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# The Effects of Ongoing Assessment During a Psychoeducational Evaluation

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**THE EFFECTS OF ONGOING ASSESSMENT DURING A  
PSYCHOEDUCATIONAL EVALUATION**

**By**

**Elliot Joseph, M.S.**

A Dissertation Presented to the College of Psychology  
of Nova Southeastern University  
in Partial Fulfillment of the Requirements  
for the Degree of Doctor of Philosophy

NOVA SOUTHEASTERN UNIVERSITY

2015

## DISSERTATION APPROVAL SHEET

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## **ABSTRACT**

### **The Effects of Ongoing Assessment During a Psychoeducational Evaluation**

by

**Elliot Joseph, M.S.**

**NOVA SOUTHEASTERN UNIVERSITY**

Statistically significant reductions in scores from initial pretreatment testing to subsequent pretreatment testing in self-report measures are a widespread phenomenon (Arrindell, 2001). If valid, these reductions reflect improvement in psychological functioning absent any formal treatment (Arrindell, 2001). Many explanations for these reductions in scores have been offered (Arrindell, 2001) including assessment reactivity (Epstein et al., 2005), social desirability (Henderson, Byrne, & Duncan-Jones, 1981); and mechanical responding (Bromet, Dunn, Connell, Dew, & Schulberg, 1986; Durham et al., 2002). However, relatively few studies have examined this phenomenon empirically. Even fewer studies have examined pretreatment improvements in parent ratings. The present study sought to replicate the pre-treatment effect and to evaluate potential causes of these changes, specifically, repeated assessment, social desirability, and mechanical responding. Additionally, the study examined the relationship between maternal depression and parent ratings. Participants included 28 self-referred mothers and their children, though only 17 completed the study in its entirety. Results indicated pretreatment reductions in maternal ratings of child symptomatology and parenting stress. Repeated assessment was not supported as a cause of pretreatment improvements (score reductions). Social desirability, however, may have been a factor in the mothers' ratings. Mechanical responding did not appear as a likely cause. Maternal symptoms of

depression were associated with less change over the course of the study. Clinical implications, study limitations, and suggestions for future research are discussed.

## CHAPTER I

### Statement of the Problem and Review of the Literature

Statistically significant reductions in scores from initial pretreatment testing to subsequent pretreatment testing in self-report measures are a widespread phenomenon (Arrindell, 2001). If valid, these reductions reflect improvement in psychological functioning absent any formal treatment (Arrindell, 2001). Windle's (1954) review of objective personality measures in mostly non-clinical samples indicated a tendency toward pretreatment improvement upon retest. Many subsequent studies have documented similar findings in both clinical and non-clinical samples using self-report measures of affective state and trait conditions (Arrindell, 2001), depression and anxiety (Gilbert, McClernon, Rabinovich, Plath, Jensen, & Meliska, 1998; Posternak & Miller, 2001; Sharpe & Gilbert, 1998), substance use (McCambridge & Day, 2008), and general distress (Swift, Callahan, Herbert & Heath, 2012; Young, 2006). Willson and Putnam's (1982) meta-analysis of 32 studies concluded that at retest people predominantly endorsed fewer symptoms on affective tests. Widely-used measures such as the Beck Depression Inventory (BDI; Sharpe & Gilbert, 1998), the Beck Anxiety Inventory, the Depression Adjective Check Lists, the Symptoms Checklist-90, and the Zung Depression Scale (Arrindell, 2001) show a reduction in pretreatment scores.

In the cognitive-affective literature, Arrindell (2001) found that mean scores on the majority of a wide range of symptom and affective state and trait measures decreased at the second administration among both inpatients and outpatients in the absence of intervention. Minimal evidence existed to support a relationship between time interval and magnitude of the decrease. This suggests that duration between test administrations is

not associated with a decrease in scores. Posternak and Miller's (2001) meta-analysis of 19 studies of depression found pretreatment reductions in mean BDI scores of 15.7% and in Hamilton Rating Scale for Depression scores of 11.9%. Posternak and Miller (2001) highlight that the rate of symptom improvement for studies that excluded participants who sought treatment in the interim period was double that of studies which included participants who had sought treatment. Gilbert et al. (1998) found negative affect ratings decreased before the initiation of a smoking cessation intervention. Sharpe and Gilbert (1998) showed that in a non-clinical sample over three assessment points, depression and anxiety ratings decreased. Ahava, Iannone, Grebstein, and Schirling (1998) found, in a non-clinical college sample, that BDI scores decreased with four weekly administrations and leveled off in the four weekly assessments that followed. Rape victims who did not receive treatment and were administered the BDI and Hamilton Rating Scale for Depression at two weeks post-assault and one, two, four, eight, and 12 months post-assault, showed significantly decreased scores through the fourth administration and then stabilized (Atkeson, Calhoun, Resick, & Ellis, 1982). A similar pattern was found for BDI scores among an untreated, non-assaulted control group. Wilson and Putnam's (1982) meta-analysis showed that 64% of all score changes, and 81% of cognitive changes, indicated pretreatment improvement. In contrast to Arrindell (2001), duration of time between testing administrations was related to effect size. Smaller effect sizes were found for durations of less than a day or over one month. Wilson and Putnam (1982) conclude that symptom reduction "cannot be safely ignored" (pg. 256) but that pretreatment symptom reduction may not be uniform across psychological domains (e.g., cognitive and affective domains). Jorm, Duncan-Jones, and Scott's (1989) study of a non-

clinical sample found reductions in scores for social desirability, well-being, and personality measures. Similar to Arrindell (2001), they concluded that duration between administrations did not diminish the reduction of scores. Jorm et al. found that reductions in scores only occurred with measures of negative self-characteristics administered orally. Other studies regarding anxiety have shown reduction in scores (e.g., Knowles, Coker, Scott, Cook, & Neville, 1996).

In contrast, studies have generally found no such pretreatment improvement of scores on measures of positive states (Arrindell, 2001; Gilbert et al., 1998; Jorm et al., 1989; Sharpe & Gilbert, 1998). This suggests that pretreatment improvement of scores is limited to measures of psychopathology and maladaptive behaviors. Additionally, Roodman (1996) failed to find a score reduction in a self-report measure of panic attacks. Barkham, Mullin, Leach, Stiles, and Lucock (2007) also did not find a reduction in scores on the BDI between client referral and clinical assessment. Despite Roodman's (1996) and Barkham et al.'s (2007) findings, it appears that pretreatment reduction of scores is common in the cognitive-affective research areas, particularly for psychopathology and maladaptive behaviors (Arrindell, 2001).

Studies of substance use have also shown pretreatment reductions in symptoms. For example, Epstein et al. (2005) used a retrospective self-report measure of women's drinking to examine four pre-treatment screening and assessment data points. Significant reductions in drinking occurred at all change points. Forty-four percent reported abstinence before treatment. Epstein et al. (2005) conclude that women changed their drinking behaviors after seeking treatment but prior to the onset of treatment. These changes were maintained over the course of treatment. Stephens, Roffman, and Curtin



(2000) examined treatments for marijuana users by randomly assigning them either to a delayed treatment group or to one of two different treatment groups. All groups completed an assessment at the time of randomization. The delayed treatment group showed significant reductions in self-reported (and collateral verified) marijuana use and related consequences at the four-month pre-treatment follow-up. In comparison, the groups already in treatment experienced significantly greater improvements. Connors, Tarbox, and Faillace (1992) found that an assessment-only, quasi control group of alcohol abusers reduced their drinking and their reduction did not differ significantly from alcohol abusers who had attended outpatient treatment at a one-year follow-up. Kaminer, Bruleson, and Burke (2008) found that between the baseline intake assessment of alcohol use, where all teenage participants tested positive for alcohol use, and the first treatment session, 51.4% of the teenagers reported being abstinent from drinking. This result however, may be due to the adolescents' desire to be viewed in a positive manner. Kaminer et al. (2008) also found, through urinalysis, that of the 81.9% who had tested positive for drug use at baseline, 29% were abstinent at the first treatment session. The change ratio of those moving in the desired direction was significant. Lastly, Timko, Moos, Finney, Moos, and Kaplowitz (1999) studied untreated alcohol abusers by administering multiple assessments starting at baseline through an eight-year follow-up. They found self-reported improvements among those who had not entered treatment by year three. However, the no treatment group reported less improvement than those who had entered treatment. No further improvement was reported from year three through eight.

A variety of other research has also revealed pretreatment symptom reduction. Regarding general distress, Young (2006) found that among waitlisted clients, between initial assessment and the beginning of therapy, 16.5% of the sample showed reliable and clinically significant pretreatment improvement on the Clinical Outcomes in Routine Evaluations-Outcome Measures (CORE-OM; Barkham et al. 1998). Reliable improvement alone was found in 12.2% of the sample. For participants who reported more initial symptomatology, 25.2% had reliable and clinically significant pretreatment improvement and 14.6% had only reliable improvement. Swift, Callahan, Herbert and Heath (2012) studied distressed college students not receiving therapy over a 12-week period using the Outcome Questionnaire-45 (OQ-45, Lambert et al., 1996). They found that 38.2% of participants showed reliable and clinically significant reductions in symptoms on the OQ-45, while 5.3% had only reliable improvement. In a meta-analysis of tinnitus, “an auditory disorder, defined as the perception of constant sound in ear(s) without any appropriate external source” (Hesser, Weise, Rief, & Andersson, 2010, p.378), participants in a wait-list control group for cognitive-behavioral therapy had statistically significant mean reductions in scores on tinnitus-specific measures of 3% to 8% (Hesser et al., 2010). Similarly, within the disruptive behavior disorders, Milich, Roberts, Loney, and Caputo (1980) found that teacher’s ratings of hyperactive behaviors decreased between two administrations. Boys who were initially more hyperactive had a greater decrease in scores, suggesting regression to the mean as a possible explanation. Finally, Patterson and Narrett (1990) identified studies of aggressive and oppositional children which indicate score reductions in parent reports of child behavior problems in the absence of intervention.

### ***Theoretical Explanations for Pretreatment Reduction in Reported Symptomatology***

Though numerous studies have documented pretreatment improvements across a variety of measures, little experimental research has examined possible causal mechanisms (French & Sutton, 2010). Reduction in scores from the initial point of testing to a subsequent testing may be a function of a number of factors. The best scenario, from a client's perspective, is that actual change occurs (Arrindell, 2001). Arrindell (2001), Durham et al. (2002), and Sharpe and Gilbert (1998), review a number of reasons, summarized below, to explain reductions in pretreatment scores.

#### ***Legitimation***

Arrindell (2001) proposed the "legitimation hypothesis" that suggests clients attempt to engage the sympathy of the therapist at their initial meeting by exaggerating their symptoms. Arrindell (2001) reported that no empirical data for this reason exist. Furthermore, this hypothesis is limited to treatment-seeking samples, whereas pretreatment reductions in scores have been found in non-clinical samples (e.g., Durham et al., 2002; Sharpe and Gilbert, 1998).

#### ***Chronicity***

The chronicity hypothesis (Ormel et al., 1989) states that over time clients will become accustomed to their symptoms and view them as less problematic. Ormel et al. (1989), however, did not find support for this hypothesis.

#### ***Diminished Test-Anxiety***

The diminished test-anxiety hypothesis proposes that clients have less anxiety during the second testing (Arrindell, 2001). Clients therefore report fewer symptoms. However, this reason also wasn't supported since studies have shown (Henderson et al.,

1981) that reductions in scores do not necessarily occur for each and every measure administered at a second testing.

### ***Mood-Congruent Associative Processing***

Sharpe and Gilbert, (1998) hypothesized that the reduction in scores might be due to mood-congruent associative processing (Teasdale & Barnard, 1993), whereby clients completing measures of negative moods are in a negative mood state and are therefore more aware of negative moods. This awareness increases the likelihood of negative responses. The items on the second testing have been habituated from the first testing and result in the decreased likelihood of eliciting negative moods. No empirical research about this hypothesis has been conducted.

### ***Sample Attrition***

This hypothesis states that reductions in scores are due to sample attrition (Arrindell, 2001). The hypothesis assumes that only participants whose symptoms worsen, or who develop symptoms after the first testing, drop out of the study. This reason however, does not explain pretreatment improvement in samples where attrition did not happen (Arrindell, 2001).

### ***Natural Coping Mechanisms***

Sharpe and Gilbert (1998) postulated another cause of the reduction in scores is the use of natural coping mechanisms. With the first testing administration, the client is more aware of their negative mood state and then attempts to cope with it in his or her own way. The subsequent administration occurs after the client has already coped with their mood and therefore reports less negatively.

### ***Self-Monitoring***

Sharpe and Gilbert (1998) allude to another possible hypothesis of self-monitoring (Korotitsch & Nelson-Gray, 1999) that is similar to natural coping mechanisms. The first administration acts as a self-monitoring tool for clients to notice their own behaviors. Then the increased awareness and introspection and the effects associated with self-monitoring (possibly self-regulation, Walters, Vader, Harris, & Jouriles, 2009) produce a reduction in scores on the second administration.

### ***Response-Shift***

Yet another hypothesis offered by Arrindell (2001) is response-shift (Howard & Dailey, 1979). This hypothesis postulates that client's standard for evaluating the measure has changed between administrations. A similar hypothesis is meaning-shift (Knowles et al., 1996). The first administration gives clients an increased understanding of the items on the measure, and during the second administration, clients are less likely to endorse the items. The client's perception is that the items have become more serious and are therefore less likely to be endorsed (Loftus, 1975).

### ***Social Desirability***

Henderson, Byrne, and Duncan-Jones (1981) hypothesized that the reduction in scores is due to social desirability, whereby clients present themselves more favorably on re-test. Arrindell (2001) reported mixed results from studies in supporting this hypothesis. Durham et al. (2002), in a non-clinical sample, found that social desirability did not account for significant score changes.

### ***Mechanical Responding***

Mechanical responding (Bromet, Dunn, Connell, Dew, & Schulberg, 1986; Durham et al., 2002) is a hypothesis which states that clients become disinterested in the assessment, attempt to complete it quickly, and do not carefully consider each item. Durham et al. (2002), however, in the first and only study of mechanical responding, did not find disinterest to be a factor in reduction of scores for either parent ratings of child behavior, or adult self-reported behavior, in non-clinical samples. Durham et al. (2002) asserted that social desirability and mechanical responding have been the most frequently suggested reasons for reductions in scores, although they have been scarcely examined.

### ***Therapy***

The therapy hypothesis states that assessment itself, and, in particular, repeated assessment, has beneficial effects (Arrindell, 2001; French & Sutton, 2010; Longwell & Truax, 2005). According to the therapy hypothesis, pretreatment reductions in scores reflect true symptom change. This hypothesis has a substantial research base, is the most important hypothesis for the present study, and is further detailed below.

### ***Effects of Assessment and Repeated Assessment***

Studies from a wide range of research areas indicate that participating in assessment results in beneficial effects, as reported on self-report questionnaires and in behavior changes (French & Sutton, 2010). In the present study, this effect of assessment will be referred to as “Assessment Reactivity” and is defined as the “initiation of a therapeutic change process as a result of the assessment itself” (Epstein et al., 2005, p.369). Assessment reactivity is the general title of the effect of assessment discussed in the alcohol field (McCambridge, 2009). It is also a suitable title in other fields because it

connotes that assessment itself can be reactive in numerous ways, whether therapeutic or not. A plethora of titles used to discuss similar phenomena across many research areas leads to widespread conceptual confusion. The titles include; Reactivity (Epstein et al., 2005; Moos, 2007; Sobell, Bogardis, Schuller, Leo, & Sobell, 1989), Research Assessment Exposure Reactivity Effects (Clifford et al., 2007), Mere Measurement Effect and Mere Measurement Interventions (Godin et al., 2008), Measurement-Induced Improvement (Knowles et al., 1996), Testing effects (Shadish, Cook, & Campbell, 2002), Practice effects (Lemay, Bedard, Rouleau, & Tremblay, 2004), Pretest Sensitization Effects (Willson & Putnam, 1982), a Retest Artifact (Durham et al., 2002), a Retest Effect (Arrindell, 2001; Vermeersch, Lambert, & Burlingame, 2000), the Test-Retest Effect (Windle, 1954), Assessment Effects (McCambridge, 2009), Subject Reactivity (Kypri et al., 2006), Reactive Measurement Effects and the Interaction Effect of Testing (Campbell, 1996), Measurement Reactivity, Self-Erasing Errors of Prediction, Self-Prophecy Effect, Self-Generated Validity, or the Question-Behavior Effect (Sprott et al., 2006). Assessment reactivity has been described as an assessment intervention (Walters et al., 2009) or characterized as a Hawthorne effect (Bouchet et al., 1996). The causes of assessment reactivity are little understood (French & Sutton, 2010; Knowles et al., 1996), have been described as an “enigma” (Voas, 1956, p.375), and as continuing to be an “enigma” (Knowles et al., 1996, p.352).

Assessment reactivity has been found in substance abuse research. Epstein et al. (2005) found that participants reported pretreatment reductions in their drinking, after a brief study eligibility screening, without any assessment feedback or motivational interviewing. They theorized that participants reduced their drinking after each

assessment session since “the assessment itself was therapeutic by facilitating self-reflection” (p. 376). Chang, Wilkins-Haug, Berman, and Goetz (1999) compared a group of pregnant women which received only a comprehensive alcohol assessment, and no interviews or assessment feedback, with a group that received the same assessment and a brief intervention. They found that both groups significantly reduced their antepartum drinking with no group differences. McCambridge and Day (2008) examined the effects of the addition of a one-time administration of the Alcohol Use Disorders Identification Test (AUDIT, World Health Organization, 2001), and no interview or feedback, on two to three month follow-up data in a randomized control trial. Results indicated, based on self-report at retest, that the group which completed the AUDIT, in comparison to those who did not, reported less hazardous drinking. Kypri, Langley, Saunders, and Cashell-Smith’s (2007) study showed that in comparison to an information-only control group, a group that received a 10-minute internet-based assessment at baseline with no assessment feedback, reported lower overall alcohol consumption, fewer heavy drinking episodes, fewer problems, and a lower AUDIT score at 12 months after baseline.

The beneficial effects of assessment interviews are supported by several substance abuse studies. It is important to note that the interpersonal nature of assessment interviews may cause participant improvement and these studies may therefore be distinct from previous studies where interpersonal interaction during assessment was limited. Nonetheless, these studies support the beneficial effects of assessment, albeit a different manner of assessment. Carey, Carey, Maisto, and Henson (2006) found that participation in a timeline follow-back interview of daily alcohol use reduced drinking relative to a control group which did not participate in the timeline follow-back interview. Provision



of feedback from the timeline follow-back interview to the participants was not reported. Worden, McCrady, and Epstein (2008) found that alcohol dependent women reduced their drinking after an initial follow-up interview. This study indicates that an additional interview assessment beyond treatment may prompt client improvement on self-report measures. Marsden et al. (2006) in a randomized study, compared a group with a motivational session, a self-completed assessment, and written information about health risks of using drugs to a comparison group without the motivational session and found no group differences at a six-month follow-up. Although this study did not have a pure assessment group due to the provision of health risk information, completing the assessment was rated by 87% of the assessment group participants as prompting their change. Seventy-eight percent of the motivational session group felt their change was caused by the intervention. McCambridge and Strang (2005) conducted a randomized study of motivational interviewing with young drug abusers. They found greater improvement at three months for a single session of motivational interviewing than an assessment-only group. However, the assessment-only group reported reduced substance use on two of three drugs examined at the 12-month follow-up. In comparison, the motivational interviewing group increased their substance use at the 12-month follow-up. This suggests that the three-month follow-up assessment interview had a beneficial effect for the assessment-only group.

The beneficial effects of assessment are also indicated in health psychology research. Sandberg and Conner (2009) found that measuring planned behavior about cervical screening resulted in greater attendance at the screening than was observed in a control group whose planned behavior was not measured. Cioffi and Garner (1998) found

that students who were sent an email message requesting them to reply “no” if they did not intend to donate blood the following week were significantly more likely to donate blood, based on health care records, than students who were not sent the message. It is important to note that the previous studies used an objective measure of outcome with no assistance from participants after the initial contact.

