Monitoring and Feedback Systems in Youth Outpatient Psychotherapy: Youth and Caregiver Use Across Two Studies

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Monitoring and feedback systems in youth outpatient psychotherapy: Youth and caregiver use across two studies

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Abstract

Extant research suggests that providing mental health clinicians with routine feedback on their patients' progress during therapy may improve therapy engagement and treatment outcomes. Monitoring and feedback systems (MFSs) have been employed as the primary mechanism for routinely collecting patient progress data and supplying clinicians with feedback. Existing studies have assessed the impact of giving therapists access to MFSs, but evidently no studies have focused on variations in patient participation in MFSs, even though the benefits may depend on level of patient participation. The current research was designed to investigate patient participation, focusing on three core research questions across two studies that differed in sample, study design, and MFS systems: (1) At what rate do youths and their caregivers participate in MFSs and what factors predict level of participation? (2) Are MFS participation rates associated with measures of treatment engagement? and (3) Are MFS participation rates associated with youth mental health treatment outcomes? In Study 1, clinically referred youths aged 8-16 and their caregivers were randomly assigned to receive usual care (UC) or a structured, modular treatment protocol (Modular Approach to Therapy for Children [MATCH]) in community mental health clinics. In Study 2, clinically referred youths aged 7-15 and their caregivers were randomly assigned to receive MATCH from clinicians who had two different levels of support for learning the protocol. Analyses were completed separately for Studies 1 and

2, and then repeated using the subsamples from Studies 1 and 2 that had been treated with MATCH. Findings indicated that youths typically showed lower levels of MFS participation than caregivers. Some evidence showed higher levels of MFS participation by families receiving MATCH than UC, by older than younger caregivers, and by families with more rather than fewer dependents, but these results were not consistent across all waves of analyses. In addition, evidence suggested that higher youth and caregiver participation rates may be associated with greater treatment satisfaction at the conclusion of treatment. Results were mixed whether youth participation rates were associated with youth-reported therapy outcomes at the conclusion of treatment. Some of the findings suggest potential benefits of MFS participation, but additional research is needed to determine which patterns are robust, and to support accurate interpretation.

TABLE OF CONTENTS

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Introduction

National statistics suggest that as many as 60 – 75% of youths in the United States with mental health problems go untreated every year (Merikangas et al., 2011). In addition, for those youths who are treated, some estimates suggest that as much as 25% leave therapy worse off than when they began (Warren, Nelson, Mondragon, Baldwin, and Burlingame, 2010). Results of contemporary meta-analyses indicate that when our best evidence-based treatments are compared against usual care interventions, mean effect sizes appear to be within the range of small to medium effects (Weisz, Jensen-Doss, & Hawley, 2006; Weisz, Kuppens, Eckshtain, Ugueto, Hawley, & Jensen-Doss, 2013). Finally, research suggests that mental health clinicians are poor predictors of how their patients are progressing through therapy, especially for those cases who respond poorly to interventions (Hannan et al., 2005). Taken together, these findings suggest that there is still significant room for improvement within the context of youth mental health care.

In an effort to improve the overall efficacy of mental health interventions, researchers have begun to argue for improved methods of monitoring patient progress throughout the course of psychotherapy (Bickman, 2008). One such approach, called patient-focused research (PFR), involves routine, objective monitoring of patient mental health outcomes and the provision of feedback to clinicians to aid in clinical decision making. Research employing the PFR approach suggests that progress monitoring and feedback to clinicians positively impacts various patient outcomes, especially for those patients at risk of treatment failure (Gondek, Edbrooke-Childs, Fink, Deighton, & Wolpert, 2016; Krägeloh, Czuba, Billington, Kersten, & Siegert, 2015; Shimokawa, Lambert, & Smart, 2010). Although fewer studies have been completed with youth samples, a recent review and meta-analysis by Tam and Ronan (2017) indicated that 10 out of 12 studies employing PFR approaches reported positive impacts on youth patient outcomes.

Given the potential benefits of employing the PFR approach, researchers have begun to develop and use sophisticated electronic monitoring and feedback systems (MFSs; Bickman, 2008). Although such systems may facilitate collecting patient outcome data and supplying it as feedback, studies suggest that significant costs may be associated with the development and use of such systems, and that the appeal of these systems may depend on multiple factors, including how useful MFS users perceive them to be. Unfortunately, very limited research to date has focused on factors related to participant engagement or use of MFSs.

The current research was therefore designed to investigate factors that may be related to MFS engagement (e.g., therapeutic alliance, treatment satisfaction) and MFS use by youths and caregivers who are involved in youth mental health care. This dissertation research includes two related studies designed to expand our understanding of patient participation in MFSs, what factors might predict such participation, and whether participation in MFSs is ultimately related to youth psychotherapy engagement and outcomes.

Chapter 1 - Background

The Current State of Youth Psychotherapy: Room for Improvement

Research over the past fifteen years has presented rather somber statistics regarding the status of mental health services for children and adolescents (herein referred to as *youths*). In 2001, the Report of the National Advisory Mental Health Council's Workgroup on Child and Adolescent Mental Health Intervention Development and Employment identified that between 5 and 7 percent of youths in the United States access mental health services in a given year, equating to approximately 3.6 to 5.1 million youths (U.S. Census Bureau, 2012). Unfortunately, these estimates only account for approximately one fourth to one third of the total number of youths with any mental disorder who receive mental health services for a specific lifetime disorder (Merikangas et al., 2011). Thus, a large majority of youths in the U.S. have significant mental health needs that may be unmet.

For those youths who are engaged in the mental health system, investigations into the effects of youth psychotherapy also raise concerns. For example, results of meta-analyses investigating the effects of usual care (UC) interventions as compared to control groups has yielded average effect sizes hovering near zero (Weisz & Jensen, 2001; Weisz, 2004). Such statistics suggest that UC interventions on average result in no benefit to youth clients as compared to control conditions (Weisz, Jensen-Doss, & Hawley, 2006). Comparatively, as reviewed by Weisz, Jensen Doss, and Hawley (2005), investigations into evidence-based treatments (EBTs) that use randomized designs and structured treatment manuals have average effect sizes in the medium (0.50) to high (0.80) range (using Cohen's [1988] cutoffs). These results suggest strong effects for such interventions, and concerns that structured manuals may undermine the therapy process have not been supported empirically (see Langer, McLeod, &

Weisz, 2011). However, research comparing EBTs to UC interventions report mean effect sizes of 0.30 and 0.29, respectively, in two recent meta-analyses (Weisz et al., 2006; Weisz et al., 2013), which falls within the range of small to medium effects (Cohen, 1988). Converting these figures to “common language effect sizes” (McGraw & Wong, 1992) reveals a probability of only .58 (vs. chance, at .50) that a randomly selected youth from the EBT treatment group in these studies would be better off after treatment than a randomly selected youth receiving usual care. Thus, these findings suggest that EBTs on average are efficacious, though perhaps only moderately so when placed into everyday clinical care contexts and compared to usual clinical practice.

In addition to meta-analyses, contemporary research investigating trajectories of change in patient outcomes suggest further concerns for recipients of UC interventions. In studies of adult patients, prior studies report that as many as 50% of psychotherapy patients fail to achieve any clinically meaningful outcomes during therapy, and that approximately 5 – 10% of patients actually deteriorate during the course of treatment (Hansen, Lambert, & Forman, 2002; Lambert & Ogles, 2004). Similar investigations using youth populations report even higher rates of deterioration. In a study comparing youth psychotherapy in public community mental health (proxy for families with lower socioeconomic status) vs. private managed care settings (proxy for families with middle or higher socioeconomic status), Warren, Nelson, Mondragon, Baldwin, and Burlingame (2010) found that 14% of cases in managed care settings and 24% of cases in community mental health settings experienced deterioration during the course of treatment, with an additional 31% (managed care) and 32% (community mental health) exhibiting no reliable change. Given that private managed care and public community mental health settings serve a combined 2.5 million youths in the U.S. (Warren et al., 2010), such elevated rates of deterioration and lack of reliable change during treatment suggest that even when youths access mental health services, a large percentage do not benefit from the care they receive.

Further complicating matters are the results of an emerging body of research identifying the relatively poor ability of mental health clinicians to accurately judge the functioning of their clients during the course of psychotherapy, especially when attempting to identify those patients who may be deteriorating. For example, Hannan et al. (2005) asked clinicians at a university outpatient clinic to judge whether their patients were improving, making no progress, or deteriorating, based on their clinical judgment and experience. Clinicians were asked to judge the progress of their patients over a period of three weeks during therapy; 218 of the patients were judged at the start of treatment whereas 332 patients were judged after having already completed two or more therapy sessions. The clinicians correctly classified only one of the 40 patients who had worsened during therapy.

Employing an alternative methodology, Hatfield, McCullough, Frantz, and Krieger (2010) examined clinical progress notes of practicing clinicians for documentation of client deterioration. Focusing only on consecutive sessions where patients' functioning worsened to a large degree, a subsample was identified to exemplify the most obvious cases of deterioration. Even in these most obvious of cases, clinicians failed to include any mention of client worsening in their progress notes nearly 70% of the time. Researchers have concluded that mental health clinicians generally rely on their clinical intuition and prior experience when attempting to monitor the progress of their patients (Hannan et al., 2005), and that this tends to be to be an unreliable practice. Years of experience apparently do not help much.

The evidence reviewed above does suggest that there may be ways youth mental health care can be improved. For example, improvements may be possible through increased use of information on youths' responses to treatment. More specifically, youths' responses to therapy can be routinely and systematically collected, and the resulting information can then be provided as feedback to clinicians as part of the therapy process. This process of collecting information and providing it as feedback within the context of youth psychotherapy is the focus of the current proposal.

Shifting the Lens: Patient-Focused Research

Given the evidence reported above regarding the substantial proportion of youths who fail to improve, or actually deteriorate, during psychotherapy, and mental health clinicians' relative inability to accurately identify such poor responses to therapy, it has been argued that clinical judgments should be informed by the use of tools that can aid in the monitoring of patients' outcomes (Bickman, 2008; Lambert, Harmon, Slade, Whipple, & Hawkins, 2005). One such endeavor has been linked to the advent of the patient-focused research (PFR; Howard et al., 1996) paradigm. As reported by Howard et al. (1996), the two central components of PFR are: (1) systematic evaluation of patient response to treatment throughout the course of therapy, and (2) provision of the resulting information to the therapist to aid in clinical decision making. The guiding theory, then, is that traditional clinical judgment, which has been shown to be faulty, can be improved if it is supplemented with patient-reported data.

Prior research has shown the utility of routinely assessing patient functioning over the course of treatment, both for adult and youth patients. Initially pioneered in adult psychotherapy research by Howard and colleagues (Howard et al., 1996), the PFR approach often employs sophisticated algorithms and statistical methods to detect patients who are at risk of treatment failure. Routine outcome monitoring generates trajectories of change, which are used to compare actual patient treatment response to expected rates of improvement based on patterns derived from large clinical samples. In a study of adult psychotherapy patients, Hannan at el. (2005) reported that statistical methods correctly identified 86% of cases that ultimately showed deterioration during treatment, as compared to 2.5% for clinician predictions. Studies with youth populations have resulted in similar, albeit slightly lower, PFR detection rates of client deterioration, ranging from 61% to 77% (Warren et al., 2010; Warren, Nelson, & Burlingame, 2009; Nelson, Warren, Gleave, & Burlingame, 2013).

