have to go perfectly.
- Choose to be present and actively engaged with all family members during the activity (e.g., turn cell phones off, let the answering machine answer calls).

Stress to the child that part of his/her job is to be enthusiastic and present a positive self when engaging in or talking about family activities. Talk about some ways that this can be done (e.g., “I can’t wait for Friday night.”).

Next, look over some of the ideas that the parent has already generated, and encourage C to come up with some new ideas. Make sure they think that all members of the family will enjoy the activities. When several good options have been identified, ask if any problems are foreseen and troubleshoot if necessary.

Homework
In addition to continuing daily special time, C and the parent are tasked with planning and conducting a family activity in the next two weeks. Remind them to collect an artifact to remember the activity by.
Child Session 3 – Problem Solving

Objectives:

1. Review previous homework discussing what C did and learned.
2. Teach the Problem Solving STEPS and do an in-session STEPS exercise.

Materials Needed:

Pages for next installment of C’s practice book
Practice assignment stamps/stickers
Extra pages, to complete practice assignment if child didn't bring his/her practice book or
Do practice assignment
Therapist record form
Pencils/crayons/magic markers
Goals and Procedures

Broad Goals of the Session
This session has one main goal, teaching problem solving. You will teach C a generic procedure for solving problems, using the S-T-E-P-S acronym.

Teaching the Problem Solving STEPS
First, discuss the fact that we all have problems, every day. Note that solving them can make us feel good, and not solving them can make us feel bad. Turn to the Practice Book and go over the “Five S-T-E-P-S to Problem Solving” together. The STEPS are....

FIVE S-T-E-P-S TO PROBLEM SOLVING

S Say what the problem is:

________________________________________________________________________

T Think of solutions:

1.____________________________________________ 3.____________________________________________

2.____________________________________________ 4.____________________________________________

E Examine each one [what good & bad things might happen if you did this?]

1. _________ Good: ___________ Bad: __________________

2. _________ Good: ___________ Bad: __________________

3. _________ Good: ___________ Bad: __________________

4. _________ Good: ___________ Bad: __________________

P Pick one and try it out [which one?]

________________________________________________________________________

S See if it worked [If it worked, great! If it did not work, then go back to your list of solutions, and try another one.]
You and C should each identify one (relatively simple) problem in your lives that you think that
the S-T-E-P-S can be applied to reasonably successfully. You will most likely want to start with
your own problem and have C be your helper in working through the S-T-E-P-S, filling in the
work sheet in the Practice Book. [Be sure to keep your example brief, e.g., by using only 2 or 3
possible solutions, and moving through them quickly; your main goal is to illustrate the process,
then get into a more detailed analysis of one of C’s problems]. Then you can go through the S-T-
E-P-S again, focusing on C’s problem, and filling in the second copy of the STEPS work sheet in
the Practice Book. If C is reticent or had difficulty identifying a problem, you may, instead, use a
story or a video to illustrate a problem, and then apply the S-T-E-P-S to that problem (e.g., The
Sandlot scene where the baseball lands in the dog pen).

**Practice Assignment**
Finally, give a take-home practice assignment that involves applying the 5 S-T-E-P-S to a real-life
problem. The assignment is written in the Practice Book. This page is to be filled in by C between
this session and next session (with caregiver, as needed), as a report on the practice assignment,
and brought back to the next session for discussion.
Parent Session 3 – Problem Solving

Objectives:

1. Discuss the importance of problem solving for depressed children.

2. Introduce the STEPS model of problem solving.

3. Practice STEPS

Needed Materials:
Relevant worksheets
Video camera
Goals and Procedures

Broad Goals of the Session
The goals of this session are to teach the parent how to help the child solve problems, to model a positive attitude while doing so, and to apply problem solving techniques to his/her own problems.

The Importance of Problem Solving
Explain to the parent that problems that arise for a child lead to stress and can exacerbate depressive symptoms. One way to combat this is to give the child a way to deal with problems actively and calmly. Problem solving can be useful in a number of ways. First, actively solving problems is one way for a child to become activated, rather than passively avoiding solutions to problems. Second, symptoms of depression can be viewed as problems in themselves. Learning a system to solve those problems can lead to an alleviation of symptoms. Third, solving problems together provides the parent another context in which to engage with the child positively and reinforce desirable behaviors.