Assessment reactivity has also been found in other research areas. Marketing research has shown that survey participation without intent to influence customers is associated with “significant and broad-based changes in customers’ behaviors” (Borle, Dholakia, Singh, & Westbrook, 2007, p. 711; Machin & Fitzsimons, 2005). Similarly, Falk (2010) found in two studies that answering a questionnaire regarding self-reported risky driving behavior and attitudes (study one), or personal driving behavior only (study two), resulted in a significant decrease in self-reported risky driving behavior at the five-week follow-up.

Some studies, however, have not supported the beneficial effect of assessment. Sutton, Bickler, Sancho-Aldridge, and Saidi (1994) did not find statistically significant assessment reactivity on breast cancer screening, another objectively measured health-related behavior. Hester and Delaney’s (1997) study of heavy drinkers who were randomized to either an immediate treatment group or a delayed treatment group after assessment did not support assessment reactivity. The delayed treatment group did not show any change in their drinking behaviors after assessment prior to beginning treatment. Lastly, a study by Maisto, Sobell, Sobell, and Sanders (1985) showed no effect of follow-up interview style (data-oriented or person-oriented) on drinking behaviors. No

common factors among these studies could be identified contributing to the absence of assessment benefits.

Despite the studies that did not find assessment reactivity, many researchers (e.g., French & Sutton, 2010; Godin et al., 2010; Walters et al. 2009) suggest that overall, assessment has beneficial effects. In French and Sutton's (2010) review they state; "measurement can affect people's thoughts, feelings, and behavior, and is therefore 'reactive' " (p.454). Their review concludes that several studies provide evidence that "people who are asked to complete psychological measures are altered by the experience" (p. 465). Thus, pretreatment reductions in scores may be a function of assessment reactivity, i.e., a therapeutic process is initiated by a first assessment, leading to a reduction in scores on the second assessment that reflects a true decrease in symptomatology (Arrindell, 2001; Epstein et al., 2005). It should be noted though, that some have characterized reductions in scores as an artifact (Jorm et al., 1989) or as a response bias (Heishman et al., 2004), implying that the reductions in scores introduces error in assessment and controlling for this error is necessary.

In addition to assessment itself having beneficial effects, *repeated* assessment may specifically cause improvement. Longwell and Truax (2005), in a randomized design, found that the frequency of testing accounted for decreases in BDI-II scores among non-clinical participants. Choquette and Hasselbrock (1987), using an experimental design, found that BDI and Zung Self-Rating Depression Scale scores decreased as a function of repeated testing in a sample of inpatients treated for alcohol problems. Clifford, Maisto, and Davis (2007), also using an experimental design, compared groups based on the frequency of alcohol assessment. They found that more

frequent alcohol assessment resulted in reduced alcohol use and improved related consequences outcomes after 12 months. Finally, Walters et al. (2009) after all participants completed a screening questionnaire, compared alcohol users based on the immediacy and amount of assessment received. Participants in the “immediate” assessment group (multiple additional time-points of assessment) reported less risky drinking and more moderation strategies than a “delayed” assessment group (only a follow-up assessment) at the 12-month follow-up.

Some studies, however, have not found specific beneficial effects of repeated assessment. Heishman, Saha, and Singleton (2004), in an experimental study, did not find any benefit of repeated measurement with a tobacco craving questionnaire. Hufford, Shields, Shiffman, Paty, and Balabanis’s (2002) correlational study also failed to show that “ecological momentary assessment of drinking behavior” changed either their drinking behavior or readiness to change their drinking behavior. Studies of repeated assessment are inconclusive as to whether repeated assessment is beneficial. However, since assessment is generally regarded as beneficial, as described above, it is reasonable to assume that more frequent assessment would also be advantageous. The existence of pretreatment improvement raises scientific and clinical concerns.

### ***Scientific Concerns about Reductions in Pretreatment Scores***

The attribution of client change to an intervention, when change, in reality, may be due to any of the aforementioned causes of the decline in scores is a scientific concern (Clifford & Maisto, 2000; French & Sutton, 2010). Epstein et al. (2005) caution that without assessing for pretreatment reductions in scores, one could inaccurately interpret a study’s outcome as being due to the treatment intervention rather than the effects of

assessment. Concern is especially warranted given that the statistical magnitude of the reductions in scores has ranged from small or medium (Arrindell, 2001; Hesser et al., 2011; Young, 2006), to large (Sharpe & Gilbert, 1998). The large effect sizes are at least as large as the improvement rates associated with traditional psychotherapy (Arrindell, 2001). Concern has existed for several years that lengthy assessments and follow-up interviews might initiate the change process (Bien, Miller, & Tonigan, 1993; Clifford, Maisto, Franzke, Longabaugh, & Beattie, 2000). Clifford et al. (2000) further state that pretreatment reductions in scores may reduce the likelihood of finding differential treatment outcomes. One example of such concern was Project MATCH (Project MATCH Research Group, 1998), where it is thought that the initial intensive assessments for all groups prompted change and contributed to the later lack of differences between intervention groups (DiClemente, Carroll, Connors, & Kadden, 1994). Furthermore, it has been hypothesized that the phenomenon of reduction in scores leads to numerous research results where psychotherapy is not more effective than placebos (Arrindell, 2001). Munsinger (1975) seriously questioned the results of studies that did not control for these reductions in scores.

Various methods to control for reductions in scores have been offered. Windle (1954) recommended establishing the rate of reduction for each assessment measure to which further reductions can be compared. Arrindell (2001) suggested using multiple baseline measures, reducing potential socially desirable responding by emphasizing confidentiality, using honesty instructions, and implementing statistical corrections. French and Sutton (2010) suggested using the Solomon four-group design. However, given our limited understanding of its causes, no comprehensive guidelines to date have

been delineated to control for reductions in scores. The search for “nonreactive, unobtrusive measures” (Campbell, 1996, p. 364) is an unresolved issue in measurement.

### ***Patient-Oriented Research***

In addition to scientific concerns, reductions in scores are clinically relevant. Specifically, reductions in scores are clinically important in patient-oriented research (Howard, Moras, Brill, Martinovich, & Lutz, 1996) which aims to measure and monitor an individual’s change over the course of therapy and outcome by repeatedly assessing clients at each session. Patient-oriented research focusing on treatment monitoring and outcome research is a recent development in the assessment field (Kazdin, 2005). It promotes tracking treatment status (i.e., improving or not) by using measures which are reliable and valid for repeated administration (Howard et al., 1996). It also strives to ensure that adaptations of interventions are proven effective by tracking changes on targeted intervention items (Howard et al., 1996). The Outcome Questionnaire-45 (OQ-45, Lambert et al., 1996) is an example of a measure developed to assist in monitoring treatment and evaluating outcome for adult clients. The OQ-45 was designed as a weekly measure of change, as well as a criterion measure, to categorize clients into outcome groups (improvers, no changers, and deteriorators) (Lambert, 2007). It is considered easy to administer, sensitive to change over short periods, and yet stable for untreated clients (Vermeersch et al., 2000). However, research shows a significant decrease in OQ-45 scores between the first and second administration, regardless of the duration between administrations (Durham et al., 2002). Subsequent to the second administration, scores stabilized. Using the OQ-45 during treatment has been shown to improve client outcomes with therapist feedback (Shimokawa, Lambert, & Smart, 2010).

Early identification of potential treatment failures is another benefit of treatment monitoring (Bishop et al., 2005). Improving psychotherapy outcome in routine care by monitoring progress and providing feedback to both clinicians and clients to guide treatment are the overall goals of patient-oriented research and the OQ-45 (Lambert, 2007). To that end, a therapist feedback mechanism, using alarm signals of different colors representing different client trajectories as an intervention for preventing deterioration, together with clinical support tools, have been studied (Lambert et al., 2004; Shimokawa et al., 2010). Lambert (2007) states that therapist and client feedback in comparison to not receiving feedback produces clinically meaningful changes for clients, which is more than just a statistical difference. The resultant effect sizes are large enough to lead to the recommendation as a best clinical practice (Lambert, 2007). In research to date, however, the most important determinant of treatment outcome was identified as initial client functioning, specifically severity, complexity of disorder, and somatization, among other variables in a client's functioning (Lambert & Anderson, 1996).

For the OQ-45, a Reliable Change Index (RCI) (Jacobson & Truax, 1991), a measure of a client's change beyond chance, and clinically significant change, a measure of a client's functionality, have been established (Lunnen & Ogles, 1998). The RCI has been supported by subsequent studies (Bauer, Lambert, & Nielsen, 2004; Beckstead et al., 2003) which state that the RCI is a moderate, but reliable, estimate of treatment effects. However, Lambert (2007) states that the practical meaning of these scores in client's lives needs further research. For example, it is unknown how a depressed client's

change score that exceeds the RCI manifests in the client's life. Whether the client will have reliably more social interactions and eat or sleep better is unknown.

There are several limitations of the aforementioned OQ-45 research studies. Most of the data was collected from one university outpatient clinic by a single research team. The generalizability of such findings is therefore limited. Another limitation is the therapists, with no direction given to them, were free to use feedback as they saw fit. The understanding of the impact of treatment is limited by the usage of only one measure of improvement. Despite these present limitations, Lambert and colleagues have expanded their outcome measures and patient-oriented research by developing more efficient, briefer measures, such as the OQ-30, and the Youth-Outcome Questionnaire (Y-OQ; Burlingame et al., 1996).

The Y-OQ was developed as the child and adolescent equivalent of the adult OQ-45 for use in monitoring client progress during treatment (Bishop et al., 2005; Burlingame, et al. 1996). The Y-OQ is designed primarily to assess observed behavior change. Parents, or others with sufficient interaction with the client, complete the Y-OQ at intake, which is deemed "baseline", and then complete it regularly to track the client's changes. Lambert and colleagues (Lambert et al., 2003) state that client outcome improves by repeated measurement. The most reliable gauge of change is the total score (Burlingame, Cox, Wells, & Lambert, 2003).

Burlingame, Wells, Lambert, and Cox (2004) report that data from thousands of children of different populations (such as elementary school students, a community normative sample, outpatients, inpatients, and a clinical normative sample) have been collected regarding the Y-OQ. Those samples yielded a high internal consistency ( $r =$



.97) (Bishop et al., 2005). The total score of the Y-OQ has a strong relationship with the total score of the Child Behavior Checklist (CBCL; Achenbach, 1991). This supports its criterion-related validity (Burlingame et al., 2001). Studies have examined how the Y-OQ behaves over the course of treatment (Burlingame et al., 2004), and cut points for evaluation (Bishop et al., 2005). Criteria for the early identification of possible treatment failure have been studied and established (Bishop et al., 2005). It has been suggested that future studies with the Y-OQ should examine whether providing feedback to therapists or client's parents would result in improved client outcomes, as was found for the OQ-45 (Bishop et al., 2005).

Kazdin (2005) asserts that the Y-OQ can be used in different ways to evaluate treatment progress, such as by looking at only certain subscales or items. However, Kazdin (2005) comments that the Y-OQ needs further research to establish its validity since it is a parent-report measure and “no one perspective (e.g., parent, teacher, and child) can be taken as the truth or may even well represent how the child is doing” (p.555). Furthermore, parental characteristics such as “psychopathology, stress, and social isolation influence the data the parent provides about the child and how deviant the child appears” (Kazdin, 2005, p.555). Thus, initially measuring parents' level of stress and depression along with the Y-OQ may be beneficial in interpreting Y-OQ scores.

Durham et al.'s (2002) study was the first to examine reductions in scores based on the frequency of assessment for parent ratings of their children. They found significant pretreatment reductions in Y-OQ scores, with more frequent assessment contributing to greater score reductions. However, they concluded that the reductions were below what they characterized as clinically significant change.

### **Purpose of this Research**

Measures are validated by their sensitivity to change (Vermeersch et al., 2000). This sensitivity includes scores changing in their predicted post-treatment manner, scores reflecting treatment changes by discriminating between treated and untreated populations (i.e., the measure remains stable in an untreated population), and how scores are influenced by measurement error (Mash & Hunsley, 2005). Pretreatment reductions in scores obscure treatment measurement interpretation, and call into question the reliability and validity of measures (Arrindell, 2001).

A significant amount of the previous research on assessment effects have design limitations which weaken their conclusions. Much of the research is based on pre/post designs which demonstrate that over time there were reductions in scores reflecting less symptomatology. The researchers infer that since there was no intervention, the plausible explanation is that the assessment itself caused score reductions. However, there may be many reasons (e.g., legitimation, chronicity, etc.) for score reductions. Assessment effects may be one of the reasons for score reductions, but cannot be established as a cause based on a pre/post design alone. The present study's design improves on much of the previous research by having two groups, one assessed only pre/post and one with multiple assessments (see Walters et al., 2009). This design renders more valid inferences whether score reductions are due to assessment itself.

Previous research has also primarily focused on pretreatment score reductions and assessment reactivity (and related constructs) where individuals reported on their own behavior. Relatively few studies have examined whether pretreatment improvement occurs when one rates someone else's behavior (e.g., a parent rating a child). Patterson

and Narrett (1990) and Milich et al. (1980) found reductions in parent and teacher ratings of aggressive, oppositional, and hyperactive children without intervention. Patterson and Narrett (1990), and Milich et al. (1980) examined repeated measures as a pre/post design (i.e., two administrations) and did not look at any further repeated measures during treatment or assessment. Durham et al. (2002), however, found pretreatment reductions in Y-OQ scores as a function of multiple assessments (i.e., more than two administrations) in a non-clinical sample and called for additional studies to explore the reduction in scores, as this study does.

Pretreatment reductions in scores, particularly repeated assessment of parents' ratings of their children's behavior may have benefits in one of two ways: parental perceptions and parental behaviors. "At their core BRS [behavior rating scales]...are the quantification of a perception. For parents and teachers it is a perception of a youth's behavior or internal experience..." (Smith, 2007, p.139). Burlingame et al. (2004) and Patterson and Forgatch (1995) agree with this conclusion. Therefore, parental perceptions of their children are important therapeutic outcomes. Pretreatment reductions in scores may also indicate changes in parental behaviors and are therapeutic outcomes. For example, Behavioral Parent Training (Barkley, 1997) is a commonly used intervention in treating children and adolescents with ADHD (Patterson & Forgatch, 1995; Pelham & Fabiano, 2008). Repeated assessment may cause parents to change their interactions with their children before the first treatment session and may benefit their children.

The first problem addressed by the current research was whether pretreatment score reductions occur in parental ratings of child behavior and in ratings of parenting behavior. Secondly, if pretreatment improvement was found, some of its potential

causes, such as repeated assessment, social desirability, and mechanical responding, were examined. These causes have the most substantial research base and are the most frequently cited reasons for pretreatment reductions in scores (Durham et al., 2002). The following hypotheses were formulated to address these problems.

***Reduction in Youth Outcome Questionnaire Scores (Hypothesis #1)***

There will be a reduction in scores on the Y-OQ at its last administration in comparison to its first administration. Although the Y-OQ is generally considered stable in an untreated population (Burlingame et al., 2004), this hypothesis was based on Durham et al.'s (2002) finding reductions in Y-OQ scores in a non-clinical population. The present research tested the Y-OQ's stability in a clinical population.

***More Frequent Assessment Will Lead to Greater Score Reduction (Hypothesis #2)***

The frequency of Y-OQ administration will contribute to a reduction in scores resulting in a greater reduction in Y-OQ scores in a more frequently assessed group (i.e., repeated measurement) than in a minimally assessed group. If the more frequently assessed group has a greater reduction in scores, then the frequency of Y-OQ administration will have contributed to the reduction of scores. This conclusion is based on the notion that, if assessment has beneficial effects, then more assessment would be advantageous (i.e., a dose effect). The reduction in scores would, therefore, be a true reflection of present symptomatology. These two hypotheses correspond to Vermeersch et al.'s, (2000) assertion that it is appropriate to propose that a control group will change but that the intervention group (i.e., the group with more frequent assessment) will change significantly more.

*There Will be Score Reduction Across Domains; Reduction Will be Influenced by  
Frequency of Assessment (Hypothesis #3)*

Parents will report reductions in scores across domains. Beneficial effects from repeated assessment will be found for both parents and children.

A. Similar to hypotheses 1 and 2, scores on an independent psychopathology measure (Conners-3) are hypothesized to decrease at its last administration, in comparison to its first administration. There will also be a greater decrease for the group more frequently assessed with the Y-OQ. Repeated assessment as a cause of reductions in symptomatology will not be supported if both groups' scores decrease equally.

B. Parenting stress scores, as assessed by the Parenting Stress Index-Short Form, will decrease at the last administration in comparison to the first administration for both groups. The more frequently assessed group will show a greater decrease in scores. If scores decrease, but not based on Y-OQ administration frequency, then repeated assessment as a cause of reductions in parenting stress scores is not supported.

C. Both groups will report less problem intensity on the Eyberg Child Behavior Inventory at the last administration in comparison to the first administration. Parents in the more frequently assessed group will report a greater reduction in scores than those in the less frequently assessed group.

D. All parents will report more skillful parenting behaviors on the Parenting Scale at the last administration in comparison to the first administration. Parents in the more frequently assessed group will report more improvement in their parenting behaviors than those in the less frequently assessed group.

E. Parents in the more frequently assessed group will report greater satisfaction at the last session, as assessed by the Client Satisfaction Questionnaire, than parents in the less frequently assessed group. This result, if found, would support repeated assessment as a cause of reductions in scores.

F. Parents in the more frequently assessed group will report a stronger therapeutic alliance at the last session, as assessed by the Working Alliance Inventory, than parents in the less frequently assessed group. This result, if found, would also support repeated assessment as a cause of reductions in scores.

G. All parents will report an increased awareness of their children's problem and positive behaviors as assessed by the general study questionnaire. Parents in the more frequently assessed group will report a greater awareness. This result, if found, would further support repeated assessment as a cause of reductions in scores.

H. All parents will report increased positive and decreased negative interactions with their children as assessed by the general study questionnaire. Parents in the more frequently assessed group will report more positive and less negative interactions than the less frequently assessed group. This result, if found, would also support repeated assessment as a cause of reductions in scores.

I. All parents will report an improved perception of their children as assessed by the general study questionnaire. Parents in the more frequently assessed group will report a better perception of their children than the less frequently assessed group. This result, if found, would further support repeated assessment as a cause of reductions in scores.

#### ***Social Desirability (Hypothesis #4)***

Social desirability, as assessed by the Marlowe-Crown Social Desirability Scale, will not be significantly related to change scores on other measures, as was found in the Durham et al. (2002) study, and will not be found as a potential reason for any reduction in scores.

#### ***Mechanical Responding (Hypothesis #5)***

Mechanical responding as assessed by the Test-Taking Survey-Revised will not be significantly related to change scores on other measures, as was found in the Durham et al. (2002) study, and will not be found as a potential reason for any reduction in scores.

#### ***Initial Child Symptomatology (Hypothesis #6)***

Initial child symptomatology, as measured on the Conners-3, is hypothesized to moderate decreases in symptoms, regardless of the frequency of assessment. Children rated as having more initial symptomatology will have less symptom improvement at the end of the assessment than those children initially rated as having less symptomatology.

#### ***Maternal Depression (Hypothesis #7)***

A potential reason for not finding reductions in scores in maternal ratings of child behaviors is maternal symptoms of depression. Previous research (Chi & Hinshaw, 2002) suggested that maternal symptoms of depression are associated with ratings of their children. Depressed mothers incorrectly reported their children had symptoms of ADHD, i.e., a negative reporting bias (Chi & Hindshaw, 2002). It is not known whether, or how, maternal depression levels are associated with pretreatment reduction in scores. It was hypothesized that parental symptoms of depression, as rated by the total score of the BDI-II, will moderate any reported decreases in scores. Parents with more symptoms of

depression at initial testing, in comparison to parents with less symptoms of depression at the initial testing, will report less decrease in scores (hypotheses #1, 2, & 3) at the last testing session.



## CHAPTER II

### Method

#### *Participants*

Participants were recruited from mothers of clients presenting for a psychoeducational evaluation at a university based outpatient treatment clinic in South Florida. Based on a power analysis (G-Power; Erdfelder, Faul, & Buchner, 1996) for a repeated measures analysis of variance (RM-ANOVA) with  $\alpha = .05$ , and  $\beta = .80$ , with an expected medium effect size (based on reported effect sizes of Ahava et al., 1998; French & Sutton, 2010; and McCambridge, 2009) of  $F = .15$ , thirty-four adult, mother, participants ( $N = 34$ ) were initially sought for the study. Mothers were recruited during routine screening for their childrens' appropriateness for the treatment clinic. Study inclusion criteria were: (a) the mother resided with her child, (b) the child was between the ages of six and 17 years old, (c) the child was not concurrently attending formal psychological treatment, and (d) the child met criteria for a disruptive behavior disorder as indicated in their assessment report on file.