In addition to routine assessment, the second component of the PFR approach involves systematically providing clinicians with feedback regarding their patients' outcomes during therapy (Howard et al., 1996). In studies of adult populations, results of initial investigations by Lambert and colleagues suggest that clinician feedback may result in improved outcomes and more therapy sessions as compared to patients in no-feedback conditions (Lambert et al., 2001b; Lambert et al., 2002). Further studies of adult therapy by other investigators have shown that providing feedback to clinicians may result in increasing the success rate of therapy, reduced deterioration in patient functioning, and longer lasting treatment effects (Harmon et al., 2007; Anker, Duncan, & Sparks, 2009). A recent review by Gondek and colleagues (2016) identified 32 studies employing feedback from outcome measures. These authors reported that patients in feedback conditions had significantly higher levels of treatment effectiveness in over half of the studies examined. However, a meta-analysis of 12 studies with adult patients by Kendrick and colleagues (2016), in a Cochrane systematic review, failed to find evidence of differences in treatment outcomes between feedback and no-feedback groups. Results of a secondary analysis by these authors indicated significant differences in treatment outcomes when feedback was provided to clinicians for patients considered to be at high risk for treatment failure.

In contrast to the substantial body of research with adult populations, relatively few studies have investigated the role of feedback in youth psychotherapy. In a sample of youths receiving home-based mental health treatment, Bickman, Kelley, Breda, de Andrade, and Riemer (2011) found that youths whose therapist received weekly feedback improved faster than those in the no-feedback condition. Additionally, the positive effect of feedback was amplified in a dose-response manner, such that greater effects were seen when clinicians viewed an increased number of feedback reports. Similar positive effects of feedback were found in a later study by Bickman et al. (2016), although overall results were mixed. These authors identified that youth patients in the feedback condition, at one of two clinic sites, experienced significantly greater improvements in clinician-rated outcomes, and that a dose-response association was found such that symptoms were reduced faster for youths whose therapists received more feedback. Bickman and colleagues (2016) argued that site differences in results were due to poor MFS implementation in one of the sites.

Additional support for the PFR approach with youths was provided by Stein, Kogan, Hutchinson, Magee, and Sorbero (2010). In a correlational study, these authors assessed caregiver-clinician discussion of weekly youth outcomes in a sample of youths receiving ambulatory mental health treatment. Significant positive correlations were found between caregiver reports of the level of outcome discussions with clinicians and caregiver reports of youth functioning and therapeutic alliance. However, this study is limited in that it employed self-reports from only one source – caregivers. The positive correlations found in this study may be the result of broad impressions of the therapeutic process. For example, caregivers who felt positively about the experience of therapy may have rated other aspects of treatment in a positive manner, with analogous clustering of negative impressions for caregivers who were not pleased with the therapy experience.

In an effort to examine and summarize current research investigating the use of regular feedback during the course of youth psychotherapy, Tam and Ronan (2017) completed a qualitative review (*n* = 3) and meta-analysis (*n* = 9) of 12 different studies employing the PFR approach. Results of the meta-analysis indicated that the use of regular client feedback during youth therapy has a significantly positive impact on youth treatment outcomes, but that this effect is in the small range (Hedge's *g* of 0.28). Taken together, these studies suggest that the incorporation of systematic feedback into treatment with youth populations *may* be beneficial, but further studies are necessary.

Monitoring and Feedback: A Theoretical Model

As reported above, existing research suggests that the use of both monitoring patient outcomes and providing feedback to clinicians may significantly improve treatment outcomes in outpatient psychotherapy. Various researchers have proposed theoretical models associated with the use of monitoring and feedback in an effort to understand this positive impact of the PFR approach. Examples of these models include the use of clinical evaluation as a therapeutic process (Finn & Tonsager, 1997), feedback and related processes within the context of psychotherapy (Claiborn & Goodyear, 2005), and feedback as a mechanism for clinician behavior change (Riemer, Rosof-Williams, & Bickman, 2005). Finn & Tonsager (1997) argued that psychological assessment, at its core, is the process of information gathering, but that such a process can be therapeutic in nature, especially when assessments are completed in a collaborative way and results are shared and explored with patients. Thus, these authors argue that patient information should be collected and provided as feedback, and that such a process may be highly beneficial to patients. In particular, these authors suggest that providing feedback as part of the clinical evaluation may help to improve therapeutic alliance, refine treatment goals, and build motivation for patients to more actively participate in psychotherapy.

Claiborn and Goodyear (2005) expand the use of monitoring and feedback beyond the initial clinical assessment and argue that feedback is a complex, multilayered process that occurs throughout psychotherapy. In their model, these authors define feedback and its various features, and suggest strategies for increasing the likelihood that feedback is accepted. These authors suggest a myriad of reasons as to why feedback may be beneficial, including the form and content of feedback, the credibility of the feedback and/or who provides feedback, the negative or positive valence of feedback, and feedback receiver variables such as the self-esteem and mood of the receiver.

In slight contrast to the two theories provided above, Riemer et al. (2005) provide a theory of monitoring and feedback that focuses specifically on mental health clinicians. These authors suggest that feedback to clinicians is an essential component in the adoption and implementation of evidence-based treatments (which, in turn, should then lead to more improved patient outcomes). Via their “Contextualized Feedback Intervention Theory,” these authors argue that clinicians’ use of valid and reliable feedback combined with a commitment to provide effective mental health treatment results in the experience of cognitive dissonance. This dissonance then leads to an experience of personal responsibility, and ultimately behavior change on the part of the clinician.

According to the models described above, the process of monitoring and providing feedback during the course of psychotherapy may affect youth treatment outcomes in various ways. However, little is known about the mechanisms through which this process of monitoring and feedback may impact treatment outcomes. One perspective on the process and mechanisms involved is reflected in the theoretical model shown below in **Figure 1**.

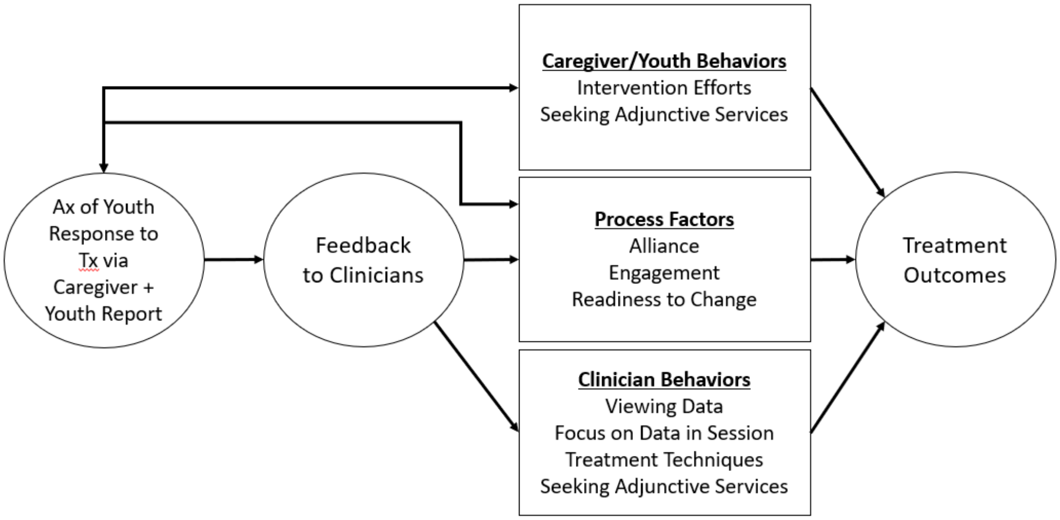


Figure 1. Theoretical model of monitoring and feedback in youth psychotherapy

This model begins with the first component of the PFR approach, described above, with the systematic assessment of youth response to treatment via both youth and caregiver reports. This process of assessment is hypothesized to iteratively affect at least two clusters of treatment-related factors: (1) caregiver/youth behaviors and (2) therapy process factors. Next, the information gained from this assessment is then provided in the form of feedback to clinicians, consistent with the second component of the PFR approach described above. This feedback is further hypothesized to affect at least two clusters of treatment-related factors: (1) clinician behaviors and (2) therapy process factors.

The first cluster category of treatment-related factors is caregiver and/or youth behaviors. Caregiver/youth behaviors may be directly impacted by participation in the assessment of youth response to treatment. As described above, Finn & Tonsager (1997) suggested that clinical evaluations can result in therapeutic gains. In addition, reciprocal effects may occur between caregiver/youth behaviors and the assessment of youth response to treatment, especially if assessments are repeated during the course of therapy. Caregiver/youth behaviors that may be impacted include changes to intervention efforts such as homework assignments and communication with caregivers and/or therapists. Caregivers/youths may additionally be prompted to seek adjunctive or alternative services such as psychiatric consultation and medication if routine assessment suggests that problems fail to improve or worsen over the course of therapy.

The second cluster of factors in the model are those related to therapy process. Therapy process factors include therapeutic alliance, youth and caregiver engagement, and readiness to change. Therapy process factors may be impacted by the systematic assessment of youth response to treatment. Frequent assessment of youth response to treatment may affect youths' or caregivers' perceptions of therapy, the therapeutic alliance, and/or willingness or readiness to change. Similar to above, reciprocal effects may occur between therapy process factors and the assessment of youth response to treatment, especially if assessments are repeated during the course of therapy.

Therapy process factors may also by impacted by clinicians' access to feedback during therapy. For example, both therapeutic alliance and readiness to change may be enhanced to the extent that feedback leads to a shared understanding of the problems being addressed, refinement of therapy goals to improve fit to the needs of youths and caregivers, or improved communication among therapist, youth, and caregivers. Improved alliance may, in turn, boost therapy engagement by families and lead to improved therapy attendance.

The third cluster of treatment-related factors is clinician behaviors, which may change as a result of viewing feedback during the course of therapy. First, clinicians may choose to view feedback during treatment episodes, which may lead to improved youth therapy outcomes by helping clinicians better understand the perspectives of the youths and their caregivers on how well treatment is working. Second, seeing frequent reminders of their clients' treatment response may stimulate and sustain clinician motivation to invest thought and energy in the care they are providing. Third, clinicians may incorporate lessons learned from the feedback into therapy sessions, and this may serve to improve the fit of therapy procedures to the needs of youths and caregivers. For example, feedback may lead clinicians to modify or intensify their treatment techniques when gains are not being made at expected rates, to introduce new techniques when problems worsen over time, or to seek supervision from colleagues. Finally, clinicians may recommend or refer out to adjunctive or alternative services for families if feedback suggests that problems are failing to diminish.