Facilitating Problem Solving
Talk to the parent about the ways he/she can help the child problem solve effectively. The first of these is to have a positive attitude and to encourage the child by using statements such as, “It’s okay,” or, “We can handle this.” Such statements model an upbeat confident attitude for the child. Parents should also take care to provide positive attention for any behaviors on the part of the child that are perceived as confident or positive.

Introduce STEPS
Convey the STEPS model to the parent, first briefly summarizing the components, and then discussing each in more detail. Communicate some specifics of problem solving that were not initially described to the child, such as avoiding blame when identifying the nature of the problem. As one of the leaders of the family, the parent is charged with keeping focus on the problem itself, avoiding criticism or blame of others. As with the child, the therapist will model the use of the STEPS and then the parent will be asked to identify an existing problem with which to practice the STEPS approach. Note that STEPS is a simple model designed to be useful for all members of the family, but it can also be effective for personal problem the parent might experience.

Just as you did with the child, use an example from your own life to illustrate the use of STEPS. Then, invite the parent to use STEPS on a real current problem. Provide positive feedback and address any questions or issues.

Homework
There are two parts to the homework assignment. The first is to assist the child with his or her problem solving homework using the skills discussed. The other is to generate a list of at least five family problems that can be discussed the following week. The parent will be encouraged to identify problems that are concrete and easily defined.
Joint Session 3 – Family Problem Solving

Objectives:

1. Practice special time

2. Teach C and the parent to apply STEPS at the family level.

3. Practice STEPS to solve a family problem.

Needed Materials:
C’s workbook and relevant pages
Board games
Family problem solving handouts
Video camera
Goals and Procedures

Broad Goals of the Session
The purpose of the session is to give C and the parent an opportunity to apply the STEPS model to a family problem and receive feedback. Learning to deal with problems effectively is meant to decrease the stress among family members and improve the family climate.

Parent-Child Activity

Discuss STEPS
Ask the child to recall and explain the STEPS and talk about how such an approach to problems works well for families as well as individuals. Note that solving problems using STEPS with the family provides an opportunity to engage positively with others. Remind the child that part of doing STEPS is to present a positive self and be confident about solving the problem.

Practice STEPS
Ask the parent and child to identify one family problem to attempt to solve. When the problem is identified, the therapist will quickly meet alone with the child, and then the parent. When meeting with the child, the therapist will remind the child to present his or her positive self during the problem-solving exercise. When meeting with the parent, the therapist will remind the parent to make positive statement and to provide positive attention contingent on the child’s positive behaviors. Then the therapist will direct the child and parent to use STEPS to identify potential solutions to the problem. Ideally the parent will lead this activity with the therapist providing only positive feedback and noting specific instances of the target behaviors. It is unlikely potential solutions will be “tried out” during session, but the therapist might ask the parent and child to imagine trying one of their potential solutions to see what the outcome might be. The therapist will ask what to do if the first solution failed or inquire about other aspects of the process to assure understanding or to emphasize certain components of the model. When the child and parent arrive at a plan of action, the therapist will ask them to explore any barriers to the implementation of the plan. If problems exist, the child and parent are directed to apply STEPS to solve them. When the session ends, the parent and child should have a plan of how to communicate their solution to the problem to the family (if applicable) and how to implement it.

Homework
The parent child should continue special time, and if applicable, use STEPS to solve a problem at home.
Appendix C – Clinician’s Intake Summary Form

**Child Clinician’s Intake Summary Form**

Directions: This form is very important to help with our interview and evaluation process. Not all questions apply to all families; just answer the questions as best as they apply to your family. Your answers will help us to better address your child’s needs and to better understand your child. It takes about 15-20 minutes to complete. Use the back of pages as necessary. Thank you.