Additionally, at the first assessment session each participant was asked to identify an adult collateral and to give his or her contact information. The collateral was someone who had regular contact with the child brought for the assessment (i.e., lived in the same household or spent at least 15 hours per week with the child) and who could also be called upon to complete the Eyberg Child Behavior Inventory at the beginning and end of the psycho-educational assessment.

## *Measures*

Refer to Appendix A for measures used in the study<sup>1</sup>.

### *Pretreatment Measures*

Participants completed a phone screening and measures given by their therapist both as part of the routine clinic assessment and additional assessment measures given in the course of the experiment.

### *Screening*

Parents were screened for their appropriateness for the clinic and the study. They were asked to rate, on a one to 10 Likert scale, with a “1” being “no problem or minimal problem” and a “10” being a “serious or major problem, or a problem you are extremely worried about” the degree of problems in various areas (e.g., academic problems at school and behavioral problems at home). Parents were also asked to respond “true” or “false” to a statement about their child’s school recommendation for an evaluation.

### *Routine Assessment Measures*

*The Conners 3<sup>rd</sup> Edition (Conners-3)*. The Conners-3 (Conners, 2008) rating scales, “is a multi-informant assessment of children and adolescents between 6 and 18 years of age” (p. 1). The purpose of the Conners-3 is to serve as a focused and detailed assessment of Attention Deficit Hyperactivity Disorder (ADHD) and comorbid disorders of childhood. The Conners-3 may also be used for screening, planning and monitoring of treatment interventions, for research purposes, and for decision making about eligibility

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<sup>1</sup>The Conners 3<sup>rd</sup> Edition, Eyberg Child Behavior Inventory, Parenting Stress Index-Short Form, Beck Depression Inventory, 2<sup>nd</sup> Edition, and Youth Outcome Questionnaire could not be included due to copyright laws but are available for purchase at the following websites ([www.mhs.com](http://www.mhs.com); [www.parinc.com](http://www.parinc.com); [www.pearsonclinical.com](http://www.pearsonclinical.com); and [www.oqmeasures.com](http://www.oqmeasures.com)).

for special education. In the present study, the Conners-3 (parent form, full version, 110 items) was used as a measure of child symptomatology. Parents answer questions on a scale from 0 (Never or Seldom) to 3 (Very true or Very frequently).

Reliability measures for the Conners-3 Parent form are excellent, with internal consistency coefficients (Cronbach's Alpha) at .90 or above. Both test-retest and interrater reliability are acceptable and were corrected for restriction of range due to low variability in the scores. Adjusted test-retest reliability ranged from .82 to .98 for parent scales except for Executive Functioning (.72) and Peer/Family Relations (.78). Interrater reliability correlations across informants (parent and teacher) ranged from .52 to .94. A Reliable Change Index, which takes into account the difference in test scores between the two administrations and the Standard Error of Difference, was also calculated (Conners, 2008).

The Conners-3 Parent form has been shown to have high discriminant validity with good sensitivity and specificity, adequate positive-predictive power, and classification rate. Construct validity was established through scale structure validity using exploratory and confirmatory factor analyses. The Conners-3 Parent form yielded a five-factor solution (Learning Problems, Aggression, Hyperactivity/Impulsivity, Peer Relations, and Executive Functioning). Construct validity was moderately established by comparing across informants. The mean parent to teacher correlation was .60, the mean parent to youth correlation was .56, and the mean teacher to youth correlation was .48 (Conners, 2008).

Convergent validity was demonstrated with significant correlations using three other instruments, the Behavior Assessment System for Children, 2nd Edition (BASC-2,

Reynolds & Kamphaus, 2004), the Achenbach System of Empirically Based Assessment (ASEBA, Achenbach, 1991), and the Behavior Rating Inventory of Executive Functions (BRIEF; Gioia, Isquith, Guy, & Kenworthy, 2000).

***The Eyberg Child Behavior Inventory (ECBI).*** The ECBI is a 36-item parent report measure of child (ages 2-16) conduct problems (Eyberg & Pincus, 1999). It was given to further assess child symptomatology. Parents are asked about compliance problems with instructions, concentration, aggression, and defiance. Respondents are asked to rate how often specific behaviors occur on a scale from 1 (Never) to 7 (Always) and whether these behaviors are considered to be problematic (Yes or No). Cutoff scores of 127/11 (Intensity score = 127 or greater; Problem score = 11 or greater) are used to determine clinical significance. Test-retest reliability ( $r_s = .86 - .88$ ) and internal consistency is high ( $\alpha = .95$  for the Intensity Scale and  $\alpha = .93$  for the Problem Scale). Collateral participants also completed the ECBI within approximately one week of the first assessment session.

***The Parenting Stress Index 3<sup>rd</sup> Edition, Short Form (PSI-SF).*** The PSI-SF was created through factor analyses of the full 120-item self-report instrument (Abidin, 1995). It contains 36 items and has three primary factors; Parental Distress, Parent-Child Dysfunctional Interaction, and Difficult Child. The PSI-SF's primary purpose is to identify parent-child systems under stress and "at risk for the development of dysfunctional parenting behaviors or behavior problems in the child involved" (Abidin, 1995, p. 6). The Total Stress Scale on the PSI-SF highly correlates with the Total Stress Scale on the full length PSI ( $r = .94$ ). Test-retest reliability ( $r_s = .68 - .85$ ) and internal

consistency ( $\alpha = .80 - .91$ ) are also acceptable to high. It was administered in this study to measure parenting stress.

***The Beck Depression Inventory 2<sup>nd</sup> Edition (BDI-II)***. The BDI-II is “a 21-item self-report instrument for measuring the severity of depression in adults and adolescents aged 13 years and older” (Beck, Steer, & Brown, 1996, p. 3). The BDI-II has demonstrated excellent test-retest reliability (1 week;  $r = .93$ ) and internal consistency for psychiatric outpatients and non-clinical college students ( $\alpha = .92$  and  $.93$ , respectively; Beck et al., 1996). The BDI-II shows strong concurrent validity, with a moderately high correlation with the Hamilton Psychiatric Rating Scale for Depression-Revised ( $r = .71$ ) in psychiatric outpatients. A two-factor (Somatic-Affective and Cognitive) solution accounted for the majority of the common variance in both the outpatient and the non-clinical college samples. The BDI-II was administered as a measure of maternal symptoms of depression to determine if they have a relationship with change scores on measures of symptomatology and parenting stress.

#### ***Additional Experiment Assessment Measures***

***The Youth Outcome Questionnaire (Y-OQ)***. The Y-OQ is a 64-item parent-report measure of children’s (ages 4-17) behavioral symptoms (Bishop et al., 2005). Each item is rated on a 5-point scale and yields scores from -16 to 240, with higher scores indicating endorsement of more distress and pathology. Seven questions assess positive behaviors and have negative weights. The Y-OQ has six scales which measure interpersonal distress (e.g., anxiety, depression), somatic issues, interpersonal relations (e.g., arguing, fighting), social problems (e.g., violation of social norms), behavioral dysfunction (e.g., organization, concentration), and critical items (severe symptoms,

mainly for inpatient use). The Y-OQ may be used as a screening tool and as an ongoing assessment (to measure behavioral change over brief periods) and as an outcome measure. For this study, the Y-OQ was administered as a measure of child symptomatology in addition to acting as the repeated measure assessment to induce assessment reactivity in the experimental group. The Y-OQ was designed to be sensitive to change over time and is estimated to take 5-7 minutes to complete. Burlingame et al. (2001) reported a sample of children receiving treatment had a significantly greater change in scores than a sample of children not receiving treatment (17.7 points vs. 4.3 points) over an eight week period. Although divided into six subscales, the total score is typically used because studies have shown one underlying factor (Burlingame et al., 2004). Parents rate each item on a 0 “never or almost never”, to 4 “almost always or always” scale.

The Y-OQ was normed based on three samples (community, inpatient, and outpatient) and the Y-OQ scores of the three samples were found to be statistically significantly different from one another on total scores (community mean = 23.2, outpatient mean = 78.6, inpatient mean = 100) and on all but one subscale. Using the mean scores, a cutoff score of 46 was calculated for evaluating treatment outcome based on Jacobson and Truax’s (1991) formula. If clients' scores fall below this number, their behaviors are assumed to be comparable to the normal community group. A reliable change index (RCI) of 13 points was also calculated based on the three sample means. For an individual's score to be reliably or clinically significantly changed over time, it must be 13 points lower than the initial score and must also cross the cutoff score.

Internal consistency reliability estimates (Cronbach's alpha) are high ( $\alpha = .94$ ), which suggests a strong single factor underlying the six subscales (Burlingame et al., 2004). Estimates for subscale reliability range from  $\alpha_s = .51$  to  $.90$ . Test-retest reliability at two weeks and four weeks for a normal sample produced an average coefficient of  $\alpha = .83$  (Burlingame et al., 2004).

Criterion-related validity evidence was shown by comparing total scores and parallel subscales from the Child Behavior Checklist (CBCL; Achenbach, 1991, like scales average  $.51$  vs. unlike scales  $.18$ ) and the Conners' Parent Rating Scale (Conners, 1990, like scales  $.55$  vs. unlike scales  $.18$ ) with typical and outpatient samples.

Correlations with measures of similar constructs (e.g., CBCL anxious/depressed and Y-OQ intrapersonal distress) ranged from  $r = .48$  to  $r = .78$  and are within an acceptable range. In addition, the total CBCL and Y-OQ scales were highly correlated ( $r = .78$ ).

The Y-OQ's sensitivity (proportion of members of clinical groups correctly identified) and specificity (proportion of members of the normal group correctly identified) has also been studied (Burlingame et al., 2004). The Y-OQ was found to correctly identify clinical group members 82% of the time and normal group members 89% of the time with the cutoff score of 46. These findings are comparable to the sensitivity and specificity of the CBCL (Achenbach, 1991). Evidence of discriminant validity has been shown by the Y-OQ's ability to reliably distinguish between groups of normal, outpatient, and inpatient samples, with scores significantly increasing with restrictiveness of setting.

Burlingame et al., (2004) suggest that the Y-OQ be administered on a weekly or biweekly schedule to detect change over time. However, repeated use of the Y-OQ has

shown that scores decrease over time (i.e., less symptoms) in the absence of treatment, and that there is a greater magnitude of reduction in scores with a more frequent administration schedule (Durham et al., 2002). No evidence, however, for social desirability or mechanical responding was found to influence these changes in total scores.

***The Parenting Scale (PS).*** The PS is 30-item instrument originally developed to assess the discipline practices of parents of preschool children (Arnold, O’Leary, Wolff, & Acker, 1993). The shortened 10-item version that was developed for use with preschool and elementary school children (Karazsia, van Dulmen, & Wildman, 2008; Reitman et al., 2001) was used in this study and is described here. Confirmatory factor analysis yielded a two-factor model of laxness and overreactivity (Karazsia et al., 2008). Internal consistency for the total score of the full 30-item measure was  $\alpha = .84$  (Arnold et al., 1993). Concurrent validity was demonstrated by significant relationships with “various measures relevant to parental reports of children’s behavior and constructs related to parenting behavior” (Karazsia, 2008, p. 511). The PS was administered to measure maternal parenting behaviors.

***A Demographic Questionnaire.*** The demographic questionnaire asked participants to report their age, gender, ethnicity, marital status, education level, employment status and job title, income, and psychological and treatment history.

***The Daily Food List.*** The daily food list is an informational questionnaire regarding their children’s daily diet. It was modified for this study to refer to the children’s diet during the past week. The Daily Food List was given at each session for the control group, and served as an active control group measure (Boot, Simons, Stothart,



& Stutts, 2013). In general, an active control group receives a similar therapy to the intervention group, but the therapy does not specifically target the symptoms (Boot et al., 2013). The active control group is designed to control for placebo (i.e., expectation) effects of an intervention. In the present study, the Daily Food List was given to the minimal assessment group to control for the attention and time that the experimental group would receive from their therapists by the repeated administration of the Y-OQ. The Daily Food List was purported to take a comparable amount of time to complete as the Y-OQ. No data for completion time, however, was collected for any measures during the study.

#### *Ongoing /Treatment and Control Measures*

The Y-OQ (see above for information) was given at each session for the treatment group. The Daily Food List (see above for information) was given at each session for the control group.

#### *Post-treatment Measures*

At the last scheduled assessment session (assessment report feedback), all participants received an envelope from their therapist. The envelope included a cover letter with instructions and the assessment measures in the following order; Conners-3, Y-OQ, Daily Food List, ECBI, and PS (see above for information regarding the aforementioned measures). Approximately within one week of the feedback session the collaterals were scheduled to complete the ECBI.

*The Working Alliance Inventory, Assessment Short Form (WAI)*. A modified assessment version of the WAI (Horvath & Greenberg, 1989) was used. The WAI in its full client form is a 36-item questionnaire with each item rated on a scale from 1 “Never”

to 7 “Always” which assesses Bordin’s (1979) three elements of alliance: agreement on therapy goals, agreement on therapy tasks, and the therapeutic bond. Higher scores reflect a stronger alliance. A strong therapeutic alliance has consistently been found to correlate with positive therapy outcomes (Fenton, Cecero, Nich, Frankforter, & Carroll, 2001). Research has also found the therapeutic alliance to be the strongest predictor of successful treatment outcomes (Orlinsky, Ronnestad, & Willutzki, 2003). Internal consistency for the entire scale (patient version) has been estimated at .93. The WAI has also demonstrated high convergent validity with the Empathy Scale of the Barret-Lennard Relationship Inventory (BLRI; Barrett-Lennard, 1962). The modified assessment version of the WAI was similar to changes made by Ackerman, Hilsenroth, Baity, and Blagys (2000) in their study of the “Interaction Therapeutic Process and Alliance During Psychological Assessment” (p.82). The WAI was administered in this study to determine if the groups differed in their working alliance.

*The PSI-SF.* (see above for information)

*The Client Satisfaction Questionnaire-8 (CSQ).* The CSQ (Attkisson & Zwick, 1982) is an 8-item measure that assesses post-service client satisfaction. Test-retest reliability coefficients are not reported for the CSQ. Internal consistency was  $\alpha = .83$  (Attkisson & Zwick, 1982). Predictive validity has been demonstrated by higher satisfaction scores for service completers as compared to non-completers (Attkisson & Zwick, 1982). Additionally, treatment outcome comparisons between CSQ scores and the Brief Psychiatric Rating Scale were moderately correlated (Attkisson & Zwick, 1982). Furthermore, Ogles, Lambert, and Masters (1996) assert that the CSQ has adequate psychometric properties and has been favorably reviewed by several independent

sources. The CSQ was administered to explore whether the groups differed in their satisfaction levels.

**General Questionnaire.** The general questionnaire was specifically created for this study. It was used to determine if any differences between the groups existed in participants' thoughts about the study, the assessment process, and whether they changed any behaviors during the course of the assessment/study.

**The Marlowe-Crowne Social Desirability Scale (SDS).** The SDS (Crowne & Marlowe, 1960) is a 33-item, true-false, self-report measure. Crowne and Marlowe defined social desirability and then selected items which reflect their construct. The items were described as consisting of "behaviors which are culturally sanctioned and approved but which are improbable of occurrence (e.g., My table manners at home are as good as when I eat out in a restaurant)" (Crowne & Marlowe, 1960, p. 350). Test-retest reliability estimate was .89, and internal consistency was estimated to be .88 (Crowne & Marlowe, 1960). Durham et al. (2002) assert that "it is expected that parents' sensitivity toward or motivation to endorse socially sanctioned attributes would also be reflected in the way they respond to items for their child" (p. 244). The SDS was administered to determine whether social desirability would be associated with change scores on the main outcome variables.

**The Test Taking Survey (TTS).** The TTS (Durham et al., 2002) is a 10-item preliminary measure of mechanical responding. It was developed for Durham et al.'s study (2002) as a way to assess mechanical responding based on the Bromet et al.'s (1986) definition of mechanical responding that includes completing the retest quickly due to lack of interest and a lack of consideration for the items. Items are scored on a 5-

point Likert scale with high scores indicating greater interest and thoughtfulness. The TTS was developed as a preliminary attempt to measure mechanical responding, no validity or reliability information is available. Similarly to the SDS, the TTS was administered to explore whether mechanical responding would be associated with change scores on the main outcome variables.

### *Treatment*

The variable that was manipulated (the independent variable) was the additional administration of three Y-OQ measures, one at each assessment session, for the intervention group in comparison to the control group.

### *Procedure*

Participants who met the above inclusion and exclusion criteria [except criteria (d) which was collected after completion of assessment] and expressed interest in the study during screening were informed before their initial appointment that their therapist would give them an envelope with more information regarding the study. The envelope contained a cover letter, two informed consent forms, a demographic questionnaire, the Youth Outcome Questionnaire, and the Daily Food List. The cover letter instructed participants to read the informed consent form and to sign both copies if interested in participating in the study. Participants were instructed to complete the demographic questionnaire, the Y-OQ, and the Daily Food list and place them, along with one copy of the informed consent, back in the envelope (the other copy for them to keep) and to return it to their therapist.

Participants were then assigned (within therapist) in an alternating fashion to one of two groups without the therapists' knowledge of group assignment: "Traditional"

Assessment (control) or “Enhanced” Assessment (intervention). The “Traditional” Assessment group received an envelope coded with a number that indicated the group and the session number. At each assessment session an envelope containing a cover letter and the Daily Food list was presented to be read, completed, and returned to their therapist. The “Enhanced” Assessment group also received an envelope coded with a different number representing their group and session number. Their envelope contained a cover letter and the Y-OQ to be read, completed at each assessment session and returned to their therapist. The “Enhanced Assessment” group participants, to be included in the analysis, were required to complete a minimum of two Y-OQs before the assessment feedback session.

At the last assessment session (assessment report feedback) both groups were given a packet by their therapist and instructed to complete the following measures: (a) Y-OQ, and then (b) Conners-3, (c) the Daily Food List, and (d) the ECBI. The instructions asked participants to complete these questionnaires in reference to their child as reflecting the child’s present behaviors and functioning. Parents were then instructed to complete questionnaires that assessed their own functioning, thoughts about the study, or perceptions of behavior change (i.e., the WAI, the PSI-SF, the CSQ, the SDS, and the TTS).

### *Data Analysis*

The analyses are organized in the following fashion. Initially presented are the baseline characteristics of the sample and a comparison table between groups and of the overall sample. Next, is a comparison table of demographic and baseline measurement data between participants who completed the study and those who did not. Chi-Square

tests for categorical variables, and one way Analyses of Variance (ANOVA) for continuous variables, are utilized for comparisons. Reasons for the clinic evaluation based on screening questions are then discussed and tables are presented. Two (time: pretest, posttest) x 2 (condition: academic, behavioral/social) mixed (i.e., between-within) Repeated Measures Analyses of Variance (RM-ANOVA) were computed for outcome measures. Similar RM-ANOVAs are conducted for school vs. home screening variables. The equality of the control and experimental groups in their reasons for seeking an evaluation is then presented as percentages. Next, is a count and percentage analysis of direction of change on the main outcome variables regarding the pre-post effect of time. Chi-Square analyses were conducted comparing change direction to expected change direction. Next, graphs of pre-post individual score changes, group mean score changes, and combined group mean score changes, are presented for the main outcome variables. The rest of the analyses are organized by hypothesis.