Technological Advances in Monitoring & Feedback

As identified above, the PFR approach was initiated by Howard et al. in the mid-1990s. Lambert and colleagues expanded on this work in the early- to mid-2000s, and published the strategies they used to monitor patient progress and to provide routine feedback. Such strategies included routinely administering paper-and-pencil outcome measures to adult patients, manually compiling the results of these measures, and providing feedback to clinicians via hand-delivered color-coded charts and standardized feedback responses (see Lambert et al., 2002).

Since that time, advances in computer software and internet technology have transformed strategies for collecting data and providing feedback. As reported by Bickman (2008), measurement feedback systems (MFSs) now utilize computer technology and advances in psychometrics to electronically collect outcome data and provide graphical feedback in real time. As suggested by Landes et al. (2014), the incorporation of technology into MFSs offers various advantages over more traditional paper-and-pencil methods including: (1) greater ease in collecting data, (2) automatic scoring of standardized measures, (3) improved interpretability of feedback via visual depictions of data, and (4) improved access to patient data across multiple levels of organizations including clerical staff to mental health clinicians to clinical supervisors and to clinic administrators. A recent review by Lyon, Lewis, Boyd, Hendrix, and Liu (2016) detailed the multitude of capabilities and characteristics of existing MFSs.

Although the mental health field in general has been slow to adopt MFSs, recent years have seen increases in the development and application of such systems in states such as Ohio, Massachusetts, and Hawaii as well as countries outside of the U.S. such as Great Britain and Australia (Bickman, 2008; Chorpita, Bernstein, & Daleidan, 2008). Various MFSs are currently being employed within research and clinical settings, examples of which include the Contexualized Feedback System (CFS; Bickman et al., 2012), the Collaborative Mental Health Management Enhanced Dashboard (COMMEND; Landes et al., 2014), the OQ® Analyst (Lambert, 2012), and the Partners for Change Outcome Management System (Miller, Duncan, Sorrell, & Brown, 2005). According to Lyon et al. (2016), well over 50 MFSs were operating in clinical and research settings across the globe as of December 21, 2014. However, despite the recent proliferation of MFSs employing technology, little information to date has been published regarding the development of such systems, their necessary components, and the true challenges faced in implementing MFSs in applied settings.

Challenges with Monitoring and Feedback Systems

As described above, the process of collecting patient treatment response data and supplying this data as feedback during the course of psychotherapy has been facilitated by the use of advanced electronic MFSs. However, emerging research is beginning to identify potential challenges to the development and application of electronic MFSs. For example, the process of developing an electronic MFS may result in significant time and monetary costs. In addition, the rates at which users of MFSs incorporate such systems into their daily clinical practice may vary as a function of the overall acceptability of such systems.

One recent report addressing the development of a MFS was provided by Landes et al. (2014). In this report, the authors describe their efforts to develop a comprehensive MFS, COMMEND, as part of a mandate from the Department of Veterans Affairs. Of particular note, the authors identify that the initial development of COMMEND took approximately 2 years, in excess of 2,000 hours of manpower, and a cost of $250,000 dollars. Although this is only one example, arguments could be made that significant investments of both time and money may be necessary to develop complex, modern MFSs. Such an investment may serve as a barrier to the use of such systems in community-based mental health settings. At a minimum, the cost of MFSs argues for learning all we can about factors associated with participation in the systems by their users.

In summary, prior research has shown the beneficial effects of routinely monitoring patient outcomes and providing feedback to clinicians during the process of therapy. With the advent of modern technology, computer-based MFSs increasingly serve as the mechanism of choice in the application of the PFR approach. However, contemporary research has begun to identify potential difficulties associated with the development and application of electronic

MFSs, and further research in this area is highly warranted. In particular, research investigating what factors are associated with patient participation in MFSs may be of significant value, and accordingly this question is addressed in the current dissertation research.

Qualitative Investigations into Monitoring and Feedback Systems

In light of this existing gap in the literature related to MFSs, I have been working over the past several years on a mixed methods study designed to explore current practices of, and participant perspectives on, monitoring and feedback in outpatient settings. This study, titled *Consumer and Clinician Feedback in Youth Mental Health Care* (CCF study) employed a mixed methods design encompassing both qualitative and quantitative measures to assess the overall acceptability and feasibility of an electronic MFS for youth patients engaged in outpatient psychotherapy. In the first phase of this study, 31 qualitative interviews were completed with participants from various groups: youths engaged in outpatient treatment (N=8), caregivers of these youths (N=7), youth clinicians (N=8), clinic support staff (N=4), and clinic administrators (N=4). Semi-structured interview scripts were employed to guide the discussion during interviews. Questions included as part of the interview scripts ranged from current practices for progress monitoring and feedback to the positive and negative features of an existing MFS.

A second phase of this study included a pilot trial of an existing MFS during the course of psychotherapy. During this pilot trial, youths and their caregivers were asked to complete weekly surveys that included both idiographic, client-generated survey questions as well as standardized questions assessing mental health outcomes for youths. The answers to these weekly surveys were displayed in graphical form on clinical dashboards which were made available to youths, their caregivers, clinicians, and clinical supervisors during the pilot study. At the completion of the pilot study, qualitative interviews were conducted with all study participants. A total of 67 qualitative interviews were conducted in this phase of the study: youths engaged in outpatient treatment (N=23), caregivers of these youths (N=23), youth clinicians (N=8), clinic support staff (N=7), and clinical supervisors (N=6). Similar to the first phase of the study, semi-structured interview scripts were used to guide the discussion during interviews. Questions included in these interview scripts ranged from preferred and least preferred features of an existing MFS to the possible impact of using a MFS on various treatment factors. All participant interviews in both study phases were audio recorded and later transcribed for data analyses.

Transcripts of all interviews were coded using a codebook that was developed through an iterative process involving 5 research team members. A framework analysis approach (Flick, 2009) was first employed in which a priori codes were developed by the research team to facilitate the coding process. Second, 1 transcript was selected from each of the 5 participant groups (youth, caregiver, clinician, support staff, and clinic administrator) and coded by all five of the research team members. After each transcript was coded, all team members met to identify all coding discrepancies, and the resulting discrepancies were discussed until consensus was reached. Lastly, the study code book was modified after each wave of this initial coding process until a final code book was achieved. Individual codes included in the final code book were designed to capture information regarding the following: (1) the collection of information from youths and caregivers during treatment (e.g., how frequently was information collected from youths and/or caregivers, does collecting information enhance client engagement in therapy, does youth/caregiver motivation serve as a barrier to collecting information); (2) the provision of feedback during treatment (e.g., does providing feedback enhance client engagement in therapy, does youth/caregiver motivation serve as a barrier to providing feedback); (3) impressions of the interviewees regarding an existing MFS (e.g., would youths/caregivers be willing to use the MFS, how frequently would youths/caregivers use it, preferred and least preferred features of an MFS); and (4) impressions of the interviewees regarding the impact of an MFS on various treatment factors (e.g., would the use a MFS affect communication during therapy between youths, caregivers, and/or clinicians, would using a MFS impact therapy engagement and/or therapeutic alliance). Using the final code book, two independent coders coded a series of transcripts until agreement on matching codes greater than 90% was achieved, after which all remaining transcripts were coded independently. All study transcripts were coded by both independent coders.

The resulting codes were then analyzed using an "immersion/crystallization" approach in which qualitative data are organized by thorough examination and crystalized into the most important aspects/topics (Crabtree & Miller, 1992). Three core analytic steps were used as part of the immersion/crystallization approach with each step building upon prior steps. The first step is the basic description and coding of the qualitative interview text on a line-by-line basis. Step 2 is a conceptual ordering of the coded data into discrete themes using pattern-level analyses and the process of constant comparison to organize related items into separate patterns (Glaser & Straus, 1967). Step 3 involved organizing the discrete themes and patterns from Step 2 into higher order factors.

Although analyses for this study are ongoing, initial results from the first phase include a variety of higher order factors related to how progress monitoring and feedback are done, and what preferences the interviewees showed. One prominent higher order factor identified was communication, which included the discrete themes of monitoring and feedback patterns as well as monitoring and feedback preferences. Specific to monitoring and feedback patterns, results indicated that clinicians appeared to collect information from youths and their caregivers on a frequent basis, and that the specific mechanism for collecting information was word of mouth (e.g., querying patient status at the start of therapy sessions). In addition, feedback appeared to be provided from clinicians to families regarding the youths' progress during treatment, although the feedback appeared to occur less consistently than the collection of information. Similarly, the primary mechanism for providing feedback was word of mouth (e.g., clinician providing updates to caregivers at the end of therapy sessions).

In addition to patterns of monitoring and feedback, study participants in the first phase identified a preference for more opportunities to communicate with one another. Caregivers and youths frequently endorsed the desire for additional information from their clinicians, and clinicians and clinic personnel (i.e., clinic support staff & clinic administrators) expressed interest in alternative methods for collecting information from their patients and patients' caregivers. In addition, multiple caregivers reported that improved communication with clinicians might serve to maintain or improve relationships between caregivers and youths through an increased understanding on the part of caregivers of their child's mental health.

Although this analysis of the higher order factor of communication suggests that more progress monitoring and feedback might be valued by study participants, an additional higher order factor emerged that could serve as a barrier to expanded communication. Notably, most clinic personnel (i.e., clinicians, support staff, & clinic administrators) endorsed concerns related to time management from the standpoint of both clinicians and families. Thus, these analyses identified the higher order factor of time, which included the discrete theme of the engagement and motivation of families to participate in alternative forms of progress monitoring and feedback. This discrete theme of family engagement and motivation included suggestions that family participation in alternative forms of monitoring and feedback would vary across families and might be influenced by factors related to socioeconomic status (SES). Thus, despite the expressed desire on the part of families for additional means of communication with clinicians, the study interviews identified concerns about factors that might limit engagement with and use of such activities.

Initial results from the second phase of the study included patterns in the use of an existing MFS as well as higher order factors such as impressions of the features of a MFS and the possible impact of using a MFS on various treatment factors. Patterns in the use of an existing MFS were investigated as part of the semi-structured interviews for all study participants, and included participants' reports of accessing an existing MFS in any of various methods such as completing surveys, viewing feedback reports, and/or administrative tasks such as assisting youths or caregivers with completing weekly surveys. Across all study participants, reports of MFS access were high with 85% of participants self-reporting having used a MFS during the pilot study. When examined at the level of study participant type, self-reports of accessing a MFS were as follows: caregivers = 95.5%, clinicians = 87.5%, youths = 87%, clinic support staff = 85.7%, and clinical supervisors = 33.3%. Clinical supervisors indicated during qualitative interviews that they rarely used a MFS as part of their supervisory process. These results appear to contradict, to some degree, those of the first phase of the study. Specifically, concerns were raised in the first study phase regarding time management and the motivation of families to participate in a MFS. Results from the second study phase suggest that a large majority of families and clinicians engaged with a MFS.