Demographic Information

Child’s First Name:______________ Child’s Sex:  M   F   Child’s Date of Birth: _________
Child’s School: _________________ Child’s Grade: ___ Today’s Date: _______________
Child’s Race: ___________________ Height: _______ Weight: ____________________

Primary Caregiver Information:

First Name: _________________ Age: ___________ Marital Status: __________________
Occupation: _________________ Education: _______ Date of Marriage: _______________
Live with Child?   Y    N   (If no, how often does the child see this person? ________________)

Primary Caregiver Information:

First Name: _________________ Age: ___________ Marital Status: __________________
Occupation: _________________ Education: _______ Date of Current Marriage: _________
Live with Child?   Y    N   (If no, how often does the child see this person? ________________)

Other Male Caregiver: (circle one: Adoptive father   Stepfather   Grandfather   Mother’s boyfriend   Other)
First Name: _________________ Age: ___________ Marital Status: __________________
Occupation: _________________ Education: _______ Date of Current Marriage: _________
Live with Child?   Y    N   (If no, how often does the child see this person? ________________)

Other Female Caregiver: (circle one: Adoptive mother   Stepmother   Grandmother   Father’s girlfriend)
First Name: __________________ Age: ________ Marital Status: __________________

Occupation: __________________ Education: ________ Date of Current Marriage: ________

Live with Child?  Y  N  (If no, how often does the child see this person? ________________)

Siblings and Others Living in the Household (List ALL of child’s biological siblings, whether in the
house or not. Also list any other people that live in the household.

Age  Relationship to Child (circle one)

First Names

__________________  ___  Full-Sib  Half-sib  Step-sib  Uncle  Aunt  Other:___
__________________  ___  Full-Sib  Half-sib  Step-sib  Uncle  Aunt  Other:___
__________________  ___  Full-Sib  Half-sib  Step-sib  Uncle  Aunt  Other:___
__________________  ___  Full-Sib  Half-sib  Step-sib  Uncle  Aunt  Other:___
__________________  ___  Full-Sib  Half-sib  Step-sib  Uncle  Aunt  Other:___
Appendix D – Modified Environmental Reward Observation Schedule

MEROS

Participant: _______________________
Date: ____________________________
Treatment Phase: __________________

Here are some statements about activities. Please tell us how much each one fits with what happened in your life in the past 7 days (the last week). Put your answer on the line using the numbers below

<table>
<thead>
<tr>
<th></th>
<th>1 = not at all</th>
<th>2 = sometimes</th>
<th>3 = fairly often</th>
<th>4 = often</th>
<th>5 = all the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I did activities that were fun.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>I liked how I spent my time.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>My life was boring.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>The activities I did turned out good.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Appendix E – Treatment Log

Treatment Log

Did the therapist create a warm and supportive atmosphere?
1 2 3 4 5 6
- Not at all
- Slightly
- Somewhat
- Mostly
- Considerably
- Entirely

To what degree was the session focused on better understanding the child's/parent's life, as opposed to skill acquisition?
1 2 3 4 5 6
- Not at all
- Slightly
- Somewhat
- Mostly
- Considerably
- Entirely

To what degree did the therapist recommend specific strategies for improving functioning/dealing with problems?
1 2 3 4 5 6
- Not at all
- Slightly
- Somewhat
- Mostly
- Considerably
- Entirely

Did the therapist review homework from a previous session?
1 2 3 4 5 6
- Not at all
- Slightly
- Somewhat
- Mostly
- Considerably
- Entirely

Did the therapist introduce a skill (e.g., positive-self, activity scheduling, problem solving, contingent reinforcement, etc.)?
1 2 3 4 5 6
- Not at all
- Slightly
- Somewhat
- Mostly
- Considerably
- Entirely

Did the therapist explain how the target skill (e.g., presenting positive self, activity scheduling, problem solving) can lead to feeling better?
1 2 3 4 5 6
- Not at all
- Slightly
- Somewhat
- Mostly
- Considerably
- Entirely

Did the therapist provide an example or model of the target skill?
1 2 3 4 5 6
- Not at all
- Slightly
- Somewhat
- Mostly
- Considerably
- Entirely