For hypotheses #1 and #2, a 2 (time: pretest, posttest) x 2 (condition: experimental, control) mixed (i.e., between-within) Repeated Measures Analyses of Variance (RM-ANOVA) was computed for Y-OQ scores. The between subject factor is group/condition and the within subject factor is time. The study-wide type I error rate ( $\alpha$ ) was set at the .05 level. Cohen's  $d$ , the difference between means in standardized units (Cohen's  $d = M_1 - M_2 / SD_{\text{pooled}}$ ), was selected as the effect size. To obtain Cohen's  $d$ , eta squared ( $\eta^2 = SS_M / SS_T$ , where  $SS_M$  is the sum of squares for the effect, and  $SS_T$  is total amount of variance in the data) was first calculated (Field, 2013). Eta squared is equal to  $r^2$ , the coefficient of determination (Field, 2013). The square root of the coefficient of determination ( $r$ , the Pearson Product-Moment Correlation) was then converted to

Cohen's  $d$  using Rosenthal's (1994) formula;  $d = 2r / \sqrt{1 - r^2}$ . Interpretation of Cohen's  $d$  follows his proposed guidelines (Cohen, 1988) of  $d = .2$ , small,  $d = .5$ , medium, and  $d = .8$ , large.

RM-ANOVA is sensitive to data structure, i.e., the distribution of data and outliers. Therefore, test assumptions of RM-ANOVA are presented before the RM-ANOVA. Outliers were identified by examination of their standardized scores. Significant outliers were determined to be  $z = 3$  Standard Deviations. Additional ways of determining whether the data distribution met test assumptions included visual inspection of the plot, the skewness and kurtosis, skewness and kurtosis significance based on standard scores, the Kolmogorov-Smirnoff skewness test, and Levene's test for homogeneity of variance. Following the RM-ANOVA on the Y-OQ, is a descriptive statistics table for the Y-OQ.

Analyses for Hypothesis #3 are organized in the following order: symptomatology and status of major presenting problems; parenting stress and parenting behavior; awareness of child behaviors, parent interactions with child, and parent perception of child; and therapeutic alliance and client satisfaction. For the symptomatology and status of major presenting problems section (i.e., ECBI, Conners-3 CGI), RM-ANOVAs with the same test assumption procedures as described above are presented followed by descriptive statistics tables. To examine hypotheses between groups, without repeated measures, such as mothers' ratings of the status of major presenting problems (from the General Study Questionnaire), a one-way Analysis of Variance (ANOVA) with the same test assumption procedures as the RM-ANOVA were selected. As with the RM-ANOVA, the test assumption analyses are presented first, followed by the ANOVA and Cohen's  $d$

effect size. A descriptive statistics table ends the section. The parenting stress and parenting behavior section (i.e., PSI-SF, Parenting Scale) is arranged as above with RM-ANOVA assumptions, RM-ANOVAs, descriptive statistics tables, followed by ANOVA assumptions, ANOVA (General Study Questionnaire, self-reflection of any discipline behavior changes) and a descriptive statistics table. The awareness of child behaviors, parent interactions with child, and perception of child section, and therapeutic alliance and client satisfaction sections consist of a series of assumptions of ANOVAs and then ANOVAs followed by descriptive statistics tables.

Hypotheses #4 and #5 utilize Pearson Product-Moment Correlation Coefficients ( $r$ , Pearson) of change scores on the main outcome variables (i.e., YOQ, Conners-3, PSI-SF, ECBI, PS-O, and PS-L) with ratings of mechanical responding (TTS) and social desirability (SDS). Change scores are appropriate to use and can be reliable and valid (Rogosa & Willett, 1983; Williams & Zimmerman, 1996). The Pearson correlation,  $r$ , is also utilized as the effect size (Field, 2013). Test assumptions based on a visual inspection of plots, a statistical check of skewness and kurtosis, a standard score significance examination of skewness and kurtosis, and the Kolmogorov-Smirnoff skewness test are first discussed. The Pearson correlations then follow. Similar to hypotheses #4 and #5, test assumptions of Pearson correlations, and then Pearson correlations for Hypotheses #6 and #7 are presented. All references in the results section to significance or non-significance pertain to statistical significance ( $p < .05$ ).



## CHAPTER III

### Results

#### *Baseline Characteristics of Sample and Comparison of Groups*

In all, 58 mothers were screened as eligible for the study. Twenty-nine mothers did not enter into the study, 29 consented for the study, and 12 were excluded from the study and/or specific analyses (see Appendix A). Specifically, participants who did not complete the last time point were not included in analyses for which completion was required. However, analyses for which only the first time point was required (e.g., baseline demographics) included all participants, whether they completed all study materials or not. In total, 17 mothers entered into and completed the study in its entirety. All but two mothers (92.9%) indicated that their highest level of education included at least some college, with the majority holding either an associate's or bachelor's degree (57.2%). Six mothers (21.5%) reported having a master's or doctorate degree. Table 1 summarizes baseline demographic and rating scale data by group and by overall sample. Table 2 compares participants who completed and non-completers on baseline demographics and measures. No significant differences were found.

Table 1  
*Baseline Means, SDs, and Percentages for Participant and Child Characteristics*

	Combined <i>N</i> = 28 <i>M</i> ( <i>SD</i> )	Control <i>N</i> = 11 <i>M</i> ( <i>SD</i> )	Experimental <i>N</i> = 17 <i>M</i> ( <i>SD</i> )	<i>P</i>
<b>Mother Demographics</b>				
Age	41.32(7.69)	38.64(8.12)	43.06(7.10)	.140
Race <sup>a</sup>				.905
Non-Hispanic White	25.0%	27.3%	23.5%	-
African American	32.1%	27.3%	35.3%	-
Other	42.9%	45.4%	41.2%	-
Relationship Status <sup>a</sup>				.657
Married	67.9%	72.7%	64.7%	-
Not Married	32.1%	27.3%	35.3%	-
Employment <sup>a</sup>				.903
Full-Time	71.4%	72.7%	70.6%	-
Not Full-Time	28.6%	27.3%	29.4%	-
% in Psych Tx <sup>a</sup>	10.7%	9.1%	11.8%	.823
BDI-II	11.29(10.96)	7.14(5.87)	13.36(12.45)	.230
<b>Child Demographics</b>				
Age	10.49(3.11)	10.21(2.89)	10.67(3.32)	.709
Race <sup>a</sup>				.425
Non-Hispanic White	32.1%	18.2%	41.2%	-
African American	25.0%	27.3%	23.5%	-
Other	42.9%	54.5%	35.3%	-
Gender (% Male) <sup>a</sup>	85.7%	77.8%	88.2%	.636
<b>Baseline Measures</b>				
Y-OQ	50.96(35.76)	42.73(25.51)	56.29(40.92)	.336
ECBI <sup>b</sup>	116.85(39.54)	117.83(42.46)	116.43(39.88)	.944
Conners-3 CGI <sup>c</sup>	71.3(19.19)	65.56(13.89)	75(21.6)	.259
PSI <sup>d</sup>	84.14(23.46)	79.75(16.61)	86.85(27.11)	.515
PS-O	4.68(1.5)	5.14(1.09)	4.3(1.51)	.428
PS-L	5.27(1.27)	5.97(1.05)	5.04(1.48)	.165

*Note.* % in Psych Tx = Percentage of mothers in psychological treatment, BDI-II = Beck

Depression Inventory 2<sup>nd</sup> Edition, Y-OQ= Youth Outcome Questionnaire, ECBI = Eyberg Child Behavior Inventory, Conners-3 CGI= Conners 3<sup>rd</sup> Edition Conners Global Index, PSI = Parenting Stress Inventory 3<sup>rd</sup> Edition Short Form, PS-O = Parenting Scale Overreactivity Scale, PS-L = Parenting Scale Laxness Scale

<sup>a</sup> Mothers' Race, Relationship Status, Employment, Psych Tx and Child's Race and Gender are presented as percentages. <sup>b</sup> Total *N* = 20, Control *N* = 6 Experimental *N* = 14. <sup>c</sup> Total *N* = 23, Control *N* = 9 Experimental *N* = 14. <sup>d</sup> Total *N* = 21, Control *N* = 8 Experimental *N* = 13.

Table 2  
*Baseline Means, SDs, and Percentages for Participant and Child Characteristics for Completers and Non-Completers*

	Completer <i>N</i> = 17 <i>M</i> ( <i>SD</i> )	Non-Completer <i>N</i> = 11 <i>M</i> ( <i>SD</i> )	<i>p</i>
<b>Mother Demographics</b>			
Age	41.41(7.36)	41.18(8.54)	.940
Race <sup>a</sup>			.905
Non-Hispanic White	23.5%	27.3%	-
African American	35.3%	27.3%	-
Other	41.2%	45.4%	-
Relationship Status <sup>a</sup>			.203
Married	58.8%	81.8%	-
Not Married	41.2%	18.2%	-
Employment <sup>a</sup>			.066
Full-Time	58.8%	90.9%	-
Not Full-Time	41.2%	9.1%	-
% in Psych Tx <sup>a</sup>	11.8%	9.1%	.823
BDI-II	11.21(10.76)	11.43(12.23)	.968
<b>Child Demographics</b>			
Age	10.13(3.49)	11.04(2.47)	.460
Race <sup>a</sup>			.536
Non-Hispanic White	35.3%	27.3%	-
African American	17.6%	36.4%	-
Other	47.1%	36.4%	-
Gender (% Male) <sup>a</sup>	88.2%	81.8%	.636
<b>Baseline Measures</b>			
Y-OQ	48.71(31.89)	54.54(42.46)	.686
ECBI <sup>b</sup>	120.29(40.47)	108.83(39.65)	.567
Conners-3 CGI <sup>c</sup>	70.73(20.19)	72.38(18.42)	.850
PSI <sup>d</sup>	83.69(25.53)	85.6(17.4)	.878
PS-O	4.65(1.38)	4.73(1.73)	.893
PS-L	5.42(1.37)	5.04(1.13)	.442

*Note.* % in Psych Tx = Percentage of mothers in psychological treatment, BDI-II = Beck

Depression Inventory 2<sup>nd</sup> Edition, Y-OQ= Youth Outcome Questionnaire, ECBI = Eyberg Child Behavior Inventory, Conners-3 CGI= Conners 3<sup>rd</sup> Edition Conners Global Index, PSI = Parenting Stress Inventory 3<sup>rd</sup> Edition Short Form, PS-O = Parenting Scale Overreactivity Scale, PS-L = Parenting Scale Laxness Scale. Any percentages that do not equal 100% are due to rounding.

<sup>a</sup> Mothers' Race, Relationship Status, Employment, Psych Tx and Child's Race and Gender are presented as percentages. <sup>b</sup> Completer *N* = 14 Non-Completer *N* = 6. <sup>c</sup> Completer *N* = 15 Non-Completer *N* = 8. <sup>d</sup> Completer *N* = 16 Non-Completer *N* = 5.

An examination of the clinic screening questions was used to determine the reasons for the child's clinic evaluation along two dimensions, academic or behavioral/social, and school or home. Likert scale screening questions were asked for academic, behavioral, or social concerns (i.e., 1 to 10, with 10 being a major problem) in the school or home settings. Scores from the academic, behavioral, and social questions were added. The individual score which was higher (i.e. reflects more difficulty) was assigned as the reason for the evaluation. This was decided even when the combined behavioral and social scores were higher than the academic score, since in almost all instances the combined behavioral and social scores would be greater than the academic score. When either the behavioral or social score was greater, the behavioral/social category was assigned as the reason for the evaluation. A similar procedure was used for determining the school vs. home dimension. In one instance where the score for home was higher, the parent indicated that the only reason for the evaluation was that someone from their child's school asked or recommended that their child receive an evaluation. That participant, despite their higher home score, was assigned to the school category as the reason for the evaluation. It should be noted that it was not possible to determine with certainty the provider of the ratings (i.e., mother, father, or both). Table 3 compares academic and behavioral/social reasons for the evaluations and Table 4 compares school and home reasons. There were no significant differences between groups along the academic vs. behavioral/social dimension. Along the school vs. home dimension there were significant differences between the groups on the Y-OQ, ECBI, Conners CGI, and PSI, with the home reason for the evaluation being rated as more symptomatic.

Table 3  
*Screening: Academic vs. Behavioral/Social*

	Academic		Behavioral/Social		<i>p</i>
	Pre <i>M (SD)</i>	Post <i>M (SD)</i>	Pre <i>M (SD)</i>	Post <i>M (SD)</i>	
Y-OQ	59.11(35.74)	45.22(35.89)	40.00(24.08)	19.00(29.69)	
Within					.015
Interaction		N=9		N=7	.582
Between					.154
ECBI	128.43(38.91)	114.43(40.74)	114.20(49.09)	97.20(57.46)	
Within					.168
Interaction		N=7		N=5	.888
Between					.538
Conners CGI	78.50(21.54)	67.75(21.03)	63.83(15.89)	53.67(15.35)	
Within					.014
Interaction		N=8		N=6	.937
Between					.163
PSI	92.89(26.24)	80.11(23.33)	75.17(20.33)	65.50(26.81)	
Within					.032
Interaction		N=9		N=6	.745
Between					.201
PS-O	4.49(1.50)	4.42(1.22)	4.60(1.23)	5.06(1.41)	
Within					.402
Interaction		N=9		N=7	.266
Between					.570
PS-L	4.91(1.60)	4.89(.83)	6.14(.75)	5.80(.95)	
Within					.383
Interaction		N=9		N=7	.442
Between					.060
WAI		73.75(7.04)		74.57(12.86)	
Between		N=4		N=7	.910
CSQ		28.33(4.41)		27.50(6.25)	
Between		N=6		N=6	.795

*Note.* Y-OQ= Youth Outcome Questionnaire, ECBI = Eyberg Child Behavior Inventory, Conners-3 CGI= Conners 3<sup>rd</sup> Edition Conners Global Index, PSI = Parenting Stress Inventory 3<sup>rd</sup> Edition Short Form, PS-O = Parenting Scale Overreactivity Scale, PS-L = Parenting Scale Laxness Scale, WAI = Working Alliance Inventory, Assessment, CSQ = Client Satisfaction Questionnaire.

Table 4  
*Screening: School vs. Home*

	School		Home		<i>p</i>
	Pre <i>M (SD)</i>	Post <i>M (SD)</i>	Pre <i>M (SD)</i>	Post <i>M (SD)</i>	
Y-OQ	26.00(8.49)	13.63(24.61)	81.20(22.2)	58.43(32.71)	
Within					.020
Interaction		N=8		N=7	.444
Between					<.01
ECBI	79.20(15.32)	71.00(40.67)	157.00(18.79)	141.00(26.68)	
Within					.292
Interaction		N=5		N=6	.727
Between					<.01
Conners CGI	58.57(10.20)	49.71(8.79)	89.83(16.46)	75.83(21.38)	
Within					.011
Interaction		N=7		N=6	.507
Between					.002
PSI	72.50(19.47)	61.25(27.01)	102.50(24.19)	91.33(10.01)	
Within					.045
Interaction		N=8		N=6	.993
Between					.015
PS-O	4.90(1.25)	5.13(1.34)	4.14(1.54)	4.37(1.25)	
Within					.365
Interaction		N=8		N=7	.994
Between					.269
PS-L	5.65(1.54)	5.68(1.09)	5.00(1.24)	4.89(.76)	
Within					.800
Interaction		N=8		N=7	.693
Between					.250
WAI		69.33(11.83)		80.20(5.50)	
Between		N=6		N=5	.093
CSQ		26.00(5.18)		29.83(4.83)	
Between		N=6		N=6	.214

*Note.* Y-OQ= Youth Outcome Questionnaire, ECBI = Eyberg Child Behavior Inventory, Conners-3 CGI= Conners 3<sup>rd</sup> Edition Conners Global Index, PSI = Parenting Stress Inventory 3<sup>rd</sup> Edition Short Form, PS-O = Parenting Scale Overreactivity Scale, PS-L = Parenting Scale Laxness Scale, WAI = Working Alliance Inventory, Assessment, CSQ = Client Satisfaction Questionnaire.

The reasons for the evaluation, based on the screening questions, were applied to the control and experimental groups for comparison. The groups were relatively equal in their reasons for the evaluations (see Table 5 and Table 6).

Table 5

*Percentages of Screening Reasons for Control and Experimental Groups: Academic vs. Behavioral/Social*

Group	<i>Academic N</i>	School %	<i>Behavioral/Social N</i>	Home %
All Participants				
Control	9	81.8%	2	18.2%
Experimental	12	80.0%	3	20.0%
Completers Only				
Control	5	71.4%	2	28.6%
Experimental	6	66.7%	3	33.3%

Table 6

*Percentages of Screening Reasons for Control and Experimental Groups: School vs. Home*

Group	<i>School N</i>	School %	<i>Home N</i>	Home %
All Participants				
Control	5	55.6%	4	44.4%
Experimental	8	53.3%	7	46.7%
Completers Only				
Control	3	50.0%	3	50.0%
Experimental	4	44.4%	5	55.6%

The children (four girls and 24 boys), who were the focus of mothers' ratings for the study, ranged in age from 6–17 years ( $M = 10.49$ ,  $SD = 3.11$ ) with the majority (85.6%) aged 6-12. Diagnoses of the children were obtained from their evaluations conducted in the outpatient clinic. Principal Axis I diagnoses were attention-deficit/hyperactivity disorder (ADHD) combined type (32.1%), ADHD inattentive type (17.9%), reading disorder (10.7%), oppositional defiant disorder (ODD) (7.1%), and mathematics disorder (7.1%). Other diagnoses (each 3.6%) included; ADHD

hyperactive/impulsive type, disorder of written expression, mood disorder not otherwise specified, moderate intellectual disabilities, rule-out of depressive disorder not otherwise specified, and rule-out ADHD combined type. Most children (74%) met criteria for more than one disorder ( $M = 2.3$ ,  $SD = 1.1$ ). The majority of secondary Axis I diagnoses were ODD (30.0%), anxiety disorder not otherwise specified (15.0%), ADHD combined type (10.0%), and mathematics disorder (10.0%). Other secondary Axis I disorders, each comprising five percent of secondary diagnoses included; ADHD inattentive type, disorder of written expression, expressive language disorder, generalized anxiety disorder, social phobia, rule-out separation anxiety disorder, and rule-out learning disorder not otherwise specified. Three children had three diagnoses, while six children had four diagnoses.

All but one mother provided collateral contact information (i.e., 27 out of 28 mothers). A spouse or common-law partner was chosen by mothers as the collateral 44% of the time. A parent (of the mother), or an adult, son or daughter of the mother were each chosen 14.8% of the time. A brother or sister, or grandparent of the mother, were each chosen once, comprising 3.7% each of the designated collateral. Another relative was chosen 14.8% of the time while “other” was chosen once. Fourteen collaterals completed the first ECBI. Nine collaterals did not respond to phone calls. One designated collateral chose not to provide information while one collateral was not called after the mother was dropped from the study. Two collaterals were not called within the specified calling period. Of the 14 collaterals that completed the ECBI at the first time point, only four completed the second time point. Seven collaterals did not respond to phone calls at



the second time point and three collaterals were not able to be called within the specified calling period.

***Preliminary Pre-Post Percentage Change in the Hypothesized Direction***

As a preliminary analysis regarding the effect of time, the percentage of individual pre-post change scores that changed in the hypothesized direction (generally a decrease in scores reflecting less symptomatology) was calculated for the primary outcome measures. For this analysis, scores for the Parenting scale (where an increase in score reflects better parenting) were inverted for ease of comparison across measures so that now a decrease in score reflects better parenting. Across measures, with the exception of the Parenting Scale, scores decreased in the hypothesized direction for between 73.3% and 87.5% of the participants (see Table 7). One-way Chi Square analyses were conducted to compare the number of score decreases and score increases for each measure. Significant Chi-Square values were found for the Y-OQ,  $\chi^2 (1) = 4.765$ ,  $p = .029$  and the PSI-SF,  $\chi^2 (1) = 9.000$ ,  $p = .003$ . Figures 1 and 2 depict changes in individual scores, changes in group means, and changes in combined group means over time.

Table 7  
*Direction of Change in Scores, Pretest to Posttest, for main Outcome Measures*

Measure/Scale	<i>n</i>	#Scores Decrease	%	#Scores Increase	%	<i>Chi-Square</i> <i>p</i>
Y-OQ	17	13	76.5	4	23.5	.029
ECBI	13	10	76.9	3	23.1	.052
PSI-SF	16	14	87.5	2	12.5	.003
Conners-3 CGI	15	11	73.3	4	26.7	.071
PS-O	17*	8	47.1	7	41.2	.808
PS-L	17**	6	35.3	10	58.8	.225

*Notes.* Y-OQ= Youth Outcome Questionnaire, ECBI = Eyberg Child Behavior Inventory, Conners-3 CGI= Conners 3<sup>rd</sup> Edition Conners Global Index, PSI-SF = Parenting Stress Inventory 3<sup>rd</sup> Edition Short Form, PS-O = Parenting Scale Overreactivity Scale, PS-L = Parenting Scale Laxness Scale. PS-O and PS-L scores were inverted for comparable interpretation; \* = 2 scores did not change; \*\* = 1 score did not change; A decrease in scores means fewer reported symptoms.