In addition to patterns in the use of an existing MFS, study participants identified various impressions such as the most and least preferred features of a MFS which they encountered during the second phase of this study. Prominent discrete themes identified across study participants included the following desired features: (1) ease of use, (2) having client-generated questions related to therapy outcomes (i.e., Top Problems Assessment which employed idiographic, client-specific outcomes questions), (3) access to graphic displays of responses to survey questions, and (4) access to responses to survey questions over multiple time points. The most frequently noted *un*desirable feature involved survey questions that were too generic or not specific to treatment goals. Taken together, these results suggest that participants prefer MFSs that are both easy to use and clinically relevant, and that provide feedback to users in graphical form that allows for tracking progress over time.

These initial analyses for the second study phase also generated impressions of the impact of using a MFS on various components of psychotherapy. Notable discrete themes that emerged during these analyses included the possible impact of using a MFS on (1) clinician decision making, (2) communication among various parties, and (3) improved insight into psychological and behavioral health concerns. Study participants indicated that the use of a MFS did not appear to have a noticeable impact on the decisions that clinicians made throughout the course of psychotherapy. However, multiple clinicians identified that using a MFS for a longer period of time (greater than 4 – 6 weeks per participating family) might impact the decisions made during psychotherapy. The theme of improved communication was identified by participants in the first phase of the study as a possible preferred result of using a MFS during therapy; results from the second phase provided initial evidence that use of a MFS may positively impact communication during therapy. Specifically, the discrete theme of improved communication emerged for youths who reported overall improvements with their clinicians as a result of using a MFS. Finally, the discrete theme of improved insight into psychological and behavioral health concerns was apparent in the interviews of both youths and their caregivers. Both youths and their caregivers reported having developed a keener understanding of the difficulties experienced by youths as a result of using a MFS. Taken together, these results suggest that the use of MFSs during psychotherapy may influence various treatment processes which may in turn influence youth psychotherapy outcomes.

In summary, initial results of the CCF study suggest potentially important themes in the use of MFSs during youth psychotherapy. Results of both phases suggested that MFSs need to be easy to use in order to reduce time constraints on MFS users. In addition, the findings of both phases indicated that use of MFSs may serve to improve communication between clinicians and families. Findings of the two phases differed in other ways. Participants in the first phase had concerns regarding the engagement and motivation of families and clinicians to participate in a MFS during psychotherapy. Notably, results of the second phase suggested that clinicians, caregivers, and youths may tend to be quite compliant in the use of an existing MFS. These results suggest areas for future research, some of which are addressed in the current dissertation research, as discussed next.

Future Directions for Monitoring and Feedback Systems Research

As the development and use of MFSs continues to grow, research into what factors predict participation in MFSs may be of high utility given that the PFR approach and MFSs rely on the successful capture of patient treatment outcome data. Thus, the current research is an investigation of questions related to youth and caregiver participation in existing MFSs.

Specifically, my dissertation research addresses questions related to the rate at which youths and their caregivers participate in MFSs, characteristics of youths and their caregivers that are related to MFS participation, whether participation rates differ based on clinician access to feedback, the impact of MFS participation on therapy process factors, and the impact of MFS participation on treatment outcomes.

The first question investigated in the current research is what patient characteristics predict the level of patients' participation in existing MFSs. In the CCF study, families identified a desire for additional monitoring and feedback practices with clinicians. However, in the first phase of the study, clinic personnel reported concerns regarding motivation on the part of families to actually engage in the use of monitoring and feedback practices. In contrast, results of the second study phase suggested that clinicians and families participated in an existing MFS at relatively high rates. It seems likely that significant variability will exist in families' patterns of participation, and it would be useful to know what characteristics of youths and families might be associated with MFS use.

A second research question suggested by the results of the CCF study involves the extent to which participation in existing MFSs is associated with therapeutic alliance and treatment engagement. Treatment engagement can be assessed in part by measuring patient satisfaction and rates of session attendance. Families in the CCF study reported a desire for additional means of communication with their clinicians, and a belief that improved communication could serve to guide and improve the treatment process. This suggests the possibility that higher rates of participation in existing MFSs might be related to higher rates of therapeutic alliance and engagement in therapy.

A third research question involves the extent to which participation in existing MFSs is associated with youth mental health outcomes. Prior research has shown that *clinicians'* use of MFSs may positively affect the mental health outcomes of their patients (Tam & Ronan, 2017, Bickman et al., 2016, Bickman et al., 2011; Shimokawa et al., 2010), but, to my knowledge, no research to date has assessed whether rates of *patient* participation in MFSs are related to mental health outcomes. It is possible that rates of patient participation in MFSs may be positively associated with mental health outcomes.

In summary, results of the CCF study suggest questions that are worthy of further research. In particular, no known studies to date have focused specifically on factors that may be associated with patient participation in existing MFSs or on the association between youth and caregiver MFS participation and treatment engagement or outcome. Furthering our understanding in these areas may sharpen the picture of MFS use and its correlates, and ultimately may inform efforts to develop, disseminate, and deploy such systems in mental health service delivery settings.

Chapter 2 – Maine Clinic Treatment Project

Introduction

Despite the reported beneficial effects on treatment outcomes of using MFSs, participation by youths and caregivers varies widely, and we need to learn more about (a) what patient demographic and clinical factors are associated with levels of participation in such systems, (b) whether level of MFS participation by patients (including caregivers) is associated with treatment engagement, and (c) whether level of MFS participation by patients is associated with treatment outcome. The current research addresses these questions via analyses across two separate randomized controlled trials that employed MFSs but differed in setting, research design, and nature of the MFS system used. This provided an opportunity to gauge how robust the findings on these questions are across changes in methods, context, and technology.

Study 1: MFS Participation Rates – Maine Clinic Treatment Project

Background

The Maine Clinic Treatment Project (ME-CTP) is a multi-site randomized controlled trial testing the effectiveness of a modular design for psychotherapy treating depression, anxiety, conduct problems, and traumatic stress in youth outpatient mental health centers. I was project coordinator for this study. The study took place in three community mental health centers (with multiple sites) located in southern and central Maine. An electronic MFS was employed, with research assistants placing calls to all youths and their caregivers each week to obtain data on brief outcome measures, and the data then synthesized and displayed graphically on web-based "dashboards." As part of the study design, clinical supervisors and clinicians in one of the two study conditions (see below) had access to these dashboards for all their study cases, week by week throughout treatment.

Method

Participants. Participants included 143 youths in the range of 8 – 16 years of age and their caregivers who participated in outpatient mental health therapy as part of ME-CTP. Youths had a mean age of 11.4 years (*SD* = 2.07), were 52.4% female, and were predominantly Caucasian (Caucasian = 80.4%, African American = 4.2%, Mixed = 13.3%, other = 2.1%). Caregivers had a mean age of 40.9 years (*SD* = 10.00), were predominantly female (77.6%), and were largely biological parents (biological = 55.2%, adoptive = 14.7%, foster = 16.8%, grandparent = 4.2%, step = 2.8%, other = 5.6%).

Inclusion criteria for youths consisted of the following: (a) being between the ages of 8 and 15 on the day of the initial study telephone screen (a few turned 16 between initial screening and baseline assessment); (b) a T-score in the borderline or clinical range on at least one of the relevant narrowband (i.e., Anxious/Depressed, Withdrawn/Depressed, Rule-Breaking, Aggressive Behavior, Anxiety Problems, Oppositional Defiant Problems, Conduct Problems) or broadband (i.e., internalizing or externalizing) scales on the Youth Self Report (YSR) or Child Behavior Checklist (CBCL); and (c) If no elevated scales from the YSR or CBCL, then an elevated posttraumatic stress disorder (PTSD) score on a standardized PTSD measure. Medication stability was not required for eligibility.

Exclusion criteria consisted of the following: (a) being younger than 8 or older than 15 on the day of the initial study telephone screen; (b) hospitalization within the past year for psychiatric concerns, or any attempt at suicide within the past year, and requires a higher level of care; (c) caregiver report of a diagnosis of one or more of schizophrenic spectrum diagnosis (including major depressive disorder with psychotic features), autism or another pervasive developmental disorder (including mental retardation), anorexia nervosa, or bulimia nervosa; and (d) no relevant T-scores validating target problem areas.

Procedures. Treatment seeking youths and their caregivers, when they contacted the clinic to seek care, were offered the opportunity to take part in the effectiveness study. Prior to enrollment in the study, a baseline assessment was conducted, and eligible families were randomly assigned to either a modular treatment program called MATCH (Chorpita & Weisz, 2009) or usual care (UC). In the MATCH condition, clinicians were trained to employ a modular, manualized treatment composed of 33 commonly-used components of evidence-based (behavioral and cognitive-behavioral) psychotherapies for youth, encompassing depression, anxiety, post-traumatic stress, and conduct problems (see Chorpita & Weisz, 2009; Weisz et al., 2012). In the UC condition, clinicians were instructed to conduct treatment according to their usual methods, doing what they thought best for each youth they treated. Throughout the period when the youths were engaged in therapy, youths and their caregivers were contacted by research staff via telephone on a weekly basis to collect brief outcome measures. As a part of the human subjects process, guided by the IRB, youths ($2.50 per report) and caregivers ($5.00 per report) in both study conditions were paid for the time required to complete the weekly assessments. Clinicians and their supervisors in the MATCH condition had computer-based access to the weekly feedback in the form of a child progress dashboard, and this feedback was used in weekly supervision. Clinicians and supervisors in the UC condition did not have access to the weekly feedback. Youths and caregivers were informed at the baseline assessment that clinicians participating in the study may have access to weekly feedback. At the completion of each youth's treatment, a post-treatment assessment was conducted with a battery of questionnaires. The mean number of therapy sessions attended was 17.2 (*SD* = 14.35) for the MATCH condition and 15.6 (*SD* = 12.25) for the UC condition; the difference was not statistically significant (*p* = .413).

Measures. The following measures are relevant to the current study:

Child Behavior Checklist and Youth Self Report (CBCL & YSR; Appendices A & B; Achenbach & Rescorla, 2001). The CBCL and YSR, respectively, are parallel caregiver- and youth-report measures with 98 items in common, each rated on a 3-point scale: 0 (*not true*), 1 (*somewhat or sometimes true*), and 2 (*very true or often true*). Both measures generate two broadband syndrome scales (e.g., Internalizing & Externalizing) as well as eight narrowband syndrome scales (e.g., Aggressive Behavior, Attention Problems, Rule-Breaking Behavior, Thought Problems, Anxious/Depressed, Social Problems, Withdrawn/Depressed, & Somatic Complaints). The CBCL and YSR have been shown to be high in reliability, validity, and clinical utility (Achenbach & Rescorla, 2001). Both measures were administered at the baseline and post-treatment time points. Results of the baseline CBCL and YSR were used in determining participant eligibility.