Did the therapist direct the child/parent to practice/demonstrate understanding of the target skill?
1 2 3 4 5 6
- Not at all
- Slightly
- Somewhat
- Mostly
- Considerably
- Entirely

Did the therapist provide feedback on the child's/parent's practice/understanding on the target skill?
1 2 3 4 5 6
- Not at all
- Slightly
- Somewhat
- Mostly
- Considerably
- Entirely

Did the therapist assign homework?
1 2 3 4 5 6
- Not at all
- Slightly
- Somewhat
- Mostly
- Considerably
- Entirely

How skillful was the therapist in developing and maintaining rapport?
1 2 3 4 5 6
- Not at all
- Slightly
- Somewhat
- Mostly
- Considerably
- Entirely

How skillful was the therapist in describing target skills and providing a rationale?
1 2 3 4 5 6
- Not at all
- Slightly
- Somewhat
- Mostly
- Considerably
- Entirely

How skillful was the therapist teaching the target skill?
1 2 3 4 5 6
- Not at all
- Slightly
- Somewhat
- Mostly
- Considerably
- Entirely

To what extent did the child complete the assigned homework?
<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>Slightly</td>
<td>Somewhat</td>
<td>Mostly</td>
<td>Considerably</td>
<td>Entirely</td>
</tr>
</tbody>
</table>

Did the child appear engaged and attentive?  
1 2 3 4 5 6  
Not at all Slightly Somewhat Mostly Considerably Entirely  

Did the parent appear engaged and attentive?  
1 2 3 4 5 6  
Not at all Slightly Somewhat Mostly Considerably Entirely  

Did the child/parent demonstrate an understanding of the target skill?  
1 2 3 4 5 6  
Not at all Slightly Somewhat Mostly Considerably Entirely  

Did the child/parent seem to understand the assignment for the following week?  
1 2 3 4 5 6  
Not at all Slightly Somewhat Mostly Considerably Entirely
Appendix F – Daily Questionnaire

Daily Check-in

Please make the appropriate response for each question below. Base your answers on the previous 24 hours.
What is your relationship to your child? *

- ☐ Mother
- ☐ Father
- ☐ Other

Question 1 * Did you spend at least 15 minutes of quality time with your child today?

- ☐ Yes
- ☐ No
- ☐ I didn't have any contact with my child in the last day

1a If "Yes," how would you rate the quality of your interactions with your child?

1 2 3 4 5

Very poor quality ☐ ☐ ☐ ☐ ☐ Very high quality

Question 2 * Were you able to spend 15 minutes doing something pleasant or meaningful for yourself today?

- ☐ Yes
- ☐ No

2a If "Yes," how enjoyable was this activity?

1 2 3 4 5

Barely enjoyable ☐ ☐ ☐ ☐ ☐ Extremely enjoyable

Question 3 * Did you or your child experience a problem today?
• □ Yes
• □ No

3a If "Yes," how well prepared to deal with the problem did you feel?

1 2 3 4 5

Very unprepared □ □ □ □ □ Very prepared

Question 4 * How happy did your child act today? For instance, did you notice him/her smiling and making positive statements?

1 2 3 4 5

Not happy at all □ □ □ □ □ Very Happy

Question 5 * How active was you child today? Was he/she busy with different activities?

1 2 3 4 5

Not active at all □ □ □ □ □ Very active

Question 6 * Did you praise your child for something he/she did today?

• □ Yes
• □ No

Question 7 Did you praise your child "just because" today? In other words, not because he/she did something good, but just because you love them?

• □ Yes
• □ No
Appendix G – Illustration of Nonoverlap of All Pairs Method from Parker and Vannest (2009)
Date: March 17, 2010

To: Scott Gaynor, Principal Investigator
Andrew Riley, Student Investigator for dissertation

From: Amy Naugle, Ph.D., Chair

Re: HSIRB Project Number: 10-02-08

This letter will serve as confirmation that your research project titled “A Brief Cognitive-Behavioral Treatment for Youth Depression” has been approved under the full category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research described in the application.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: February 17, 2011