Figure 1. Individual Change and Group Change in Y-OQ, ECBI, and PSI Scores

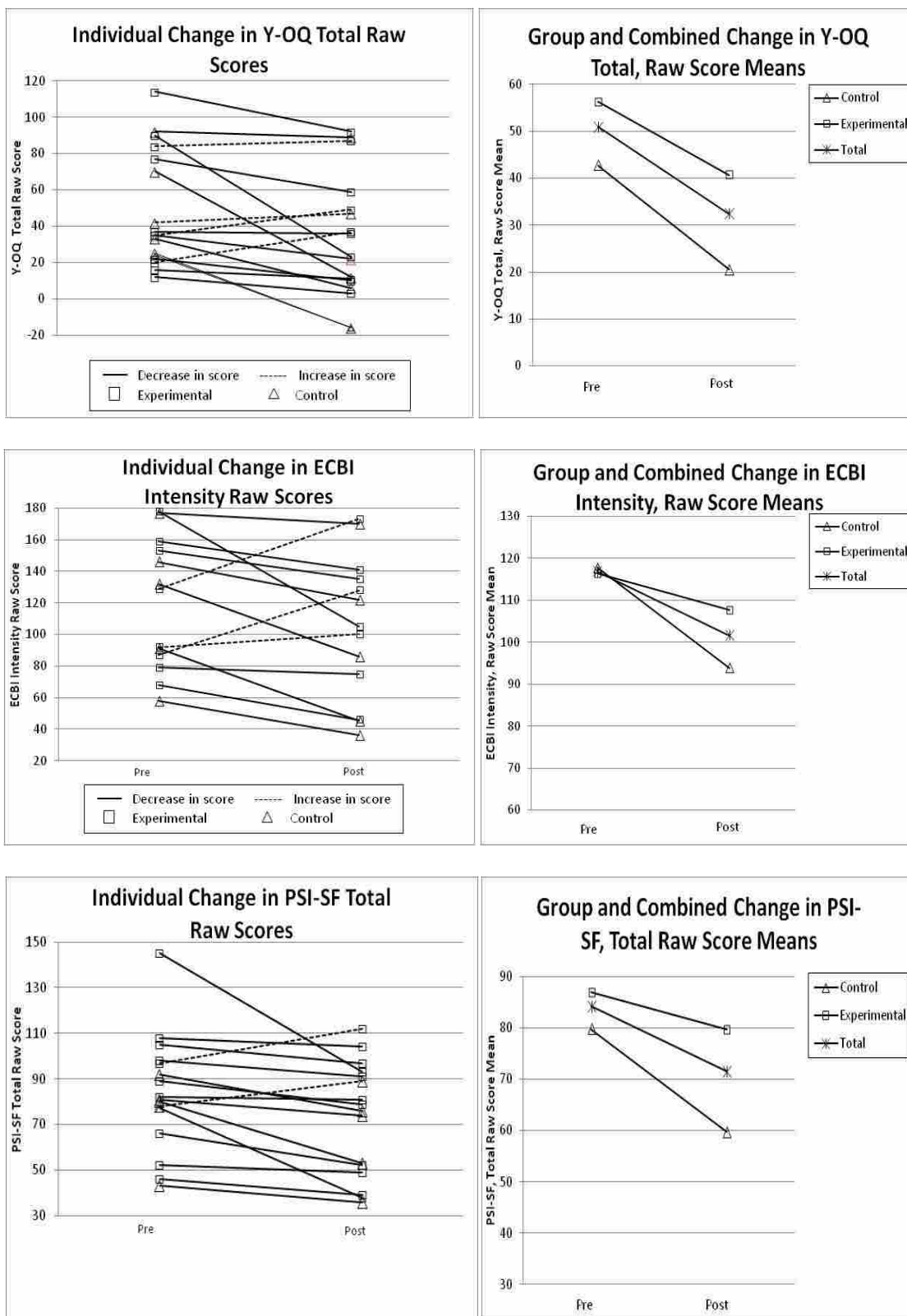
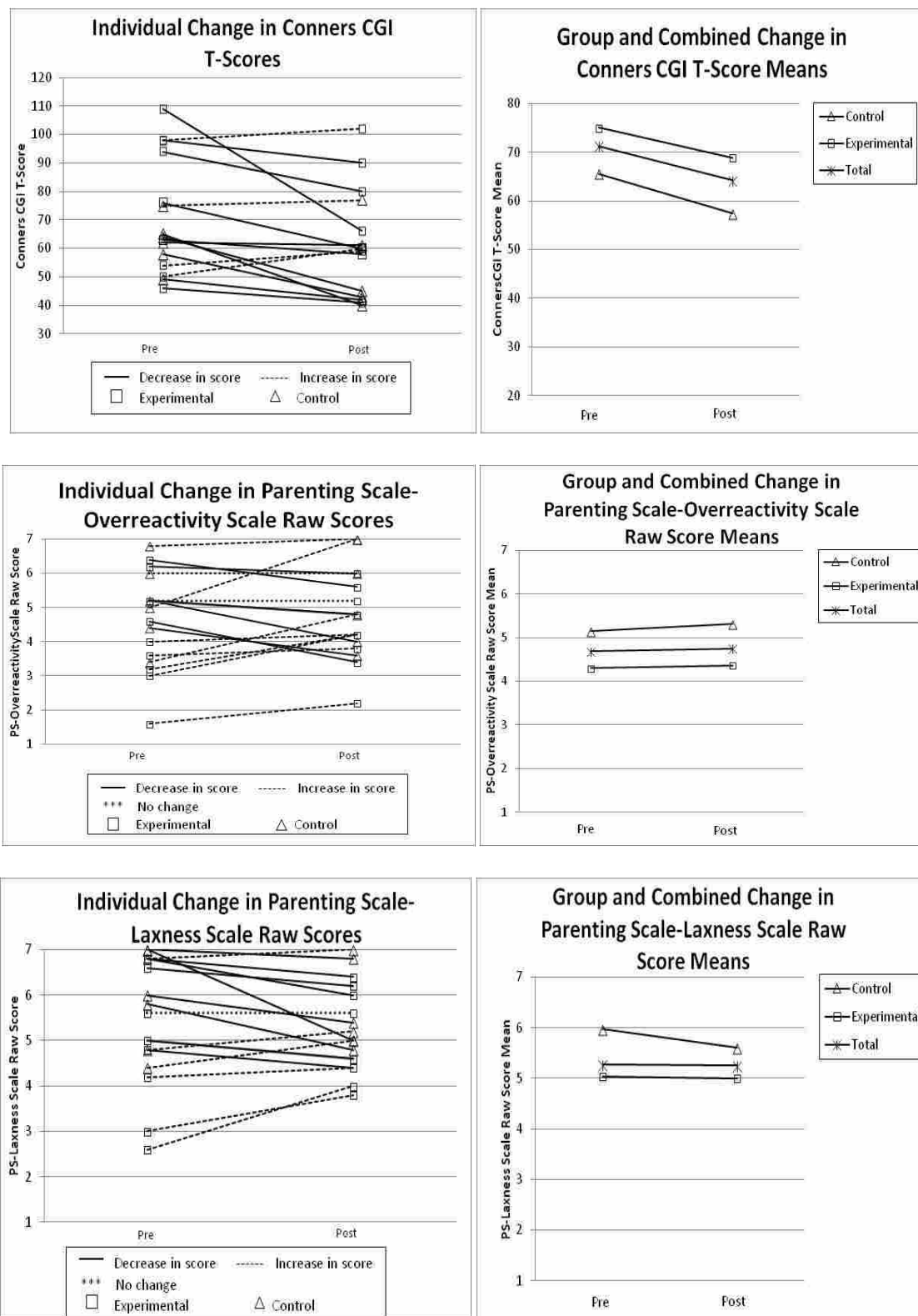


Figure 2. Individual Change and Group Change in Conners CGI, PS-O, and PS-L Scores



***There will be decreased scores on the Y-OQ, pre vs. post test (time); the decrease in scores will differ by group (Hypotheses #1& #2)***

A RM-ANOVA was computed for the Y-OQ scores to test hypotheses #1 and #2. A standard scores inspection for outliers did not indicate any outliers. A visual inspection of the Y-OQ plot suggested skewness in the data. A statistical examination of the skewness and kurtosis, where scores closer to an absolute value of 1 indicate more skew, also suggested skewness in the distribution for the Y-OQ at the pre time point (.831). Skewness was not significant (absolute value >1.96) for the pre time point based on skewness standard scores ( $z = .001$ ). The Kolomogorov-Smirnov (K-S) test, however, was significant for the pre time point,  $D(28) = .206, p = .004$ , but not for the post time point  $D(17) = .138, p = .200$ . Levene's test for homogeneity of variance was not significant for the pre time point  $F(1,15) = 3.333, p = .088$ , or for the post time point  $F(1,15) = .078, p = .784$ .

Most relevant to hypothesis #1 was a significant within-subject main effect of time on Y-OQ scores,  $F(1,15) = 9.44, p = .008, d = 1.5$ , indicating that mean scores on the Y-OQ decreased significantly and with a large effect size. Lower mean scores reflect lesser parent-reported symptom severity. The between-subject main effect of group for the Y-OQ was not significant,  $F(1, 15) = .659, p = .43, d = .42$ . Most relevant to hypothesis #2, the interaction effect of group by time was not significant,  $F(1,15) = 1.772, p = .20, d = .54$ , indicating that mean changes in Y-OQ scores over time did not vary significantly by condition (See Table 8 for all Y-OQ descriptive statistics).

Table 8

*Descriptive Statistics for the Youth Outcome Questionnaire Across Time points*

Time	Group	<i>N</i>	<i>M</i>	<i>SD</i>	Range
T1(Pre)	Control	11	42.73	25.51	-2 - 92
	Experimental	17	56.29	40.92	12 - 133
	Combined	28	50.96	35.76	-2 - 133
T5 (Post)	Control	7	20.57	37.29	-16 - 89
	Experimental	10	40.70	31.22	3 - 92
	Combined	17	32.41	34.27	-16 - 92

*Note.* Higher scores = more problems; Possible scores of -16 to 240

***Parents will report reductions in scores and beneficial effects of repeated assessment  
will be found for themselves and their child (Hypothesis #3)***

***Symptomatology (ECBI & Conners-3) and Status of Major Presenting Problems***

As part of several analyses to test hypothesis #3, a RM-ANOVA was computed for ECBI Intensity scores. A standard scores inspection for outliers did not indicate any outliers. A visual inspection of the ECBI plot suggested skewness in the data. A statistical examination of the skewness and kurtosis, where scores closer to an absolute value of 1 indicate more skew, suggested kurtosis but not skewness in the distribution for the ECBI at both the pre (-1.102) and post time points (-1.016). Skewness and kurtosis were not significant (absolute value >1.96) for either time point based on standard scores (skewness pre  $z = .752$ , post  $z = .154$ ; kurtosis pre  $z = -1.111$ , post  $z = -.931$ ). The Kolomogorov-Smirnov (K-S) test was not significant for the pre time point  $D(20) = .187$ ,  $p = .065$ , or for the post time point  $D(16) = .119$ ,  $p = .200$ . Levene's test for homogeneity of variance was not significant for the pre time point  $F(1,11) = .002$ ,  $p = .968$ , or for the post time point  $F(1,11) = .766$ ,  $p = .400$ .

For all RM-ANOVA analyses regarding hypothesis #3, the most relevant analyses are the within-subject main effect of time and the interaction effect. The within-subject main effect of time on scores of the ECBI was not significant,  $F(1,11) = 3.585, p = .085, d = 1.06$ , indicating that mean scores on the ECBI did not decrease significantly. Lower mean scores reflect lesser parent-reported symptom severity. The between-subject main effect of group for the ECBI was not significant,  $F(1, 11) = .146, p = .71, d = .23$ , indicating that there was no significant difference between the experimental and control group means. The interaction effect of group by time was not significant,  $F(1,15) = 1.724, p = .22, d = .69$ , indicating that mean changes in ECBI scores over time did not vary significantly by condition. (See Table 9 for ECBI descriptive statistics).

Table 9

*Descriptive Statistics for the Eyberg Child Behavior Inventory, Intensity Scores, Across Time Points*

Time	Group	<i>N</i>	<i>M</i>	<i>SD</i>	Range
T1(Pre)	Control	6	117.83	42.46	58 - 177
	Experimental	14	116.43	39.88	68 - 187
	Combined	20	116.85	39.54	58 - 187
T2(Post)	Control	7	93.86	48.32	36 - 170
	Experimental	9	107.67	40.64	46 - 173
	Combined	16	101.63	43.18	36 - 173

*Note.* Possible scores of 36 - 252

A RM-ANOVA was conducted for the Conners-3, Conners Global Index scale (Conners-3 CGI). A standard scores inspection for outliers did not indicate any outliers. A visual inspection of the Conners-3 CGI plot suggested skewness in the data. A statistical examination of the skewness and kurtosis, suggested kurtosis in the pre time point (-1.001). Skewness and kurtosis were not significant for either time point based on standard scores (skewness pre  $z = 1.185$ , post  $z = .882$ ; kurtosis pre  $z = -1.071$ , post  $z = -$

.665). The K-S test, however, was significant for the pre time point  $D(23) = .194, p = .025$ , but not for the post time point  $D(17) = .153, p = .200$ . Levene's test was significant for the pre time point  $F(1,13) = 11.410, p = .005$ , but not for the post time point  $F(1,13) = .395, p = .541$ .

There was a significant within-subject main effect for time on scores of the Conners-3 CGI,  $F(1,13) = 6.533, p = .02, d = 1.41$ , indicating that mean scores on the Conners-3 CGI significantly decreased, and with a large effect size. Lower mean scores reflect lesser parent-reported symptom severity. The between-subject main effect of group for the Conners-3 CGI resulted in no significant effect,  $F(1, 13) = 3.031, p = .11, d = .97$ , indicating that there was no significant difference in the experimental and control group means. The interaction effect of group by time was not significant,  $F(1,13) = .148, p = .71, d = .17$ , indicating that mean changes in Conners-3 CGI scores did not significantly vary over time by group. (See Table 10 for all Conners-3 CGI descriptive statistics).

Table 10

*Descriptive Statistics for the Conners-3, CGI Scale, Across Time Points*

Time	Group	<i>N</i>	<i>M</i>	<i>SD</i>	Range
T1(Pre)	Control	9	65.56	13.89	49 - 95
	Experimental	14	75	21.6	46- 109
	Combined	23	71.3	19.19	46 - 109
T2(Post)	Control	7	57.43	20.97	40 - 94
	Experimental	10	68.9	17.77	41 - 102
	Combined	17	64.18	19.4	40 - 102

Mothers' evaluation of the status of the major presenting problems for which they initially sought assessment for their child was asked on the general questionnaire and analyzed by an ANOVA. A standard scores inspection for outliers did not indicate any



outliers. A visual inspection of the status of the major presenting problems plot of the general questionnaire suggested skewness in the data. A statistical examination of the skewness and kurtosis suggested kurtosis (-1.006). Skewness and kurtosis were not significant based on standard scores (skewness  $z = 1.174$ ; kurtosis  $z = .922$ ). The K-S test, however, was significant  $D(16) = .307, p < .001$ . Levene's test was not significant  $F(1,14) = 3.570, p = .080$ . A one-way ANOVA revealed a significant difference between the groups,  $F(1,14) = 5.268, p = .038, d = 1.23$ . On average, the traditional assessment group rated the major presenting problem as being "somewhat improved", while the experimental group rated the status of the problem as being "the same" (See Table 11 for descriptive statistics).

Table 11

*Descriptive Statistics for the General Questionnaire, Status of Major Presenting Problems*

Time	Group	<i>N</i>	<i>M</i>	<i>SD</i>	Range
T2(Post)	Control	7	4.14	.9	3- 5
	Experimental	9	3.33	.17	3- 4

*Note.* Possible scores of 1 - 5

***Parenting Stress and Parenting Behavior***

As with the ECBI and Conners-3 CGI, a similar RM-ANOVA was conducted for the PSI-SF total raw score. A standard scores inspection for outliers did not indicate any outliers. A visual inspection of the PSI-SF total raw score plot suggested skewness in the data. A statistical examination of the skewness and kurtosis, suggested kurtosis in the pre (1.156) and post (-1.356) time points. Skewness and kurtosis were not significant for either time point based on standard scores (skewness pre  $z = .764$ , post  $z = -.06$ ; kurtosis pre  $z = 1.189$ , post  $z = -1.276$ ). The K-S test was also not significant for either the pre

time point  $D(21) = .107, p = .200$ , or the post time point  $D(17) = .185, p = .125$ .

Levene's test was not significant for either the pre time point  $F(1,14) = 1.792, p = .202$ , or the post time point  $F(1,14) = .046, p = .834$ .

There was a significant within-subject main effect for time on scores of the PSI,  $F(1,14) = 6.922, p = .02, d = 1.39$ , indicating that mean scores on the PSI significantly decreased with a large effect size. Lower mean scores reflect lesser parent-reported parental stress. The between-subjects main effect of group for the PSI resulted in a non-significant effect,  $F(1, 14) = 1.826, p = .20, d = .72$ , indicating that there was no significant difference in the experimental and control group means. The interaction effect of group by time was not significant,  $F(1,14) = .328, p = .58, d = .25$ , indicating that mean changes in PSI-SF scores did not significantly vary over time by group (See Table 12 for all PSI-SF descriptive statistics).

Table 12

*Descriptive Statistics for the Parenting Stress Index-Short Form, Total Raw Score, Across Time Points*

Time	Group	<i>N</i>	<i>M</i>	<i>SD</i>	Range
T1(Pre)	Control	8	79.75	16.61	43 - 98
	Experimental	13	86.85	27.11	46 - 145
	Combined	21	84.14	23.46	43 - 145
T2(Post)	Control	7	59.71	20.27	36 - 89
	Experimental	10	79.7	24.96	39 - 112
	Combined	17	71.47	24.64	36 - 112

*Note.* Possible scores of 36 - 180

A final set of RM-ANOVAs was conducted for the Parenting Scale-Overreactivity (PS-O) and Parenting Scale-Laxness (PS-L) scales. For the PS-O scale, a standard scores inspection for outliers did not indicate any outliers. A visual inspection of the PS-O plot suggested skewness in the data. A statistical examination of the skewness and kurtosis, did not suggest skewness (pre =  $-.561$ , post =  $.163$ ) or kurtosis (pre =  $-.492$ ,

post =  $-.078$ ). Skewness and kurtosis were not significant for either time point based on standard scores (skewness pre  $z = -1.272$ , post  $z = -.296$ ; kurtosis pre  $z = -.573$ , post  $z = -.074$ ). The K-S test was also not significant for either the pre time point  $D(28) = .136$ ,  $p = .197$ , or the post time point  $D(17) = .138$ ,  $p = .200$ . Levene's test was not significant for either the pre time point  $F(1,15) = 1.550$ ,  $p = .232$ , or the post time point  $F(1,15) = 1.080$ ,  $p = .315$ .

No significant within-subject main effect for time was observed on the PS-O scale,  $F(1,15) = .251$ ,  $p = .62$ ,  $d = .12$ , indicating that mean scores on the PS-O scale did not significantly increase. Higher means reflect more effective parenting, i.e., less overreactivity. There was no significant effect for the between-subjects main effect of group for the PS-O scale,  $F(1, 15) = 2.294$ ,  $p = .15$ ,  $d = .78$ , indicating that there was no significant difference in the experimental and control group means. No significant interaction effect of group by time was found,  $F(1,15) = .058$ ,  $p = .81$ ,  $d = .12$ , indicating that mean changes in PS-O scores did not vary significantly over time by group (See Table 13 for all Parenting Scale descriptive statistics).