Brief Problem Checklist (BPC; Appendix D; Chorpita et al., 2010). The BPC is a 12-item interview with parallel caregiver- and youth-report versions that was designed for weekly assessment of youth internalizing and externalizing problems. It was developed via item response theory and factor analysis of CBCL and YSR data. The validation study indicates that the BPC is highly reliable and valid with excellent internal consistency and test-retest reliability (Chorpita et al., 2010). The BPC is strongly correlated with relevant scales of the CBCL and YSR, and exhibited generally higher slope reliabilities from random coefficient growth models when administered on a weekly basis relative to the CBCL and YSR administered on a three-monthly basis. In addition, change in BPC scores predicts change in other measures of youth symptoms. The BPC was administered on a weekly basis to both youths and their caregivers during the course of treatment. Results of the BPC were included in the MFS dashboard displays which were available to clinicians and clinical supervisors in the MATCH condition.

Top Problems (TP) Assessment (Appendix C; Weisz et al., 2011). The TP Assessment is a structured interview with parallel parent- and youth-report versions that was designed to identify the three problems of greatest concern to each informant at pretreatment, and then to track the severity of each problem weekly. Interviews were conducted over the telephone by research assistants blinded to treatment condition. As opposed to the nomothetic CBCL, YSR, and BPC, in which each informant rates the same set of researcher-generated items, the TP Assessment is an idiographic measure in which each participant rates a unique set of self-generated items (see Barlow & Nock, 2009). As part of the validation study, informant-generated top problems were coded for their correspondence to CBCL and YSR items (Weisz et al., 2011). Top problems largely corresponded to CBCL and YSR items while adding more specific information, demonstrating its clinical relevance and incremental value. TP Assessment scores, computed from summing the severity ratings across the three top problems of each informant, were shown to meet appropriate standards of reliability, validity, and sensitivity to change over time during the course of treatment. The TP Assessment was administered on a weekly basis to both youths and their caregivers during the course of treatment. Results of the TP Assessment were included in the MFS dashboard displays which were available to clinicians and supervisors in the MATCH condition.

UCLA Post-traumatic Stress Disorder Reaction Index (PTSD Index; Appendix E; Steinberg, Brymer, Decker, & Pynoos, 2004). The PTSD Index is a 38-item measure that is widely-used to assess child post-traumatic stress symptoms. Part I is a brief lifetime trauma screen. If it identifies significant trauma, Part II assesses DSM-IV PTSD symptoms related to the trauma. Part III assesses frequency of post-traumatic stress symptoms during the past month. The measure shows good convergent validity and test-retest reliability, and Cronbach's alphas in the .90s (Steinberg et al., 2004). The PTSD Index was administered to youths and their caregivers at pre-treatment to determine participant eligibility.

Therapeutic Alliance Scale for Children (TASC; Appendices F & G; Shirk & Saiz, 1992). The TASC is a nine-item self-report measure that assesses youth and caregiver affect with the therapist as well as youth and caregiver perceived agreement with the therapist. All items are rated on a scale from 1 (*Very True*) to 4 (*Very False*). Total scores are calculated by summing all items to achieve a cumulative measure of alliance with the youth's clinician. The TASC has shown good reliability and validity in previous studies as well as excellent internal consistency (Hawley & Weisz, 2005; McLeod & Weisz, 2005; Shirk & Saiz, 1992). The TASC was administered at the post-treatment assessment time point.

Client Satisfaction Questionnaire (CSQ-8; Appendices H & I; Larsen, Attkisson, Hargreaves, & Nguyen, 1979). The Client Satisfaction Questionnaire is a self-report measure with a total of 8 items rated on a scale from 1 (e.g., *Quite Dissatisfied*) to 4 (e.g., *Very Satisfied*). Total scores are calculated by summing all eight items (reverse-scored items were re-coded when necessary) to achieve a cumulative measure of satisfaction with the treatment received. Parallel caregiver and youth versions of the CSQ-8 were used to assess satisfaction following the completion of therapy. This measure is well-established with Cronbach's alphas in the .90s (Larsen et al., 1979; Garland, Haine, & Lewczyk Boxmeyer, 2007).

Family demographics questionnaire (Appendix J). A self-report demographic questionnaire was administered to caregivers of all youth participants prior to the start of treatment assessing for variables including youth and caregiver age, youth and caregiver gender, youth and caregiver ethnicity, youth grade, caregiver type (i.e., biological, adoptive, foster, step, grandparent, other), and family gross annual income. Family gross annual income was operationalized as a set of income categories/ranges including the following: (a) $0 - $19,000; (b) $20,000 - $39,000; (c) $40,000 - $59,000; (d) $60,000 - $79,000; (e) $80,000 - $99,000; (f) $100,000 - $119,000; (g) $120,000 - $139,000; (h) $140,000 or more.

Research Questions. The current study was designed to investigate the following research questions:

(1) Using a MFS in which weekly progress data is collected by telephone calls only, do youths and their caregivers differ in their participation rates (PRs)?

Hypothesis: PRs for caregivers will be significantly higher than PRs for youths.

Rationale: Most treatment of youths is initiated by caregivers, and their motivation for treatment tends to be higher than that of their children. Caregivers' higher level of motivation is expected to make them more willing than their children to participate in the weekly assessments.

(2) Which demographic factors (i.e., youth gender, youth age, family gross annual income, caregiver age, caregiver gender, and total number of dependents) and clinical characteristics (i.e., Internalizing and Externalizing broadband scales from the CBCL and YSR at pre-treatment) are associated with youth and caregiver PRs?

Hypothesis: Family gross annual income (higher PR for higher gross income) and total number of dependents (lower PR for higher total number of dependents) will be significantly associated with youth and caregiver PRs.

Rationale: Family gross annual income and total number of dependents will significantly predict both youth and caregiver PRs as lower gross incomes and higher number of dependents may function as proxies for higher levels of family stress and less time available to participate in weekly telephone-based assessments. No specific hypotheses are proposed for youth age, youth gender, caregiver age, caregiver gender, or clinical characteristics. Younger youths may be developmentally less capable or less willing to participate in telephone-based assessments. Alternatively, older youths may less motivated to participate in telephone-based assessments. Youths with higher scores on the Internalizing scale (on the YSR and CBCL) may be less likely to participate in telephone-based assessments due to the inhibiting effects of anxiety and depression symptoms. Alternatively, youths with higher scores on the Externalizing scale (on the YSR and CBCL) may be less willing or compliant in their participation due to certain clinical characteristics such as oppositionality and/or inattention.

(3) Do youth and caregiver PRs differ by treatment condition (MATCH vs. UC)?

Hypothesis: Youths and caregivers in the MATCH condition will show higher PRs than those in the UC condition.

Rationale: Clinical supervisors and clinicians in the MATCH condition had access to feedback reports displaying the results of weekly youth and caregiver assessments, viewing and discussing the client dashboards was an integral part of weekly supervision for these clinicians, and the clinicians were encouraged to use the information in discussions with their young clients and with caregivers. The fact that youths and caregivers knew the MATCH clinicians could view and use weekly information should have increased motivation by youths and caregivers in the MATCH condition to provide the weekly feedback.

(4) Are youth and caregiver PRs associated with youth and caregiver treatment engagement factors, including therapeutic alliance, patient satisfaction, and rates of session attendance (i.e., percent of scheduled sessions attended)?

Hypothesis: Youth and caregiver PRs will be positively correlated with ratings of therapeutic alliance, patient satisfaction, and rates of session attendance.

Rationale: Participation in routine telephone assessments may prompt youths and caregivers to focus more on improving during therapy and to increase communication with clinicians about treatment and treatment progress, which may in turn improve alliance and satisfaction as well as rates of session attendance. Alternatively, youths and caregivers who are more engaged may be more likely to complete the weekly phone assessments, such that PR may be an index of therapeutic engagement. Either pattern would be reflected in a positive association between PR and the treatment engagement measures.

(5) Are youth and caregiver PRs associated with youth treatment outcomes?

Hypothesis: High youth and caregiver PRs will be associated with better treatment outcomes.

Rationale: More active involvement in the MFS process, as reflected in higher PRs, may enhance treatment effectiveness, for example, by improving the clinicians' communication and coordination with youths and caregivers. Alternatively, youth and caregiver PRs may be higher when the youth and caregiver can see that therapeutic progress is being made, and lower when therapy is not going well, because patient motivation may be thus undermined. As a third possibility, higher PRs may be a kind of index of how much effort youths and caregivers are investing in the treatment process, and more effort by youths and caregivers may be associated with better treatment outcomes. Any one, or any combination of these patterns, should result in a positive association between PR and outcome.

(6) Do the answers to questions 1, 4, and 5 differ as a function of clinician access to youth and caregiver feedback (i.e., the MATCH vs. UC study condition)?

Hypothesis: Given the lack of prior evidence on which to base a prediction, no specific hypothesis is proposed. However, it seems important to determine whether the answers to any of the previous questions may differ depending on study condition. As an example, it is possible that the association between PR and treatment engagement and outcome measures will be stronger in the MATCH condition, where clinicians were actively involved in using the MFS information, than in the UC condition, where this was not the case.

Analyses. Using the caregiver and youth weekly assessments, PRs were calculated for each youth and caregiver by dividing the total number of weekly assessments completed by the total number of weeks in therapy. To investigate whether PRs differed for youths vs. caregivers, for MATCH vs. UC, or as a function of the interaction, a 2 (Informant) x 2 (Study Condition) repeated measures ANOVA was carried out, with informant as the repeated measures factor and PRs as the dependent variable.

To examine whether any of the identified demographic and clinical variables predict youth and caregiver PRs, four multiple regression models were run. In the first and second models, youth and caregiver PRs, respectively, served as the dependent variable (DV); the baseline variables of youth age, youth gender, caregiver age, caregiver gender, family gross annual income, total number of dependents, and study condition (i.e., MATCH vs. UC) served as the independent variables (IVs). In the third model, youth PRs served as the DV, and the IVs included study condition as well as baseline T-scores on the YSR Internalizing and Externalizing scales. In the fourth model, caregiver PRs served as the DV, and the IVs included study condition as well as baseline T-scores on the CBCL Internalizing and Externalizing scales. All IVs were entered concurrently for both regression models.

To investigate whether youth and caregiver PRs were associated with identified treatment engagement factors, six hierarchical linear regression models were completed, three for youths and three for caregivers. Candidate demographic variables serving as covariates were included in each model as well as study condition, youth and caregiver PRs, respectively, and the interaction between study condition and youth and caregiver PRs, respectively. In models 1 and 2, youth- and caregiver-reported therapeutic alliance, respectively, were used as the DV. In models 3 and 4, youth- and caregiver-reported treatment satisfaction, respectively, were used as the DV. Finally, in models 5 and 6, rates of session attendance were employed as DVs in both models.

Finally, to examine whether youth and caregiver PRs were associated with youth treatment outcomes, two series of linear regression models were run. For the first method, hierarchical linear regression was employed with post-treatment T-scores on the Internalizing, Externalizing, & Total scales of the YSR and CBCL as the DV, respectively. Pre-treatment T-scores of these same measures and scales served as covariates when applicable (e.g., pre-treatment T-scores of the Internalizing scale of the YSR included as a covariate in the model using post-treatment T-scores of the Internalizing scale of the YSR as the DV). Youth/caregiver PRs, study condition, and the interaction between youth/caregiver PRs served as IVs in each model. Each model was run separately for youths and caregivers.