For the PS-L scale, a standard scores inspection for outliers did not indicate any outliers. A visual inspection of the PS-L plot suggested skewness in the data. A statistical examination of the skewness and kurtosis, did not suggest skewness (pre =  $-.663$ , post =  $.416$ ) or kurtosis for the pre time point ( $-.011$ ) but indicated slight kurtosis in the post time point ( $-.800$ ). Skewness and kurtosis were not significant for the either time point based on standard scores (skewness pre  $z = -1.503$ , post  $z = .756$ ; kurtosis pre  $z = -.013$ , post  $z = -.753$ ). The K-S test was also not significant for either the pre time point  $D(28) = .106$ ,  $p = .200$ , or the post time point  $D(17) = .131$ ,  $p = .200$ . Levene's test was not

significant for either the pre time point  $F(1,15) = .604, p = .449$ , or the post time point  $F(1,15) = .256, p = .621$ .

No significant within-subject main effect for time was observed for the PS-L scale,  $F(1,15) = 1.154, p = .30, d = .54$ , indicating that mean scores on the PS-L scale did not significantly increase. Higher mean scores reflect more effective parenting, i.e., less laxness. There was no significant effect for the between-subjects main effect of group,  $F(1, 15) = 2.059, p = .17, d = .74$ , indicating that there was no significant difference in the experimental and control group means. No significant interaction effect of group by time was found,  $F(1,15) = .749, p = .40, d = .43$ , indicating that mean changes in Laxness scores did not vary significantly over time by group.

Table 13

*Descriptive Statistics for the Parenting Scale, Overreactivity and Laxness Scales, Across Time Points*

Scale	Time	Group	<i>n</i>	<i>M</i>	<i>SD</i>	Range
Overreactivity	T1(Pre)	Control	7	5.14	1.09	2.8 - 6.8
		Experimental	10	4.3	1.51	1.4 - 6.4
		Combined	17	4.68	1.5	1.4 - 6.8
	T2(Post)	Control	7	5.31	1.38	3.6 - 7.0
		Experimental	10	4.36	1.11	2.2 - 6.0
		Combined	17	4.75	1.28	2.2 - 7.0
Laxness	T1(Pre)	Control	7	5.97	1.05	4.2 - 7.0
		Experimental	10	5.04	1.48	2.4 - 6.8
		Combined	17	5.27	1.27	2.4 - 7.0
	T2(Post)	Control	7	5.6	.91	4.8 - 7.0
		Experimental	10	5.0	.96	3.8 - 6.4
		Combined	17	5.25	.96	3.8 - 7.0

*Note.* Possible scores of 1-7 for each scale

Mothers were asked on the general questionnaire whether their discipline behavior changed over the course of the evaluation. Their answers were analyzed by an ANOVA. A standard scores inspection for outliers did not indicate any outliers. A visual

inspection of mothers' self-reflection of any discipline behavior changes plot from the general questionnaire suggested skewness in the data. Skewness and kurtosis were not significant based on standard scores (skewness  $z = 1.251$ ; kurtosis  $z = -.110$ ). The K-S test, however, was significant  $D(17) = .291, p < .001$ . Levene's test was not significant  $F(1,15) = .575, p = .460$ . A one-way ANOVA indicated no significant differences between the groups,  $F(1,15) = .215, p = .65, d = .24$  (See Table 14 for descriptive statistics). Regardless of group, overall, mothers reported using very few new discipline techniques.

Table 14

*Descriptive Statistics for the General Questionnaire, Discipline Techniques*

Time	Group	<i>N</i>	<i>M</i>	<i>SD</i>	Range
T2(Post)	Control	7	2.29	1.5	1 - 5
	Experimental	10	2.0	1.05	1 - 3

*Note.* Possible scores of 1-5

***Awareness of Child Behaviors, Parent Interactions with Child, and Perception of Child***

Further univariate ANOVAs were conducted for parent awareness of their child's positive and problem behaviors, reported positive and negative interactions, and overall perception of their child. A standard scores inspection for outliers did not indicate any outliers for mothers' awareness of their children's positive behavior. A visual inspection of the plot suggested skewness in the data. The statistical examination of the skewness and kurtosis suggested concern with kurtosis ( $-1.292$ ). Skewness ( $z = 1.18$ ) and kurtosis ( $z = -1.22$ ) were not significant based on standard scores. The K-S test, however, was significant  $D(17) = .327, p < .001$ . Levene's test was also significant  $F(1,15) = 5.251, p = .037$ . The ANOVA yielded a significant difference between groups,  $F(1,15) = 17.543, p = .001, d = 2.16$ . (See Table 15 for descriptive statistics).

A standard scores inspection for outliers of mothers' awareness of problem behaviors did not indicate any outliers. A visual inspection of the plot suggested skewness in the data. A statistical examination of the skewness and kurtosis suggested concern with kurtosis (1.521). Skewness ( $z = -1.26$ ) and kurtosis ( $z = 1.43$ ) were not significant based on standard scores. The K-S test, however, was significant  $D(17) = .335, p < .001$ . Levene's test was also significant  $F(1,15) = 4.783, p = .045$ . The ANOVA was not significant,  $F(1,15) = .810, p = .38, d = .46$ .

A visual inspection of the plot of mothers reported changes in positive interactions suggested skewness in the data. A statistical examination of the skewness and kurtosis suggested concern with kurtosis (-2.083). Based on standard scores, kurtosis ( $z = 1.96$ ) was significant but skewness ( $z = -.235$ ) was not. The K-S test was significant  $D(17) = .306, p < .001$ . Levene's test was not significant  $F(1,15) = 1.501, p = .239$ . The ANOVA was not significant,  $F(1,15) = 3.97, p = .065, d = 1.03$ .

A visual inspection of the plot of changes in negative interactions with their child suggested skewness in the data. A statistical examination of the skewness and kurtosis suggested concern with kurtosis (-1.714). Based on standard scores, neither skewness ( $z = 0$ ) or kurtosis ( $z = 1.612$ ) was significant. The K-S test was significant  $D(17) = .229, p = .018$ . Levene's test was not significant  $F(1,15) = .071, p = .794$ . The ANOVA was not significant,  $F(1,15) = 3.341, p = .09, d = .94$ .

A visual inspection of the plot of mothers' overall perception of their children suggested skewness in the data. A statistical examination of the skewness and kurtosis suggested concern with kurtosis (-.975). Based on standard scores, neither skewness ( $z = 1.076$ ) or kurtosis ( $z = .917$ ) was significant. The K-S test was significant  $D(17) = .290,$

$p < .001$ . Levene's test was not significant  $F(1,15) = 2.001, p = .178$ . The ANOVA resulted in a significant difference between the groups,  $F(1,15) = 10.855, p = .005, d = 1.70$ . Regardless of group, on average, mothers reported that their awareness of problem behaviors "remained the same," positive interactions with their children were "somewhat more common," and negative interactions were "somewhat less common."

Table 15

*Descriptive Statistics for the General Questionnaire, Awareness of Behaviors, Changes of Interactions, and Overall Perception*

Question	Time	Group	<i>n</i>	<i>M</i>	<i>SD</i>	Range
Awareness of Positive Bx	T2(Post)	Control	7	4.43	.79	3 - 5
		Experimental	10	3.2	.42	3 - 4
		Combined	17	3.71	.85	3 - 5
Awareness of Problem Bx	T2(Post)	Control	7	2.86	1.46	1 - 5
		Experimental	10	3.3	.48	3 - 4
		Combined	17	3.12	.99	1 - 5
Positive Interactions	T2(Post)	Control	7	4.57	.79	3 - 5
		Experimental	10	3.7	.95	3 - 5
		Combined	17	4.06	.97	3 - 5
Negative Interactions	T2(Post)	Control	7	1.57	.79	1 - 3
		Experimental	10	2.3	.82	1 - 3
		Combined	17	2.0	.87	1 - 3
Overall Perception of Child	T2(Post)	Control	7	4.29	.76	3 - 5
		Experimental	10	3.3	.48	3 - 4
		Combined	17	3.71	.77	3 - 5

*Notes.* Possible scores of 1 – 5; Bx = Behavior

***Therapeutic Alliance and Client Satisfaction***

Parental alliance with therapist and client satisfaction were evaluated using the Working Alliance Inventory (WAI) and the Client Satisfaction Questionnaire (CSQ). Separate ANOVAs were conducted for each outcome variable. For the WAI, a visual inspection of the plot suggested skewness in the data. A statistical examination of the skewness and kurtosis suggested concern with both skewness (-1.890) and kurtosis

(4.555). Based on standard scores, both skewness ( $z = 2.97$ ) and kurtosis ( $z = 3.70$ ) were significant. The K-S test, however, was not significant  $D(12) = .192, p = .200$ . Levene's test was not significant  $F(1,10) = 1.376, p = .268$ . The ANOVA was not significant,  $F(1,11) = 4.293, p = .065, d = 1.31$  (See Table 16 for WAI descriptive statistics).

Regarding the CSQ, a visual inspection of the plot suggested skewness in the data. A statistical examination of the skewness and kurtosis did not suggest concern with either one. Based on standard scores, neither skewness ( $z = -1.506$ ) or kurtosis ( $z = -.688$ ) was significant. The K-S test was significant  $D(13) = .292, p = .003$ . Levene's test was not significant  $F(1,10) = .002, p = .962$ . The ANOVA was also not significant,  $F(1,11) = .529, p = .48, d = .44$  (See Table 12 for CSQ descriptive statistics).

Table 16  
*Descriptive Statistics for the Working Alliance Inventory and the Client Satisfaction Questionnaire*

Measure & Scale	Time	Group	<i>n</i>	<i>M</i>	<i>SD</i>	Range
WAI	T2(Post)	Control	6	80.17	5.154	71 - 84
		Experimental	6	69.33	11.725	47 - 80
		Combined	12	74.75	10.323	47 - 84
CSQ	T2(Post)	Control	5	29.00	5.66	19 - 32
		Experimental	8	26.88	4.79	20 - 32
		Combined	13	27.69	5.02	19 - 32

*Note.* WAI = Working Alliance Inventory; CSQ = Client Satisfaction Questionnaire; Possible scores on the WAI are 12-84; Possible Scores on the CSQ are 8 - 32

***Social Desirability and Mechanical Responding will not be significantly related to change scores (Hypotheses #4 & #5)***

The potential relationships of socially desirable and mechanical responding with mothers' ratings were measured by the MCSDS and the TTS. The MCSDS and the TTS total scores were each correlated using Pearson correlations with change scores of the main outcome measures (i.e., YOQ, ECBI, Connors-3 CGI, PSI-SF, and the PS-O and



PS-L). A visual inspection of the plot suggested skewness in the data, and one outlier, who was subsequently excluded from the analysis, for hypothesis #4 (the MCSDS). Upon reexamining the plot without the outlier, skewness continued to be apparent. A statistical examination of the skewness and kurtosis suggested concern with skewness (-.690) but not kurtosis (.397). Based on standard scores, skewness ( $z = -1.190$ ) and kurtosis ( $z = .354$ ) were both not significant. The K-S test was also not significant  $D(15) = .128, p = .200$ . Only the Pearson correlation of the MCSDS and the ECBI was significant  $r = .699, p = .017$ . However, the effect sizes for the correlations with the Y-OQ, ECBI, PSI-SF, and Conners CGI changes scores were in the medium and large ranges, which suggested that participants responded in a socially desirable way, see Table 17 for all correlations. Descriptive statistics of the MCSDS also suggest socially desirable responding ( $M = 23.20, SD = 4.41, Min = 13, Max = 29$ ).

A visual inspection of the plot suggested skewness in the data, and one outlier, who was subsequently excluded from the analysis, for hypothesis #5 (mechanical responding). Upon reexamining the plot without the outlier, skewness continued to be apparent. A statistical examination of the skewness and kurtosis suggested concerns with skewness (.931) but not kurtosis (.489). Based on standard scores, skewness ( $z = 1.61$ ) and kurtosis ( $z = .436$ ) were both not significant. The K-S test was also not significant  $D(15) = .166, p = .200$ . The Pearson correlations indicated that none of the change scores for the main outcome measures were significantly correlated with the TTS. However, effect sizes for the Y-OQ, PSI-SF, and Conners CGI were negative and in the moderate to large range, see Table 17 for all correlations. This suggests that as change scores increased, TTS scores decreased, meaning less overall participant interest and

thoughtfulness in completing the questionnaires. Nonetheless, descriptively, TTS scores indicated an overall interest and thoughtfulness in completing the questionnaires ( $M = 40.73$ ,  $SD = 2.40$ ,  $Min = 38$ ,  $Max = 46$ ).

Table 17

*Marlowe-Crowne Social Desirability Scale & Test Taking Survey Correlations with Change Scores of the Y-OQ, ECBI, PSI-SF, Conners CGI, PS-O, and PS-L*

Measure/Scale	MCSDS		TTS	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Y-OQ	.390	0.151	-.501	0.057
ECBI	.699	0.017	-.159	0.640
PSI-SF	.346	0.226	-.447	0.109
Conners CGI	.373	0.189	-.388	0.171
PS-O	-.128	0.649	-.027	0.925
PS-L	.021	0.942	.044	0.875

*Notes.* MCSDS= Marlowe-Crowne Social Desirability Scale; TTS= Test Taking Survey; Y-OQ = Youth Outcome Questionnaire; ECBI = Eyberg Child Behavior Inventory; PSI-SF = Parenting Stress Inventory- Short Form; Conners CGI= Conners 3<sup>rd</sup> Edition, Conners Global Index; PS-O = Parenting Scale- Overreactivity Scale; PS-L = Parenting Scale-Laxness Scale.

***Initial client symptomatology, as measured on the Conners-3 CGI will be associated with change scores (Hypotheses #6)***

A Pearson correlation of initial child symptomatology on the Conners-3 CGI and Conners-3 CGI change scores was conducted to test whether initial child symptomatology was associated with change scores. The relationship between initial child symptomatology on the Conners-3 CGI and change scores was not significant but yielded a medium-large effect size,  $r = .434$ ,  $p = .106$ .

***Maternal symptoms of depression, as measured on the BDI-II, will be associated with change scores (Hypothesis #7)***

To test whether maternal depression was associated with change scores, Pearson correlations of maternal symptoms of depression (as rated by the total score of the BDI-

II) and change scores of the main outcome variables were conducted. A visual inspection of the BDI-II plot suggested skewness in the data. A statistical examination of the skewness and kurtosis suggested concerns with skewness (1.154) but not kurtosis (.284). Based on standard scores, skewness ( $z = 2.30$ ) was significant while kurtosis ( $z = .292$ ) was not. The K-S test was not significant  $D(21) = .177, p = .085$ . There was a significant relationship, and a large effect size, between the BDI-II and the change score of the ECBI,  $r = -.718, p = .019$ . While all other relationships were not significant, the Y-OQ, PSI-SF, and PS-L yielded large or medium effect sizes, see Table 18 for all correlations. This suggests that for the aforementioned measures, more maternal depression is associated with less change.

Table 18

*BDI-II Correlations with Change Scores of the Y-OQ, ECBI, PSI-SF, Conners CGI, PS-O, and PS-L*

Measure/Scale	<i>R</i>	<i>p</i>
Y-OQ	-.441	0.114
ECBI	-.718	0.019
PSI-SF	-.331	0.270
Conners CGI	.005	0.988
PS-O	-.190	0.515
PS-L	-.396	0.161

*Notes.* BDI-II= Beck Depression Inventory, 2<sup>nd</sup> Edition; Y-OQ = Youth Outcome Questionnaire; ECBI = Eyberg Child Behavior Inventory; PSI-SF = Parenting Stress Inventory- Short Form; Conners CGI= Conners 3<sup>rd</sup> Edition, Conners Global Index; PS-O = Parenting Scale- Overreactivity Scale; PS-L = Parenting Scale-Laxness Scale.

## CHAPTER IV

### Discussion

The purpose of this study was to explore whether pretreatment reductions in scores occur during the assessment period for parent-self ratings and ratings of their children. An additional goal was to explore possible causes of reductions in ratings (if found), such as repeated assessment, social desirability, and mechanical responding. Participants included 28 mothers of children presenting at a university-based outpatient ADHD clinic for a psychoeducational evaluation. The Y-OQ was expected to show a reduction in scores from its first administration to its last administration. Greater reduction in scores was expected for the more frequently assessed group. Similar overall reductions in scores, and greater reductions for the more frequently assessed group, were expected to be found for child symptomatology, parenting stress, and parenting behavior. Mothers who were more frequently assessed were expected to report greater satisfaction and working alliance with their assessor than mothers who were not as frequently assessed. This result would lend further support for beneficial effects of repeated assessment. Additionally, parents were differentially, by group, expected to report an increased awareness of their children's behaviors, an increase in positive interactions with their children, and improved perception of their children. This would be additional support for the beneficial effects of repeated assessment. Another hypothesis was the absence of the relationship between social desirability and mechanical responding with change scores of measures of the aforementioned constructs. Lastly, initial client symptomatology on the Conners-3, and maternal symptoms of depression, were separately hypothesized to be associated with change scores.

### *Reduction in Scores over Time*

Across domains (i.e., child symptomatology, parenting stress, parenting behavior) and measures (i.e., Y-OQ, ECBI, Conners CGI, PSI, PS-O, and PS-L) it was hypothesized that scores would decrease pre vs. post test (i.e., time). A preliminary analysis of change in the hypothesized direction generally indicated a decrease in scores across the main outcome measures over time, with some change analyses (i.e., Y-OQ, PSI-SF) reaching statistical significance. The one exception to the decrease in scores was the mothers' reported parenting behaviors which did not indicate improvement. Collectively, mothers reported less child symptomatology, and less parenting stress over time, in the absence of intervention.

Results from RM-ANOVAs for the Y-OQ and the Conners-3 CGI showed statistically significant decreases in mean scores over time with large effect sizes. These results support the hypothesis. The pretreatment reductions in scores on the Y-OQ and Conners-3 CGI are consistent with previous research showing symptom reduction on the Y-OQ and other measures and constructs (Arrindell, 2001; Durham et al., 2002; Sharpe & Gilbert, 1998; Swift et al., 2012; Young, 2006). Reduction in mean scores on the ECBI approached statistical significance and had a large effect size. This again is consistent with the hypothesis and with previous research (French & Sutton, 2010). Mean scores on the PSI-SF decreased in a statistically significant way with a large effect size. This result is consistent with the hypothesis and with the findings regarding child symptomatology. Maternal ratings of child parenting stress can therefore also be added to the research base (Arrindell, 2001; French & Sutton, 2010) as another area where pretreatment reductions

in scores has been found. Results from the PS-O and PS-L scales, regarding parenting behavior, however, indicated non-significant mean changes.

In comparison to Durham et al.'s (2002) study on the Y-OQ, this study found a greater magnitude of change, over a longer period of time (Mean = 23.6 weeks) from pre- to post-assessment. Durham et al. (2002) reported that over a nine-week period the weekly administration group had a 10.45 point reduction, the biweekly group a 9.64 point reduction, the monthly group a 6.13 point reduction, and the pre/post group a 4.34 point reduction. This study found for the pre/post control group a mean reduction of 22.16 points. The pre/post mean reduction for the experimental group was 15.59 points. The mean for both groups combined was an 18.55 point reduction on the Y-OQ. These reductions also reflect reliable change as they are greater than the Y-OQ's 13-point Reliable Change Index. There are a couple of ways to understand the large magnitude of change without intervention; the Y-OQ is not as stable of a measure over longer periods of time, or a large magnitude of change can occur over time without intervention. Future research is necessary to further understand these reductions.

#### *Effects of Repeated Assessment*

It was hypothesized that across domains (i.e., child symptomatology, parenting stress, parenting behavior) and measures (i.e., Y-OQ, ECBI, Conners CGI, PSI, PS-O, and PS-L) repeated assessment would lead to greater score reductions. Results indicated that for all domains and measures this hypothesis was not supported. This finding is in opposition to previous research (e.g., Clifford et al., 2007; Longwell & Truax, 2005).

Repeated assessment was also hypothesized to influence parental perceptions of the status of the major presenting problems. Contrary to expectations, the control group

rated the major presenting problem as being somewhat improved while the experimental group rated the status of the problem as being the same. The frequency of assessment also did not influence mothers' self-reported discipline practices. Regardless of group, overall, mothers reported using very few new discipline techniques.