Multilevel linear regression was employed for the second analytic method. Weekly scores from the BPC (i.e., Internalizing and Externalizing scales) and TP Assessment (i.e., TP Average), respectively, were employed as the DV in a series of models to assess for trajectories of change from the start to the end of treatment. Linear mixed models (SPSS Mixed) were used in these analyses to allow for random slopes and random intercepts in each model. To account for the hierarchical structure of the data, all models were designed to have 2 levels with youth/caregiver PRs, time (i.e., number of days since the pre-treatment assessment), and the interaction between these variables nested within study participants. Each model was run separately for youths vs. caregivers. These models included random slope effects to allow for variation in treatment outcomes as a function of time, random intercept effects to allow for variation in initial levels of treatment outcomes, an autoregressive covariance structure (AR1) to account for repeated measures, and Full Estimation Maximum Likelihood to address missing data concerns. Differences in -2 log likelihoods (-2LL) were employed to assess goodness of fit between various model iterations. Trajectories of change were operationalized as the interaction between youth/caregiver PRs and the variable of time. A *positive* PRs x Time interaction would indicate that the rate (i.e., slope) of problem reduction during treatment was faster (i.e., steeper) at higher levels of youth/caregiver PRs. Alternatively, a *negative* PRs x Time interaction would indicate that the rate of problem reduction during treatment was slower at higher levels of youth/caregiver PRs.

The analyses in this study, and in Study 2, were carried out with the goal of generating hypotheses for future research, so numerous tests were calculated, with all findings reported using conventional statistical tests. However, it also seemed appropriate to clarify which findings would have been significant under procedures designed to protect against chance findings. Accordingly, the Results section notes all instances in which significant findings were no longer significant after application of familywise Holm-Bonferroni correction procedures (see Holm, 1979).

Results

Zero-Order Correlations. Zero-order correlations between study condition (MATCH vs. UC), demographic characteristics (youth age, youth gender, caregiver age, caregiver gender, family gross annual income, total number of dependents), clinical characteristics (Internalizing and Externalizing scales of the CBCL and YSR), youth- and caregiver-reported engagement factors (therapeutic alliance, treatment satisfaction, rates of session attendance), and youth and caregiver PRs are presented in Appendix S. Youth PRs were found to be significantly correlated with the following variables: (a) study condition, $r = .208$ (higher PRs for MATCH than UC), (b) caregiver age, $r = .213$, and (c) caregiver PRs, $r = .851$. Caregiver PRs were found to be significantly correlated with the following variables: (a) study condition, $r = .201$ (higher PRs for the MATCH study condition), (b) caregiver age, $r = .249$, (c) and youth PRs, $r = .851$.

Q1: Using a MFS in which weekly progress data is collected by telephone calls only, do youths and their caregivers differ in their participation rates (PRs)? A 2 x 2 repeated measures ANOVA was conducted to assess whether PRs differed for youths vs. caregivers, for MATCH vs. UC, or as a function of an interaction. Informant (youth vs. caregiver) served as the repeated measures factor and study condition (MATCH vs. UC) served as the between subjects factor. Results of these analyses indicated that PRs were significantly affected by the type of Informant, $F(1, 141) = 25.79$, $p < .001$, $\eta^2_{\text{partial}} = .16$, such that caregivers ($M = .77$, $SD = .18$) had significantly higher PRs than youths ($M = .72$, $SD = .20$). In addition, PRs were found to be significantly affected by study condition, $F(1, 141) = 6.674$, $p = .011$, $\eta^2_{\text{partial}} = .045$, such that participants in the MATCH condition ($M = .79$, $SD = .02$) had significantly higher PRs than participants in the UC condition ($M = .71$, $SD = .02$). The Informant x Study Condition interaction was not significantly related to PRs. Mean PRs for youths and their caregivers by study condition are provided below in **Table 1**.

Table 1. Means and standard deviations of youth and caregiver PRs by study condition from the ME-CTP study.

		M	***SD***
Youth PRs	UC	0.687	0.229
	MATCH	0.771	0.162
	Total	**0.728**	**0.202**
Caregiver PRs	UC	0.738	0.199
	MATCH	0.811	0.161
	Total	**0.774**	**0.184**

Q2: Which demographic factors (i.e., youth gender, youth age, family gross annual income, caregiver age, caregiver gender, total number of dependents) and clinical characteristics (i.e., Internalizing and Externalizing broadband scales from the CBCL and YSR) are associated with youth and caregiver PRs? In order to assess the relation between various youth demographic and clinical characteristics, on the one hand, and youth and caregiver PRs, on the other, a series of multiple regression models were completed. In the first model, youth and caregiver gender (male vs. female), youth and caregiver age (continuous variables), family gross annual income (dichotomous variable coded by a median split of greater or less than

$40,000), total number of dependents (continuous variable), and study condition (MATCH vs. UC) were employed as the independent variables (IVs), and youth PRs were used as the dependent variable (DV). Results of this analysis indicated that this model accounted for 10.8% of the variance in youth PRs, $R^2 = .108$, $F(7,129) = 2.22$, $p = .036$. Caregiver age and study condition were found to significantly predict youth PRs. Youths living with older caregivers ($\beta = .004$, $p = .023$) and youths in the MATCH condition ($\beta = .073$, $p = .035$) were more likely to have higher PRs. All other IVs were nonsignificant predictors.

The same IVs as in the first model were employed for the second model, but the DV used in the second model was caregiver PRs. Results of this analysis indicated that this model accounted for 14.3% of the variance in caregiver PRs, $R^2 = .143$, $F(7,129) = 3.063$, $p = .005$. As predicted, study condition did significantly predict caregiver PRs, such that caregivers participating in the MATCH study condition had higher PRs ($\beta = .063$, $p = .043$). In addition, caregiver age was found to significantly predict caregiver PRs, such that older caregivers had higher PRs ($\beta = .004$, $p = .006$). All other IVs were nonsignificant predictors.

For the third model, pre-treatment YSR Internalizing and Externalizing T-scores and study condition were employed as IVs, and youth PRs were used as the DV. Results of this analysis indicated that this model accounted for 6.0% of the variance in youth PRs, $R^2 = .06$, $F(3,139) = 2.924$, $p = .036$. Study condition did significantly predict youth PRs, such that youths participating in the MATCH study condition had higher PRs ($\beta = .087$, $p = .01$). YSR Internalizing and Externalizing T-scores were nonsignificant predictors.

For the fourth model, pre-treatment CBCL Internalizing and Externalizing T-scores and study condition were used as IVs, and caregiver PRs were used as the DV. Results of this analysis indicated a nonsignificant but trending fit of the model, $R^2 = .045$, $F(3,137) = 2.131$, $p =$

.099. Study condition did significantly predict caregiver PRs, such that caregivers participating in the MATCH study condition had higher PRs ($\beta = .075$, $p = .016$). CBCL Internalizing and Externalizing T-scores at pre-treatment were nonsignificant predictors.

Q3: Do youth and caregiver PRs differ by treatment condition (MATCH vs. UC)? As reported in the results for Question 1 above, a 2 x 2 repeated measures ANOVA using Informant (youth vs. caregiver) as the repeated measures factor and study condition (MATCH vs. UC) as the between subjects factor yielded significant main effects of Informant and study condition, but a nonsignificant interaction. In addition, as reported in the results for Question 2 above, study condition was shown to be a significant predictor of youth and caregiver PRs when various demographic and clinical characteristics of youths were included in hierarchical linear regression models as covariates. Notably, all four models in Question 2 above indicated that youths and caregivers in the MATCH condition had higher PRs than their counterparts in the UC condition.

Q4: Are youth and caregiver PRs associated with youth and caregiver treatment engagement factors, including therapeutic alliance, patient satisfaction, and rates of session attendance (i.e., percent of scheduled sessions attended)? In order to examine the relation between youth and caregiver PRs and various measures of treatment engagement, a series of hierarchical linear regression analyses were completed using therapeutic alliance, patient satisfaction, and rates of session attendance as DVs in separate models. As a first analytic step, zero-order correlations were used to identify candidate demographic variables (i.e., those significantly correlated with the engagement variables) to serve as covariates in these models. Covariates included in the first step of each model included youth age, youth gender, and caregiver gender. Nonsignificant covariates were then removed from the model in order to improve overall parsimony.

Therapeutic alliance. A series of hierarchical regression models were used to investigate the association of youth and caregiver PRs with youth- and caregiver-reported therapeutic alliance. In the first model, youth-reported therapeutic alliance was used as the DV, and covariate controlled in the first step of this model included youth gender. Youth PRs, study condition, and the interaction between study condition and youth PRs were additionally included as IVs in the model. Of the original 143 youths who were included in this study, 108 completed the Therapeutic Alliance Scale for Children (TASC) and thus served as the sample for this model. Results of these analyses indicated that neither youth PRs nor the interaction between study condition and youth PRs was significantly related to youth-reported therapeutic alliance. Results of an independent samples *t*-test indicated that PRs of youths who completed the TASC (*M* = .76, *SD* = .17, *n* = 108) were significantly higher than PRs of youths who did not complete the TASC (*M* = .36, *SD* = .33, *n* = 67), *t* = -3.545, *p* = .001.

A second model was used to explore the relation between caregiver PRs and caregiver-reported therapeutic alliance. In this hierarchical model, IVs controlled for in the first step included youth age. Similar to the analyses above, study condition, caregiver PRs, and the interaction between study condition and caregiver PRs were included as IVs. Caregiver-reported therapeutic alliance served as the DV. Of the original 143 caregivers who were included in this study, 115 completed the Therapeutic Alliance Scale for Children (TASC) and thus served as the sample for this model. Results of these analyses indicated that neither caregiver PRs, study condition, or the interaction between caregiver PRs and study condition were significantly associated with caregiver-reported therapeutic alliance. Results of an independent samples *t*-test indicated that PRs for caregivers who completed the TASC (*M* = .81, *SD* = .16, *n* = 115) were significantly higher than PRs for caregivers who did not complete the TASC (*M* = .64, *SD* = .21, *n* = 28), *t* = -4.715, *p* < .001.

Patient satisfaction. Similar to the analyses with therapeutic alliance above, a series of hierarchical regression models were used to investigate the relation between youth and caregiver PRs, respectively, and youth- and caregiver-reported treatment satisfaction, respectively. In the first model, youth-reported treatment satisfaction was used as the DV, and youth gender was entered as a covariate. Youth PRs, study condition, and the interaction between youth PRs and study condition were included as IVs in the model. Of the original 143 youths who were included in this study, 105 completed the Youth Satisfaction Questionnaire (YSQ); these served as the sample for this model. As predicted, results of these analyses indicated that youth PRs were significantly related to youth reports of overall treatment satisfaction such that youths with higher PRs provided higher ratings of treatment satisfaction (β = 6.802, *p* = .036). Study condition and the PRs x study condition interaction were not significantly associated with youth reports of overall treatment satisfaction. Results of an independent samples *t*-test indicated that PRs for youths who completed the YSQ (*M* = .76, *SD* = .18, *n* = 105) were significantly higher than PRs of youths who did not complete the YSQ (*M* = .63, *SD* = .23, *n* = 38), *t* = -3.438, *p* = .001.

An additional model was used to explore the relation between caregiver PRs and caregiver-reported treatment satisfaction. In this hierarchical model, no additional covariates were included in the final model due to nonsignificant associations with caregiver-reported treatment satisfaction. Similar to the analyses above, study condition, caregiver PRs, and the interaction between study condition and caregiver PRs were included as IVs in the model.

Caregiver-reported treatment satisfaction served as the DV. Of the original 143 caregivers who were included in this study, 116 completed the Parent Satisfaction Questionnaire (PSQ) and thus served as the sample for this model. As predicted, results of these analyses indicated that caregiver PRs were significantly related to caregiver reports of overall treatment satisfaction such that caregivers with higher PRs provided higher ratings of treatment satisfaction ($\beta = 7.913$, $p = .049$). Study condition and the PRs x study condition interaction were not significantly associated with caregiver reports of overall treatment satisfaction. Results of an independent samples *t*-test indicated that PRs for caregivers who completed the PSQ ($M = .81$, $SD = .15$, $n = 116$) were significantly higher as compared to caregivers who did not complete the PSQ ($M = .61$, $SD = .22$, $n = 27$), $t = -5.495$, $p < .001$.

Rates of session attendance. A final series of hierarchical regression models were used to investigate the relation between youth and caregiver PRs, respectively, with rates of session attendance. Rate of session attendance was defined as the ratio of the number of therapy sessions attended divided by the number of therapy sessions scheduled, and this metric was used as the DV for these analyses. In the first model, caregiver gender was entered as a covariate in the first step and youth PRs, study condition, and the interaction between youth PRs and study condition were entered as IVs in the second step. Results of these analyses indicated that there was no significant relation between study condition, youth PRs, or the PRs x study condition interaction and rates of session attendance.

An additional model was used to explore the relation between caregiver PRs and rates of session attendance. In this hierarchical model, IVs controlled for in the first step included caregiver gender. Once again, study condition, caregiver PRs, and the interaction between study condition and caregiver PRs were included as IVs in the model. Results of these analyses indicated that there was no significant relation between study condition, caregiver PRs, or the PRs x study condition interaction and rates of session attendance.

Q5: Are youth and caregiver PRs associated with youth treatment outcomes? In order to examine the relation between youth and caregiver PRs and various measures of treatment outcome, two series of linear regression models were completed. Models were run separately for youth vs. caregiver variables.

In the first series of models, youth post-treatment T-scores on the Internalizing, Externalizing, and Total scales of the YSR were used as DVs in respective hierarchical linear regression models with pre-treatment T-scores on Internalizing, Externalizing, and Total scales of the YSR serving as covariates, respectively. In addition, the variables of youth PRs, study condition, and the interaction between youth PRs and study condition were employed as IVs in these models. As predicted, results of these analyses indicated that youth PRs were significantly related to post-treatment YSR Externalizing and Total T-scores when controlling for pre-treatment T-scores such that youths with higher PRs had lower scores on Externalizing and Total T-scores at the post-treatment assessment (nonsignificant with Holm-Bonferroni). Youth PRs were not significantly associated with post-treatment Internalizing T-scores. In addition, the variables of study condition and the interaction between study condition and youth PRs were not significantly related to youth post-treatment YSR Internalizing, Externalizing, or Total T-scores. Results are summarized in Table 2 below.

Table 2. Beta coefficients of youth PRs from hierarchical linear regression models when controlling for pre-treatment YSR Internalizing, Externalizing, and Total T-scores from the ME-CTP study.

IV	β	*t*	*p*	DV
Youth PRs	-14.747	-1.913	ns	Post-Tx YSR Internalizing T-Scores
Youth PRs	-11.532	-1.993	0.049	Post-Tx YSR Externalizing T-Scores
Youth PRs	-14.358	-2.106	0.037	Post-Tx YSR Total T-Scores

A second series of models was completed using caregiver post-treatment T-scores on the Internalizing, Externalizing, and Total scales of the CBCL as DVs in respective models with pre-treatment T-scores on Internalizing, Externalizing, and Total scales of the CBCL serving as covariates, respectively. In addition, the variables of caregiver PRs, study condition, and the interaction between caregiver PRs and study condition were employed as IVs in these models. Results of all three of these analyses indicated that caregiver post-treatment CBCL scales were not significantly related to caregiver PRs. Study condition and the PRs x study condition interaction were not significantly related to post-treatment CBCL Internalizing, Externalizing, or Total T-scores.

Next, a third (youths) and fourth (caregivers) series of models were run in which several different repeated variables (i.e., BPC subscales and average Top Problems) served as the DV in order to explore trajectories of change over time. As described above, these models included youth and caregiver PRs, respectively, time, and the interaction between these variables as IVs with random slopes and intercepts for each model. Trajectories of change were examined via the interaction between youth/caregiver PRs and the variable of time. Models were run initially within reporters (e.g., youths PRs with youth outcomes) and then again between reporters (e.g., caregiver PRs with youth outcomes). Results above indicated that study condition and the interaction of PRs and study condition were not significantly associated with post-treatment CBCL and YSR scales. As a result, study condition and the PRs x study condition interaction were excluded from the following multilevel analyses.

Results of multilevel models in which youth BPC Internalizing and Externalizing subscales and average youth Top Problem scores were used as the DV, respectively, with youth PRs, time, and the interaction between youth PRs and time as IVs failed to produce any significant findings. The youth PRs x Time interaction was nonsignificant across all three models, suggesting that trajectories of change in youth BPC Internalizing, BPC Externalizing, and average TP scores did not vary as a function of youth PRs.

Next, three separate multilevel models were completed in which *youth* BPC Internalizing and Externalizing subscales and average youth Top Problem scores were used as the DV, respectively, with *caregiver* PRs, time, and the interaction between *caregiver* PRs and time as IVs. Results of these analyses failed to produce any significant findings. The caregiver PRs x Time interaction was nonsignificant across all three models, suggesting that trajectories of change in *youth* BPC Internalizing, BPC Externalizing, and average TP scores did not vary as a function of *caregiver* PRs.

Multilevel models described above were then repeated using caregiver BPC Internalizing and Externalizing subscales as well as average caregiver Top Problem scores as the DV, respectively. In this wave of analyses, caregiver PRs, time, and the interaction between caregiver PRs and time served as the IVs in respective models. Results of these analyses once again failed to indicate any significant findings. The caregiver PRs x Time interaction was nonsignificant across all three models, suggesting that trajectories of change in caregiver BPC Internalizing, BPC Externalizing, and average TP scores did not vary as a function of caregiver PRs.

Finally, an additional 3 multilevel models were completed using caregiver BPC Internalizing, BPC Externalizing, and average TP scores as the DV, respectively, with *youth* PRs, time, and the interaction between *youth* PRs and time as IVs. Results of these analyses failed to produce any significant findings. The caregiver PRs x Time interaction was nonsignificant across all three models, suggesting that trajectories of change in *caregiver* BPC Internalizing, BPC Externalizing, and average TP scores did not vary as a function of *youth* PRs.

Q6. Do the answers to questions 1, 4, and 5 differ as a function of clinician access to youth and caregiver feedback (i.e., the MATCH vs. UC study condition)? No additional analyses were completed for Question 6. Instead, analyses for Questions 1, 4, and 5 included tests of interactions of variables of interest with study condition. Results for Question 1 indicated that youth and caregiver rates did vary as a function of study condition, but that the informant (i.e., youth vs. caregiver) by study condition interaction was a nonsignificant predictor of PRs. Results for Question 4 indicated that study condition and the interaction of youth and caregiver PRs with study condition were not significant factors associated with various measures of treatment engagement. Results for Question 5 indicated that study condition and the interaction of youth and caregiver PRs with study condition were not significantly related to various youth- or caregiver-reported measures of youth treatment outcomes.

Discussion

Study 1 of the dissertation incorporated data from a large, multi-site randomized controlled trial (ME-CTP) testing a modular design for psychotherapy treating depression, anxiety, conduct problems, and traumatic stress in youth outpatient mental health centers. In this study, an electronic MFS was employed, and participating families were contacted via telephone on a weekly basis during therapy to complete brief outcome questionnaires. As part of the study design, clinical supervisors and clinicians in the MATCH study condition had access to the results of weekly outcomes questionnaires via an electronic MFS for all their study cases whereas clinicians in the UC condition were not provided with access to the results of weekly outcome questionnaires. As described above, the current dissertation research was designed to explore the participation of youths and their caregivers in an existing MFS, various factors germane to MFS participation, and whether MFS participation was associated with youth treatment outcomes and treatment engagement.

Results of the current study provided some support for the initial study hypotheses. As predicted, it was found that youths participated in a MFS at a lower rate as compared to their caregivers. As is often the case in youth outpatient psychotherapy, youths rarely self-refer themselves for treatment. Instead, caregivers often initiate outpatient services, and as such, may have higher levels of motivation and willingness to participate in various aspects of the process, including a MFS.

Further analyses indicated that caregiver age played an important role in predicting participants' PRs. Specifically, caregiver age was a significant predictor of both youth and caregiver PRs. This relation was not originally hypothesized to play an important role, and the precise reason for this finding remains unclear. However, older caregivers, compared to younger ones, tend to have more stable employment and income, and their children tend to be older and more self-sufficient; factors like these may have made it somewhat more feasible for older caregivers to participate in weekly assessments. Contrary to our original hypothesis, the variables of total number of dependents and family gross annual income were not significantly related to youth or caregiver PRs.

We originally hypothesized that study condition (MATCH vs. UC) would play a significant role in youth and caregiver PRs such that participants in the MATCH condition would have higher PRs than those in the UC condition. Results of analyses from Questions 1 and 2 indicated that study condition was a significant factor in for both youth and caregiver PRs. In line with our hypothesis, when controlling for various demographic and clinical characteristics of youths and their families, youths and caregivers in the MATCH condition were found to have higher PRs than those in the UC condition. It may be that clinicians in the MATCH condition discussed or reviewed results of weekly assessments with youth and/or their caregivers during the course of therapy, and that such discussion may have increased the motivation of youth and caregivers in the MATCH condition to participate in weekly assessments.

As identified in the theoretical model of monitoring and feedback described above, we hypothesized that youth and caregiver PRs would be significantly related to various measures of treatment engagement, including therapeutic alliance, treatment satisfaction, and rates of session attendance. Contrary to our hypothesis, youth and caregiver PRs were found to be unrelated to youth- and caregiver-reported therapeutic alliance and rates of session attendance. However, in line with our hypothesis, higher youth and caregiver PRs were found to be significantly related to higher rates of treatment satisfaction. These initial results do at least suggest the possibility of a link between MFS participation and measures of treatment engagement. One limitation to these analyses, however, was that a sizeable percentage of participants did not complete measures of therapeutic alliance and treatment satisfaction. Results of follow up analyses indicated that participants with lower PRs were less likely to complete measures of treatment engagement. Consequently, results of analyses associating higher youth and caregiver PRs with higher rates of treatment satisfaction may lack external validity.