### *Therapeutic Alliance and Client Satisfaction*

Repeated assessment was also expected to influence working alliance and produce greater client satisfaction. Again, counter to expectations, control group mothers reported a stronger working alliance and no satisfaction differences existed between the groups. It should be noted though, that both groups reported strong alliance with their therapists and high satisfaction with the relationship.

### *Awareness of Child Behaviors*

Parents were expected to report increased awareness of their children's behaviors, an increase in positive interactions, a decrease in negative interactions with their children, and improved perception of their children. The more frequently assessed group was hypothesized to report more beneficial change than the less frequently assessed group. Contrary to the hypothesis, on average, the control group mothers reported increases in awareness of their children's positive behaviors. The experimental group's awareness of their children's positive behaviors was unchanged. Also counter to expectations, all mothers' awareness of problem behaviors did not increase and awareness did not significantly differ between the groups.

### ***Parent Interactions with Child***

Control group mothers reported positive interactions were more common while positive interactions in the experimental group remained the same. Both groups reported that negative interactions with their children were less common. Control group mothers reported that negative interactions with their children were *considerably* less common while experimental group mothers reported that negative interactions with their children were only *somewhat* less common. Results for both positive and negative interactions were contrary to the hypothesis that the frequency of assessment would cause a differential increase in positive interactions and a decrease in negative interactions.

### ***Perception of Child***

Mother's overall perception of their children differed significantly between the groups. Control group mothers reported that their overall perception of their children was somewhat more positive in contrast to experimental group mothers who reported that their overall perception of their children remained the same. This result is counter to the hypothesis. It should be noted that these results are from a measure that is face valid, has no estimates of reliability or validity, and no normative sample with which to compare. It was a preliminary attempt to measure maternal awareness of their children's behavior, interactions with their children, and perceptions of their children.

### ***Plausible Explanations for Lack of Repeated Assessment Effects***

There are a number of plausible explanations for not finding beneficial effects of repeated assessment. It is possible, as mentioned previously as a scientific concern, that the initial intensive assessment that mothers completed, from both clinical and research contexts, prompted change across both groups and obscured group differences over time.



An initial intensive assessment was hypothesized as a reason for not finding differences between groups on Project MATCH (DiClemente et al., 1994). Additionally, other research (Ahava et al., 1998) suggested that initial assessment has stronger effects than subsequent testing. Additional assessments would therefore not lead to any further decrease in reported symptoms. French and Sutton (2010) suggest that decreases in scores upon the second administration of a test are a systematic source of variance. It follows that with additional assessment the true score becomes more apparent and likely closer to the initial assessment score. This pattern, however, was not evident by the experimental group Y-OQ data (see Appendix C). Scores on the Y-OQ showed a non-significant increase at the second administration and then significantly decreased for the following two administrations.

It is also possible that the experimental manipulation (either the amount of repeated assessment, or the assessment measure, i.e, the Y-OQ, or both) was not strong enough to cause change. The weakness of the experimental manipulation is also compounded by the small sample size, which will be further discussed in the limitations section. It should be noted though, that other studies (e.g., McCambridge & Day, 2008) found beneficial effects of assessment with only one extra assessment. Furthermore, during this study, at the time of the third and fourth extra assessments, no other assessment measures or interviews with mothers occurred. Nonetheless, given the amount of initial assessment and interviews, the administration of three additional questionnaires may not have been sufficiently potent to induce change.

A final possible explanation for the present pattern of results is that repeated assessment does not have the same effect for parental-report as it appears to have with

self report. Durham et al. (2002), however, found greater reductions in Y-OQ scores with more frequent administration. Further research is necessary to understand the effects of repeated assessment for parent-reports. In summary, pretreatment reductions in scores were generally found, but repeated assessment did not emerge as a causal factor.

### *Additional Hypotheses Explored*

#### *Social Desirability*

It was hypothesized that socially desirable responding would not be significantly related to change scores of reported symptomatology, parenting stress, and parenting behaviors. Contrary to the hypothesis, and previous work by Durham et al. (2002), correlations of a medium to large effect size were found between a measure of socially desirable responding and measures of parent-reported child symptomatology and parenting stress. Moreover, in finding socially desirable responding, questions arise about the validity of the results. Socially desirable responding suggests that mothers may have answered according to their perception of the study's goals. However, mothers were qualitatively asked their perceptions of the reasons for the study and none were able to accurately identify the study's specific goals. Thus, the likelihood that their socially desirable responses were due to the study is minimal. Alternatively, mothers' socially desirable responding may be due to their desire to please their child's assessor from a clinical perspective. Indeed, the mothers were simultaneously in a research and in a clinical context. Furthermore, the clinical context may have had more impact on their responses because it was their main impetus for presenting to the outpatient clinic. Context has been found to be important in outcomes of measures (Knowles et al., 1996)

and future research should design a study whereby the effects of context may be delineated.

Socially desirable responding by parents completing child behavior rating scales has not been well researched. In the child maltreatment area specifically, parents engaging in socially desirable responding is an obvious and well-documented concern (Bennett, Sullivan, & Lewis, 2006). However, in psychoeducational assessment and for more commonly used parent-report measures (i.e., ECBI, Conners-3), research on socially desirable responding is lacking. Only two other research studies, to this researcher's knowledge, have evaluated the extent of parent's socially desirable responding while rating their children. Durham et al.'s (2002) study did not find socially desirable responding in relation to the Y-OQ. Merydith, Plout, and Blaha (2003) found, based on correlation and regression analyses, that socially desirable responding was associated with Child Behavior Checklist ratings. The relationship between social desirability and Child Behavior Checklist ratings was strongest for externalizing behaviors and in particular for aggressive behaviors and attention problems. Merydith et al.'s (2003) findings may therefore explain the large correlation and effect size that the ECBI had with the SDS. The ECBI, to a great extent, is a measure of externalizing and inattentive behaviors (Burns & Patterson, 2000). Based on the results of this study, further research on socially desirable responding with other child behavior rating scales is necessary.

### ***Mechanical Responding***

Results suggested a negative relationship between mechanical responding and two symptomatology measures (the Y-OQ & Conners CGI) and parenting stress (PSI-SF),

with medium to large effect sizes. The correlations for the Y-OQ and the PSI-SF approached significance. These results suggest that for these measures, as change scores increased, TTS scores decreased, which implies less overall participant interest and thoughtfulness in completing the questionnaires. Mothers may not be as invested in responsibly reporting once they see children improving. However, it is unknown whether more careful reporting would have led to an increase or decrease in reported symptomatology. Despite the aforementioned associations, descriptive TTS scores indicated that mothers took an overall interest and carefully considered the items when completing the questionnaires. Although the results in reference to social desirability suggest that mothers likely answered in a socially desirable fashion, this response style may not have been their intended outcome as they also reported that they responsibly answered the questionnaires.

### ***Initial Child Symptomatology***

It was hypothesized that initial child symptomatology, as measured on the Conners-3 CGI, would be associated with change scores. Specifically, children rated as having more initial symptomatology were expected to have less symptom improvement at the end of the assessment than those children initially rated as having less symptomatology. Contrary to expectations, there was a positive relationship, which approached significance between initial symptomatology and change scores on the Conners-3 CGI. Children who were rated as having more symptomatology at the beginning of the study were reported to have more change (i.e., less symptomatology) over the course of the study. This is consistent with previous research that has reported large pretreatment reduction in scores (Arrindell, 2001; Hesser et al., 2011; Sharpe &

Gilbert, 1998; Young, 2006;) but is in contrast to other research which predicts less change for more symptomatic participants (Lambert et al., 1996).

The greater reduction in scores for children, who were initially rated as having more symptomatology, should not be confused with regression to the mean. Extreme scores would be expected to regress to the mean with retesting (Barkham et al., 2007). In this study, mothers were not selected based on the high scores that they rated their children, so regression to the mean should not be assumed. Secondly, even children initially rated as having fewer symptoms showed a decrease in reported symptomatology. Again, regression to the mean is not implied.

### ***Maternal Symptoms of Depression***

Maternal symptoms of depression, as rated by the BDI-II, were hypothesized to be negatively associated with change scores, such that mothers with more symptoms of depression at pre-test would report less decrease in their children's scores. The hypothesis was generally supported. Greater initial maternal depression was associated with less change reported on four out of the six main outcome measures. These results had medium and large effect sizes of which one (the ECBI) was also statistically significant. These outcomes continue the findings of previous research (Chi & Hinshaw, 2002) suggesting that maternal symptoms of depression are associated with ratings of their children. In previous research (Chi & Hinshaw, 2002) depressed mothers displayed a negative bias and reported that their children had ADHD symptoms when in actuality they did not. In the present study, maternal symptoms of depression were associated with less change. Maternal ratings of their children may therefore also be negatively biased

and do not account for the full scope of beneficial change in their children's symptomatology.

### *Clinical Implications*

Maternal ratings of child symptomatology and parenting stress were shown to decrease in advance of any treatment. When asked directly about changes in perceptions of their children results were mixed. However, based on symptomatology and parenting stress measures, it appears that parental perceptions of their children changed. Parent reports essentially measure these changes and are important therapeutic outcomes (Burlingame et al., 2004; Patterson et al. 1995; Smith, 2007). Immediate improvements may enhance a client's or a parent's investment in evaluation or treatment (Korotitsch & Nelson-Gray, 1999). Clinicians should therefore consistently use formal measures of child symptomatology and parenting stress in their practices on an ongoing basis from the onset of an evaluation or treatment.

Another clinical implication is that of clients on a treatment waitlist or between an assessment and the initiation of treatment. The present study found a reduction in scores for mothers who reported no significant event occurred with their child that would have changed their child's ratings between assessment time-points. Similarly, other studies (Posternak & Miller, 2001) that *excluded* participants who sought treatment in the interim period have found reductions in scores that were double the rate of symptom reduction in comparison to studies that *included* participants who sought treatment. This suggests that the pretreatment improvement in scores is not merely due to therapy obtained elsewhere (Young, 2006). Clinicians should therefore be aware that after an initial assessment, a decrease in scores can occur even when clients have not sought therapy elsewhere.

Therefore, at the beginning of treatment clinicians should reassess present symptomatology.

From a measurement perspective, as has been previously suggested (Arrindell, 2001; Diamon & Deane, 1990) clinicians conducting psychoeducational assessments with children should use multiple baselines to more accurately understand child symptomatology and parenting stress as rated by mothers. Consequently, it may be beneficial to extend the timeframe of an evaluation to better comprehend child and parent functioning.

Lastly, clinicians should be aware that social desirability may influence parental ratings of their children (Smith, 2007). Although research in this area is lacking, the present research suggests that socially desirable responding occurs with several parent-report measures of their children. Clinicians may benefit from routinely assessing for socially desirable responding to enhance their interpretations of other administered measures.

### *Limitations*

Although substantial and significant reductions in scores were found, this study has several limitations. The study had participant attrition (see Appendix B). The greatest percentage of attrition was caused by a failure to complete the final set of assessments. Not completing the final set of assessments, or other assessments, in turn, was caused by a combination of clinical realities on behalf of the therapists (e.g., time constraints, misplacing research assessment packets) and the researcher not inducing the therapists strongly enough to administer the assessments. It is also possible that participants were not incentivized enough to complete the study. Another reason participants dropped out

of the study related to financial constraints in the clinic assessment. Not completing the psychoeducational clinic assessment coincided with not completing the study. Other reasons included participant time constraints, and research study errors. For example, the child's father, rather than the mother, erroneously completed the final assessments for one participant. Another participant, despite denying it at screening, disclosed that her son was currently in psychological treatment (i.e., a study exclusion criterion).

Statistically, since post-test data was unable to be collected from all participants, analyses may have been influenced by participant dropout. However, no significant differences were found on baseline demographics that were measured or on baseline assessments ratings (see Table 2). Furthermore, the rate of participant dropout was comparable between groups. Nonetheless, other factors which are beyond the scope of this study may have been influenced by participant dropout.

From a statistical perspective, the study's small sample size and the fact that the groups were not equal in number likely biased the results of the RM-ANOVAs and ANOVAs. Additionally, no adjustment was made for the multiple statistical tests, thus the chances of a spurious finding were increased. However, significant effects were found in addition to medium and large effect sizes, suggesting that the sample size was sufficient to observe reductions in scores and differences between the groups. Confidence intervals were not calculated for the effect sizes. Confidence intervals could have clarified the findings by providing a range that includes the sampling error as opposed to the point estimates of the effect sizes.

There are limitations regarding measurement. Data gathered from the TTS, WAI assessment version, and the study's general questionnaire were preliminary attempts to



understand these constructs in an assessment setting. No normative data exists for these measures. Social desirability was identified as a concern and implies that mothers rated the measures to please their therapists. Furthermore, only mothers' ratings were collected with no teacher or father perspective of children's behaviors. No direct observations of children's behavior were conducted to corroborate mothers' ratings. Despite attempts to obtain collateral ratings at the end of the study, they were obtained in insignificant numbers to yield valid results. The primary reason was that collaterals did not respond to repeated phone calls by the researcher. Also, the researcher was unable to contact some of the collaterals within the set timeframe.

Other limitations regard the study's design. It is possible that the reductions in scores and differences between the groups were diluted, or not discovered, due to the amount of clinical and research tests and tasks that mothers were required to complete. Mothers' participation in a clinical assessment interview about their children between the assessments may have contributed to a reduction in scores because the interviews are an interpersonal interaction and may add therapeutic benefit (Ackerman et al., 2000). However, in this study, both times that the mothers completed the measures were not in the context of an interview. Furthermore, studies have shown that reductions of scores can occur even absent an interview or interpersonal interactions (e.g., Durham et al., 2002; Epstein et al., 2005; Godin et al., 2010). Nonetheless, placebo and expectation effects (Weinberger & Eig, 1999) due to interactions with the therapist cannot be ruled out.

The conceptualization and definition of placebo effects has been debated, as has their applicability to psychotherapy research (Parloff, 1986; Stewart-Williams & Podd,

2004; Wampold & Imel, 2015). Placebo effects are nonetheless considered a genuine phenomenon (Stewart-Williams & Podd, 2004). They have been characterized as common elements in psychotherapy (Parloff, 1986) or as nonspecific variables (Horvath, 1988). Placebo effects may have been in operation in the current study contributing to score reductions.

An additional limitation is that participants began the study at different times, and took a variable amount of time to complete the study. History effects could therefore not be ruled out. Mothers and children may have been exposed to different events outside of the assessment that affected their reporting. Lastly, the generalizability of the results may also be limited. The study was comprised of only mother's perspectives of a small sample of children mainly comprised of males from only one clinic in the South Florida region. As such, caution should be taken when generalizing these results.

### *Suggestions for Future Research*

Pretreatment reduction in scores has been found in a wide range of research areas (Arrindell, 2001). As has been called for before (Arrindell, 2001; Longwell et al., 2005), a meta-analysis is needed to determine the magnitude of pretreatment reduction across studies and research areas. Future research should also utilize a larger, more heterogeneous sample, from multiple clinics and geographic areas, to explore reductions in symptoms and the effect of repeated measurement which may also allow for an analysis of context factors. Behavioral observations to corroborate ratings should also be undertaken to determine whether mothers' ratings correspond to their children's actual behavior. Incorporating father's ratings of children's behavior would also be beneficial to understanding whether the present findings are limited to mothers. Confidence intervals

should be calculated as they allow for a better understanding of reductions in scores and the effects of repeated assessment. Reliable and valid measures should be developed with normative data about mechanical responding and working alliance during an assessment. Lastly, future research is necessary to determine the effects of socially desirable responding on parent ratings in child behavior assessment.

### *Conclusion*

Results generally indicated a significant decrease in scores across the main outcome measures over time. The one exception was mothers' reported parenting behaviors which did not indicate improvement. Collectively, mothers reported less child symptomatology and less parenting stress over time, in the absence of intervention. However, more frequent assessment did not lead to a greater decrease in scores. As such, the present study failed to replicate earlier research (e.g., Epstein et al., 2005; McCambridge & Day, 2008) which suggested that repeated assessment alone could have therapeutic effects. Results for mother's awareness of children's positive and negative behaviors, positive and negative interactions, and overall perceptions of their children also did not support any benefits of repeated assessment. Increased therapeutic alliance and client satisfaction as an outcome of repeated assessment were not supported by the results. Mothers likely engaged in socially desirable responding but did not necessarily engage in mechanical responding. Children who were rated as having more initial symptomatology were reported to experience greater change (i.e., less symptomatology) over the course of the study. Lastly, maternal symptoms of depression were associated with less change reported over the course of the study.

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**APPENDICES****Appendix A: Study Measures****Screening Questions**

On a scale from 1 to 10 with a “1” being “no problem or minimal problem” and a “10” being a “serious or major problem, or a problem you are extremely worried about,”

Please rate the following on the 1 to 10 scale.

- a. Academic Problems at School: \_\_\_\_\_
- b. Behavioral Problems at School: \_\_\_\_\_
- c. Academic Problem at Home (Homework): \_\_\_\_\_
- d. Behavioral Problems at Home: \_\_\_\_\_
- e. Social Relationship Problems at Home (i.e., making and keeping friends): \_\_\_\_\_
- f. Social Relationship Problems at School (i.e., making and keeping friends): \_\_\_\_\_

Please answer the following “True or False”

If someone from my child’s school had not asked or recommended that I get an evaluation or therapy for my child, I would not have called \_\_\_\_\_ for help

TRUE or FALSE (circle one)

## Background Information

Today's Date: \_\_\_\_\_

MM/DD/YR

Assessment Study

Office Use Only

ID# \_\_\_\_\_

### Background Information

**\*\*Except for where indicated, items refer to you (NOT your child).\*\***

**Please circle/write one response per number item.**

1. Your name: \_\_\_\_\_

2. Age: \_\_\_\_\_

3. Ethnicity: African American    American Indian    Asian    Caucasian

Hispanic

Other \_\_\_\_\_

4. Marital status:    Single    Married    Separated    Divorced    Widowed

5. Highest Grade Completed:

6<sup>th</sup>-8<sup>th</sup>    9<sup>th</sup>    10<sup>th</sup>    11<sup>th</sup>    12<sup>th</sup>    Some

College

Associate's Degree    Bachelor's Degree    Master's Degree    Doctorate

6. Employment status:    Full-time    Part-time    Unemployed    Retired

7. Does your child presently reside with you?    YES    NO

8. Are you presently being treated for an emotional or behavior problem?    YES    NO

9. Is your child presently being treated for an emotional or behavior problem?    YES    NO



### **Collateral Locator Form**

As mentioned in the consent form for this study, we are asking all participants to provide the name and telephone numbers of one adult (**friend or relative, NOT teacher**) who has regular contact (**lives with, or spends at least 15 hours per week**) with your child to also report about your child's behaviors. This person will be contacted, in confidence via telephone, once at the beginning of the assessment and once at the end of the assessment to report on your child's behaviors.

- This person will only be told that you are participating in a study and we want to interview them to report about your child's behaviors at the beginning and end of the study.
  - **We will not give out any other information about you or your child.**
  - The short questionnaire will take 5-10 minutes to complete.
- 

Please provide below the name and telephone numbers of one adult friend or relative that you would be willing to have interviewed and who has regular contact (**lives with or spends at least 15 hours per week**) with your child.

**Full Name:** \_\_\_\_\_

**Last**

**First**

**Middle**

**Home Phone #:** (\_\_\_\_\_) \_\_\_\_\_

**Cell Phone #:** (\_\_\_\_\_) \_\_\_\_\_

**Your relationship to the Collateral (circle one):**

(1) Spouse/Common-law

(4) Brother/Sister

(7) Roommate

(2) Parent

(5) Grandparent

(8) Employer

(3) Son/Daughter

(6) Other Relative

(9) Friend/Other

# **Daily Food List**

## **Instructions**

- Fill out the Daily Food List, to the best of your knowledge, regarding the foods that your child ate during the past week.
  - Represent your child's eating habits during the past week by marking the foods your child ate during the past week as an "average" day of the past week.
  - In other words, please view your child's eating habits of the past week and mark down those habits into a one-day picture of what your child's eating habits were in the past week.
- The Daily Food List asks about some (but NOT all) of the foods your child eats.
- The Daily Food List asks how many different times your child eats a food each day (NOT how many pieces or servings your child eats each time).
- If you make a mistake, cross out the incorrect answer.

Turn to Daily Food List

Today's Date: \_\_\_\_\_

MM/DD/YR

## DAILY FOOD LIST

Office Use Only  
ID# \_\_\_\_\_

**1. How to Record Foods**

• Check (✓) a box for every food your child ate at a different meal or snack.  
*Example: My child ate 1 roll at lunch and 1 roll at dinner.*

Rolls, English muffins, bagels

• Do NOT count the number of pieces or servings of the same food your child ate at a meal or snack.  
*Example: My child ate two rolls at dinner.*

Rolls, English muffins, bagels

• Record mixtures (sandwiches, casseroles, salads, pasta, and stir-fry dishes) by checking each food in the mixture.  
*Example: My child ate a turkey sandwich (2 slices of bread) lettuce and mustard.*

All other bread (NOT in pizza)

Chicken, turkey, duck alone or in mixtures (but NOT in the foods in Box A)

Lettuce in other mixtures, such as sandwiches

• For additional examples, see back cover.

**2. Now fill in the foods you eat today in Boxes A-G.**

**A. Chili, Mexican Food, Pizza, Soup**

Do NOT count ingredients in these foods anywhere else.

Chili (All kinds)

Mexican food mixtures, such as tacos, tostados, burritos, fajitas, enchiladas

Pizza (All kinds)

Soup (All kinds)

**B. Meat, Poultry, Fish**

Beef, pork, ham, bacon, sausage alone or in mixtures (but NOT in the foods in Box A)

Chicken, turkey, duck alone or in mixtures (but NOT in the foods in Box A)

Fish, seafood alone or in mixtures (but NOT in the foods in Box A)

**C. Dairy, Eggs**

Cheese (All kinds)

Yogurt (All kinds)

Eggs (All kinds)

**D. Fruits, Vegetables**

Fruit cocktail, fruit salad

All other fruits (NOT juice).  
*If different fruits are eaten at the same time, check a box for each fruit.*

Potatoes alone or in mixtures (All kinds, but NOT chips and NOT in soup)

Cooled, dried beans, such as pinto, lima, lentils (but NOT in the foods in Box A)

Salad greens, such as lettuce and spinach

Lettuce in other mixtures, such as sandwiches

All other vegetables alone or in mixtures, such as salads (but NOT in the foods in Box A)

*If different vegetables are eaten at the same time, check a box for each vegetable.*

Tomato sauce, such as in spaghetti and lasagna (but NOT in the foods in Box A)

**E. Snack Foods, Desserts**

Candy (All kinds)

Cookies, pie, cake, brownies

Ice cream, sorbet, frozen yogurt

Popcorn, crackers, chips, pretzels

**F. Cereals, Breads, Grains**

Cereal, hot or cold (All kinds)

Rolls, English muffins, bagels

All other bread (NOT in pizza)

Tortillas (NOT in mixtures)

Doughnuts, Danish, sweet rolls, muffins, dessert breads, pop-tarts

Pancakes, waffles, French toast

Rice alone or in mixtures (but NOT in the foods in Box A)

Pasta, spaghetti, noodles alone or in mixtures (but NOT in chili or soup)

**G. Spreads, Dressings**

Do NOT count the items below if only used in cooking.

Butter or margarine added to each different food

Mayonnaise or salad dressing, including low-fat, added to each different food

**Comments**

Did you have any difficulty understanding how to fill out the form today? If so, please explain.

\_\_\_\_\_

\_\_\_\_\_

**3. PLEASE REVIEW.** Do you remember anything else?

## Parenting Scale

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ID: \_\_\_\_\_

Today's Date: \_\_\_\_\_

---

### **Instructions:**

*At one time or another, all children misbehave or do things that could be harmful, that are "wrong", or that parents don't like. Example include:*

<i>hitting someone</i>	<i>whining</i>	<i>not picking up toys</i>
<i>forgetting homework</i>	<i>throwing food</i>	<i>refusing to go to bed</i>
<i>having a tantrum</i>	<i>lying</i>	<i>wanting a cookie before dinner</i>
<i>running into the street</i>	<i>arguing back</i>	<i>coming home late</i>

*Parents have many different ways or styles of dealing with these types of problems. Below are items that describe some styles of parenting.*

**For each item, fill in the circle that best describes your style of parenting during the past two months with the child indicated above.**

---

### SAMPLE ITEM:

At meal time...

I let my child decide how much to eat.      0---0---●---0---0---0---0      I decide how much my child eats.

---

### 1. When I'm upset or under stress...

I am picky and on my child's back.      0---0---0---0---0---0      I am no more picky than usual.

### 2. When my child misbehaves...

I usually get into a long argument with my child.      0---0---0---0---0---0      I don't get into an argument.

### 3. When my child misbehaves...

I raise my voice or yell.      0---0---0---0---0---0      I speak to my child calmly.

**4. When I want my child to stop doing something...**

I firmly tell my child to stop.      0---0---0---0---0---0

I coax or beg my child to stop.

**5. After there's been a problem with my child...**

I often hold a grudge      0---0---0---0---0---0

Things get back to normal quickly.

**6. When my child does something I don't like...**

I do something about it every time it happens.      0---0---0---0---0---0

I often let it go.

**7. When there is a problem with my child...**

Things build up and I do things I don't mean to do.      0---0---0---0---0---0

Things don't get out of hand.

**8. When my child doesn't do what I ask...**

I often let it go or end up doing it myself.      0---0---0---0---0---0

I take some other action.

**9. If saying "No" doesn't work...**

I take some other kind of action.      0---0---0---0---0---0

I offer my child something nice so he/she will behave.

**10. If my child gets upset when I say "No"...**

I back down and give in to my child.      0---0---0---0---0---0

I stick to what I said.

## Working Alliance Inventory, Assessment Short Form

**Instructions**

On the following pages there are sentences that describe some of the different ways a person might think or feel about his or her clinician. **As you read the sentences mentally insert the name of your clinician in place of \_\_\_\_\_ in the text.**

Below each statement inside there is a seven point scale:

1	2	3	4	5	6	7
Never	Rarely	Occasionally	Sometimes	Often	Very Often	Always

If the statement describes the way you always feel (or think) circle the number 7; if it never applies to you circle the number 1. Use the numbers in between to describe the variations between these extremes.

This questionnaire is CONFIDENTIAL; neither your therapist nor the agency will see your answers.

Work fast, your first impressions are the ones we would like to see. **(PLEASE DON'T FORGET TO RESPOND TO EVERY ITEM.)**

Thank you for your cooperation.

1. \_\_\_\_\_ and I agreed about the things I needed to do during the evaluation to help improve my child's situation.

1	2	3	4	5	6	7
Never	Rarely	Occasionally	Sometimes	Often	Very Often	Always

2. What I did during the evaluation gives me new ways of looking at my child's problem.

1	2	3	4	5	6	7
Never	Rarely	Occasionally	Sometimes	Often	Very Often	Always

3. I believe \_\_\_\_\_ likes me.

1	2	3	4	5	6	7
Never	Rarely	Occasionally	Sometimes	Often	Very Often	Always

4. \_\_\_\_\_ did not understand what I was trying to accomplish during the evaluation.

1	2	3	4	5	6	7
Never	Rarely	Occasionally	Sometimes	Often	Very Often	Always

5. I am confident in \_\_\_\_\_'s ability to help my child.

1	2	3	4	5	6	7
Never	Rarely	Occasionally	Sometimes	Often	Very Often	Always

6. \_\_\_\_\_ and I are working towards mutually agreed upon goals.

1	2	3	4	5	6	7
Never	Rarely	Occasionally	Sometimes	Often	Very Often	Always

7. I feel that \_\_\_\_\_ appreciates me.

1	2	3	4	5	6	7
Never	Rarely	Occasionally	Sometimes	Often	Very Often	Always

8. We agreed on what is important for my child to work on.

1	2	3	4	5	6	7
Never	Rarely	Occasionally	Sometimes	Often	Very Often	Always

9. \_\_\_\_\_ and I trust one another.

1	2	3	4	5	6	7
Never	Rarely	Occasionally	Sometimes	Often	Very Often	Always

10. \_\_\_\_\_ and I have different ideas on what my child's problems are.

1	2	3	4	5	6	7
Never	Rarely	Occasionally	Sometimes	Often	Very Often	Always

11. We have established a good understanding of the kind of changes that would be good for my child.

1	2	3	4	5	6	7
Never	Rarely	Occasionally	Sometimes	Often	Very Often	Always

12. I believe the way we evaluated my child's problem was correct.

1	2	3	4	5	6	7
Never	Rarely	Occasionally	Sometimes	Often	Very Often	Always

## Client Satisfaction Questionnaire

Please help us improve our program by answering some questions about the services you have received.

We are interested in your honest opinion, whether they are positive or negative. Please answer all of the questions. We also welcome your comments and suggestions.

Thank you very much, we really appreciate your help.

### CIRCLE YOUR ANSWER

1. How would you rate the quality of service you received ?

4	3	2	1
Excellent	Good	Fair	Poor

2. Did you get the kind of service you wanted ?

4	3	2	1
No, definitely not	No, not really	Yes, generally	Yes, definitely

3. To what extent has our program met your needs ?

4	3	2	1
Almost all of my needs have been met	Most of my needs have been met	Only a few of my needs have been met	None of my needs have been met

4. If a friend were in need of similar help, would you recommend our program to him or her ?

4	3	2	1
No, definitely not	No, not really	Yes, generally	Yes, definitely

5. How satisfied are you with the amount of help you have received ?

4	3	2	1
Quite dissatisfied	Indifferent or mildly dissatisfied	Mostly satisfied	Very satisfied

Turn to page 2



6. Have the services you received helped you to deal more effectively with your problems?

4	3	2	1
Yes, they helped a great deal	Yes, they helped somewhat	No, they really didn't help	No, they seemed to make things worse

7. In an overall, general sense, how satisfied are you with the service you have received ?

4	3	2	1
Very satisfied	Mostly satisfied	Indifferent or mildly dissatisfied	Quite dissatisfied

8. If you were to seek help again, would you come back to our program ?

4	3	2	1
No, definitely	No, I don't think so	Yes, I think so	Yes, definitely

Any comments or suggestions?

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**General Study Questionnaire**

**For items 1-7 please circle one statement each. For item 8, please print your answer.**

1. Since the assessment began, positive interactions with my child are:
  - A. considerably less common
  - B. somewhat less common
  - C. the same
  - D. somewhat more common
  - E. much more common
  
2. Since the assessment began, negative interactions with my child are:
  - A. considerably less common
  - B. somewhat less common
  - C. the same
  - D. somewhat more common
  - E. much more common
  
3. Regarding my techniques of discipline since the assessment began, I discipline:
  - A. the same way as before the assessment
  - B. using very little new techniques
  - C. using a few new techniques
  - D. using several new techniques
  - E. using very many new techniques
  
4. My awareness of my child's positive behaviors since the beginning of the assessment has:
  - A. considerably decreased
  - B. somewhat decreased
  - C. remained the same
  - D. somewhat increased
  - E. considerably increased

Turn to page 2

5. My awareness of my child's problem behaviors since the beginning of the assessment has:

- A. considerably decreased
- B. somewhat decreased
- C. remained the same
- D. somewhat increased
- E. considerably increased

6. The major behavior problems that my child presented with before the start of the assessment are at this time:

- A. considerably worse
- B. somewhat worse
- C. the same
- D. somewhat improved
- E. greatly improved

7. My overall perception of my child since the beginning of the assessment has:

- A. become considerably more negative
- B. become somewhat more negative
- C. remained the same
- D. become somewhat more positive
- E. become considerably more positive

8. In your view, the purpose of this study is: \_\_\_\_\_

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### Personal Reaction Inventory

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is *true* or *false* as it pertains to you personally.

- |  |   |   |
|--|---|---|
| 1. Before voting I thoroughly investigate the qualifications of all the candidates                                     | T | F |
| 2. I never hesitate to go out of my way to help someone in trouble   | T | F |
| 3. It is sometimes hard for me to go on with my work if I am not encouraged  | T | F |
| 4. I have never intensely disliked anyone  | T | F |
| 5. On occasion I have had doubts about my ability to succeed in life   | T | F |
| 6. I sometimes feel resentful when I don't get my way  | T | F |
| 7. I am always careful about my manner of dress  | T | F |
| 8. My table manners at home are as good as when I eat out in a restaurant  | T | F |
| 9. If I could get into a movie without paying and be sure I was not seen<br>I would probably do it                     | T | F |
| 10. On a few occasions I have given up doing something because I thought too little<br>of my ability                   | T | F |
| 11. I like to gossip at times  | T | F |
| 12. There have been times when I felt like rebelling against people in authority even though<br>I knew they were right | T | F |
| 13. No matter who I'm talking to, I'm always a good listener   | T | F |
| 14. I can remember "playing sick" to get out of something  | T | F |
| 15. There have been occasions when I took advantage of someone   | T | F |
| 16. I'm always willing to admit it when I make a mistake   | T | F |
| 17. I always try to practice what I preach   | T | F |
| 18. I don't find it particularly difficult to get along with loud mouthed, obnoxious people                            | T | F |
| 19. I sometimes try to get even rather than forgive and forget   | T | F |
| 20. When I don't know something I don't at all mind admitting it   | T | F |
| 21. I am always courteous, even to people who are disagreeable   | T | F |
| 22. At times I have really insisted on having things my own way  | T | F |
| 23. There have been occasions when I felt like smashing things   | T | F |
| 24. I would never think of letting someone else be punished for my wrong-doings  | T | F |
| 25. I never resent being asked to return a favor   | T | F |
| 26. I have never been irked when people expressed ideas very different from my own                                     | T | F |
| 27. I never make a long trip without checking the safety of my car   | T | F |
| 28. There have been times when I was quite jealous of the good fortune of others                                       | T | F |
| 29. I have almost never felt the urge to tell someone off  | T | F |
| 30. I am sometimes irritated by people who ask favors of me  | T | F |
| 31. I have never felt that I was punished without cause  | T | F |
| 32. I sometimes think when people have a misfortune they only got what they deserved                                   | T | F |
| 33. I have never deliberately said something that hurt someone's feelings  | T | F |

## **Test-Taking Survey**

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Please circle the answer that best describes your experience taking these tests over the past weeks. We are interested in how you really felt about taking the same test a number of times. For example, did you get bored, did you not mind doing it, did you feel you observed your child more carefully, etc. Please use the following scale:

N = Never    R= Rarely    S= Sometimes    F= Frequently    AA= Almost

Always

	1	2	3	4	5
1. I carefully completed the test each time I took it	N	R	S	F	AA
2. I got tired of taking the test and just marked the answers	N	R	S	F	AA
3. I took time to think about my answers	N	R	S	F	AA
4. I didn't read the questions thoroughly before answering	N	R	S	F	AA
5. I marked answers just to get done quicker	N	R	S	F	AA
6. I didn't mind re-taking the test	N	R	S	F	AA
7. I got better at observing my child's behavior by taking the test more than once	N	R	S	F	AA
8. I skimmed the questions instead of reading them through	N	R	S	F	AA
9. I tried to answer each question like I had answered it before	N	R	S	F	AA
10. Sometimes I got bored and lost interest in finishing it	N	R	S	F	AA

During the assessment, have there been any significant events that have affected your child and might have resulted in a change in his/her scores?

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### Appendix B: Attrition Analyses

#### *Attrition Analyses*

Never Entered Into Study		Dropped From Study	
Reason	#of Mothers	Reason	# of Mothers
Decided not to come in for clinic assessment	12	Did not complete final measures	4
Not interested in the study	11	Did not complete time-points 2-5	2
Researcher not able to consent	3	Financial reasons	1
Wanted to decide about study after 1 <sup>st</sup> clinic session/first research time point	1	Time constraints	1
Did not sign consent forms	1	Did not complete clinic assessment/lack of contact	1
Mother could not participate twice (had two children at clinic for assessments)	1	Consented but did not complete any materials	1
		Dad completed final packet and missing many initial measures	1
		Disclosure that son is in psychological treatment (screening error)	1

### Appendix C: Y-OQ Scores over Time (Experimental Group)

A repeated measures analysis of variance (RM-ANOVA) was conducted to test the effect of time for the Y-OQ in the experimental group. Mauchly's test indicated that the sphericity assumption was violated,  $\chi^2(9) = 25.09, p = .004$ . The Greenhouse-Geisser corrected test was therefore used ( $\epsilon = .54$ ). Results, approaching significance, showed that Y-OQ scores decreased over time,  $F(2,160) = 3.119, p = .067$ , partial  $\eta^2 = .280$ . Contrast tests revealed a cubic trend,  $F(1) = 8.674, p = .019$ , partial  $\eta^2 = .520$ , suggesting two inflection points in the Y-OQ scores. Post hoc tests, with no adjustments due to lack of power, suggested significant differences between the second and third administration ( $p = .04$ ), second and fourth administration ( $p = .004$ ), and third and fourth administration ( $p = .013$ ) (See Table C1 and Figure C1 on the right). Table C2 and Figure C1 (on the left) show the total sample descriptive statistics, and plotted means.

Table C1

*Descriptive Statistics for the Youth Outcome Questionnaire Across Time points, Experimental Group, RM-ANOVA Sample*

Time	<i>N</i>	<i>M</i>	<i>SD</i>
T1	9	55.00	36.38
T2	9	62.67	36.27
T3	9	54.56	34.94
T4	9	44.00	30.47
T5	9	44.89	29.99

*Note.* Higher scores = more problems; Possible scores of -16 to 240

Table C2

*Descriptive Statistics for the Youth Outcome Questionnaire Across Time points, Experimental Group, Total Sample*

Time	<i>N</i>	<i>M</i>	<i>SD</i>	Range
T1	17	56.29	40.92	12 - 133
T2	14	57.5	37.03	7 - 121
T3	14	54.21	37.53	6 - 119
T4	12	50.92	35.89	-4 - 110
T5	10	40.70	31.22	3 - 92

*Note.* Higher scores = more problems; Possible scores of -16 to 240

Figure C1 *Experimental Group Change Over Time in Y-OQ Total, Raw Score Means, Total Sample in Comparison to RM-ANOVA only Sample*

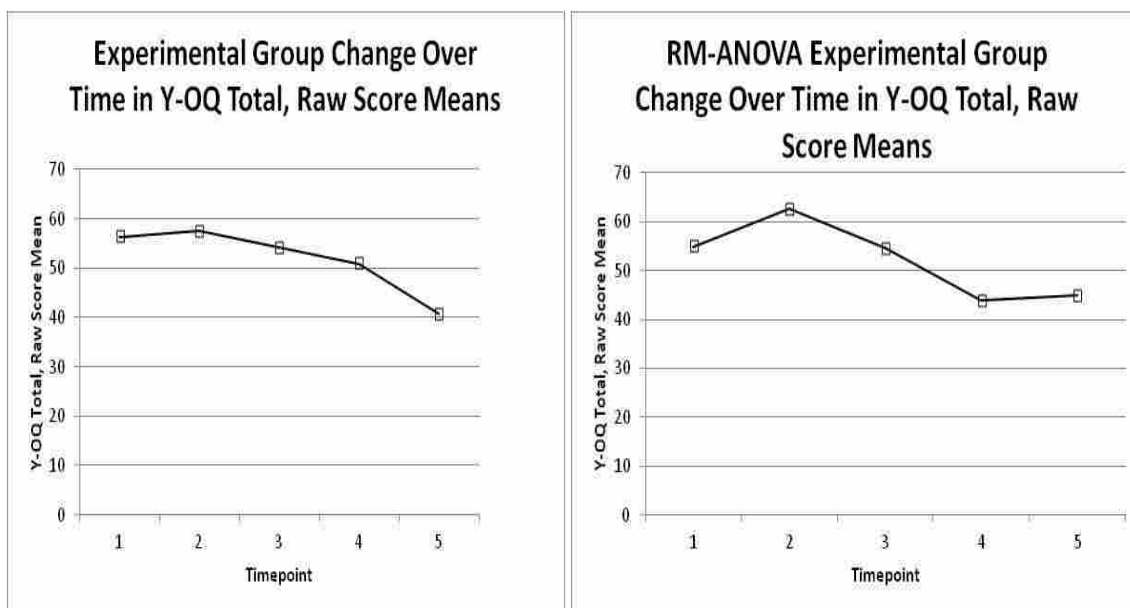


Figure C2 *Experimental Group, Individual Change Over Time in Y-OQ Total, Raw Score*