Finally, we additionally hypothesized that youth and caregiver PRs would be significantly related to youth treatment outcomes. Various multilevel models were employed to assess the relation between youth/caregiver PRs, time, study condition, and various measures of youth outcomes. In the first series of models, the DVs of interest were youth- and caregiver-reported outcomes at the conclusion of therapy (i.e., post-treatment assessment). For caregiver PRs, results indicated no significant associations with post-treatment CBCL Internalizing, Externalizing, or Total T-scores when controlling for pre-treatment T-scores. However, in line with our hypothesis, results of these analyses indicated that youth PRs were significantly related to post-treatment YSR Externalizing and Total T-scores when controlling for pre-treatment T-scores. There was no significant relation found between youth PRs and post-treatment YSR Internalizing T-scores. These results suggest that youths with higher PRs reported lower externalizing and total problems at the completion of therapy.

Further analyses were then completed examining the relation between youth and caregiver PRs and changes during treatment in weekly youth- and caregiver-reported outcomes. A PRs x Time interaction was included in these models to assess whether youth trajectories of change varied as function of youth and caregiver PRs. Results of these analyses indicated that youth and caregiver PRs were not significantly related to youth- or caregiver-reported internalizing and externalizing scores or Top Problems during treatment.

In summary, the results of Study 1 (ME-CTP) suggest some important differences in the rates at which youths and their caregivers participate in a MFS as well as factors that are associated with youth and caregiver MFS participation. Furthermore, these results indicate that youth and caregiver PRs may be connected to levels of family engagement during outpatient psychotherapy and to youth treatment outcomes. These initial findings from Study 1 served as the backdrop to similar analyses in Study 2.

Chapter 3 - Connecticut Clinic Treatment Project

Background

The Connecticut Clinic Treatment Project (CT-CTP) is a multi-site randomized controlled trial testing the effectiveness of two approaches to outpatient clinician skill-building in MATCH. One approach—the MATCH Supervision (MS) condition in the study—involves MATCH training for clinicians, followed by weekly supervision provided by MATCH consultants, and access to MFS information from weekly youth and caregiver assessments. The other approach—the Standard Supervision (SS) condition—involves MATCH training for clinicians, followed by the usual form of peer supervision within their sites, access to MFS information from weekly youth and caregiver assessments, plus access to MATCH training materials and videos, but no weekly supervision from MATCH consultants. Four community mental health centers located in central and southern Connecticut are participating. At this time, data collection has not been completed for the full study, but data were available for this dissertation from a majority of the sample. For clinicians in both study conditions, an electronic, Internet-based MFS provides routine feedback in the form of graphical displays (i.e., "dashboards") that summarize the results of the weekly youth and caregiver reports on the youths' mental health outcomes. All study youths and caregivers participate in using the MFS by means of weekly assessments.

CT-CTP (Study 2) differs from ME-CTP (Study 1) in several ways: (a) In CT-CTP, unlike ME-CTP, clinicians in both study conditions had MATCH training, used MATCH in their treatment of study cases, and had access to MFS feedback (albeit without MATCH supervision in the SS condition of CT-CTP); (b) the measurement model of CT-CTP differs somewhat from that of ME-CTP, as documented in the measures description below; and (c) in CT-CTP, unlike

ME-CTP, youths and caregivers were offered two methods of responding to the MFS weekly surveys—first by email, and then by phone. Study 2 provided an opportunity to address questions similar to those of Study 1, but under circumstances designed in part to enhance participation by youths and caregivers. The differences between the two studies in design and procedures provided an opportunity to test the robustness of those effects identified in Study 1.

Method

Power Analysis. Because recruitment for the CT-CTP study is currently ongoing, power analyses were completed to determine the necessary minimum number of study participants needed for analyses as part of this dissertation research. Power analyses were completed using the G*Power statistical software version 3.1.9.2 (Faul, Erdfelder, Lang, & Buchner, 2007). Power analyses were completed using results from the ME-CTP study as described above.

Question 1. The first power analysis employed results from Question 1 of the ME-CTP study which indicated that PRs significantly differed between youths and their caregivers. Using the parameters, obtained from Study 1, of caregiver PRs ($M = .77$, $SD = .18$), youth PRs ($M = .72$, $SD = .20$), and correlation between youth and caregiver PRs, $r = .851$, the effect size for the paired-samples t-test from Question 1 was calculated to be $d = 0.47$. This effect size was then used with the parameters of alpha = .05 and total sample size of $N = 143$ to calculate the achieved power for Question 1 of the ME-CTP study. Results of these calculations yielded achieved power of 1.0 to detect an effect size of 0.47. In order to compute the required sample size for the CT-CTP study, a second calculation was completed. Using the input parameters of effect size $d = 0.47$, alpha = .05, and power = 99%, the recommended total number of participants for the CT-CTP study was 84, well below the available sample of 177. In order to achieve an effective size of *d* = 0.8, the recommended sample size needed for the CT-CTP study would be 31 participants with alpha = .05 and power = 99%.

Question 2. This power analysis was completed using the results from Question 2 of the ME-CTP study which found that youth age and caregiver age were significant predictors of youth PRs. The effect size, f^2, was first calculated using the R^2 value of .108 from the multiple regression model from Question 2 of the ME-CTP study; this effect size was found to be f^2 = 0.121. Using the parameters of effect size f^2 = 0.121, alpha = .05, total sample size = 143, and number of predictors = 7, the achieved power from Question 2 was calculated to be equal to 0.86. In order to compute the required sample size for the CT-CTP study, a second calculation was completed. Using the input parameters of effect size f^2 = 0.121, alpha = .05, power = 80%, and total number of predictors = 7, results of this calculation yielded a recommended sample size of 126 participants. As noted below, the available sample from the CT-CTP study for this dissertation research included 131 youth-caregiver dyads, well above the recommended sample identified via the power analyses. In order to achieve an effect size of f^2 = 0.8 with the additional parameters of alpha = .05 and power = 80%, the recommended total sample size is 26 participants.

Question 3. No additional analyses were completed for Question 3, so no additional power analyses were completed for this question.

Question 4. This power analysis was completed using the results from Question 4 of the ME-CTP study which found that youths with higher PRs reported higher treatment satisfaction. The effect size, f^2, was first calculated using the R^2 value of .148 from the multiple regression model from Question 4 of the ME-CTP study; this effect size was found to be f^2 = 0.174. Using the parameters of effect size f^2 = 0.174, alpha = .05, total sample size = 143, and number of predictors = 2, the achieved power from Question 4 was calculated to be equal to 0.99. In order to compute the required sample size for the CT-CTP study, a second calculation was completed using the input parameters of effect size $f^2 = 0.174$, alpha = .05, power = 99%, and total number of predictors = 2. Results of this calculation yielded a recommended sample size of 127 participants. As noted below, the available sample from the CT-CTP study for this dissertation research included 131 youth-caregiver dyads, which is above the 127 specified by the power analysis.

Question 5. As described below, Question 5 involves two distinct series of calculations to examine whether youth and caregiver PRs are associated with youth treatment outcomes. The first series involved various linear regression models, whereas the second series involved the use of repeated measurements to explore trajectories of change over time. Power analyses are only provided for the first set of calculations involving linear regression models; no power analyses are provided for the second set of calculations because there is no consensus among statisticians about the most appropriate procedures. As described by Snijders (2005), complexity is introduced into power analyses for multilevel regression models when predictor variables are believed to have random slopes as well as highly variable sample sizes for the level 1 variables. Consequently, estimates of the necessary sample size for Question 5 are inferred from power analyses below incorporating data from linear regression models.

A power analysis was completed using the results from Question 5 of the ME-CTP study examining the relation between youth and caregiver PRs, respectively, and measures of treatment outcome (i.e., post-treatment CBCL and YSR Internalizing, Externalizing, and Total T-scores), respectively. The effect size, f^2, was first calculated using the R^2 value of .418 from the multiple regression model from Question 5 of the ME-CTP study; this effect size was found to be $f^2 =$

0.718. Using the parameters of effect size $f^2 = 0.718$, alpha = .05, total sample size = 143, and number of predictors = 3, the achieved power from Question 5 was calculated to be equal to 1.00. In order to compute the required sample size for the CT-CTP study, a second calculation was completed using the input parameters of effect size $f^2 = 0.718$, alpha = .05, power = 99%, and total number of predictors = 3. Results of this calculation yielded a recommended sample size of 37 participants. As noted below, the available sample from the CT-CTP study for this dissertation research included 131 youth-caregiver dyads, well above the recommended sample of 37.

Question 6. No additional analyses were completed for Question 6, so no additional power analyses were completed for this question.

Question 7. This question was one for which the ME-CTP study did not provide any effect size estimate; that is, the question it focused on caregiver choice between two methods for providing MFS reports, a choice not available in the ME-CTP study. Accordingly, no power analyses were carried out for this question.

Participants. Participants included 131 youths in the range of 7 – 15 years of age and their caregivers, who had enrolled in outpatient mental health therapy in a community clinic and agreed to participate in the CT-CTP. Youths had a mean age of 10.7 years (*SD* = 2.47), were 52.7% female, and were racially diverse (Caucasian = 37.4%, African American = 27.5%, Latino/Hispanic = 20.6%, Mixed = 12.2%, Asian = 1.5%, other = 0.8%). Caregivers had a mean age of 38.5 years (*SD* = 8.98), were predominantly female (94.7%), and were largely biological parents (biological = 90.8%, adoptive = 3.1%, foster = 0.8%, step = 0.8%, other = 4.6%).

Inclusion criteria for youths consist of the following: (a) being between the ages of 7 and 15 on the day of the initial study telephone screen; (b) a T-score in the borderline <u>or</u> clinical range on at least one of the relevant narrowband (i.e., Anxious/Depressed, Withdrawn/Depressed, Rule-Breaking, Aggressive Behavior, Anxiety Problems, Oppositional Defiant Problems, Conduct Problems) or broadband (i.e., internalizing or externalizing) scales on the Youth Self Report (YSR) or Child Behavior Checklist (CBCL); and (c) If no elevated scales from the YSR or CBCL, then an elevated posttraumatic stress disorder (PTSD) score on a standardized PTSD measure. Prescription medication stability was not required for eligibility.

Exclusion criteria consist of the following: (a) being younger than 7 or older than 15 on the day of the initial study telephone screen; (b) hospitalization within the past year for psychiatric concerns, or any attempt at suicide within the past year; (c) caregiver report of a diagnosis of one or more schizophrenia spectrum disorders (including major depressive disorder with psychotic features), autism or another pervasive developmental disorder (including mental retardation), anorexia nervosa, or bulimia nervosa; and (d) no relevant T-scores showing elevated levels of anxiety, depression, conduct problems, or post-traumatic stress.

Procedures. Treatment seeking youths and their caregivers, when they contacted the clinic to seek care, were offered the opportunity to take part in the effectiveness study. Prior to enrollment in the study, a baseline assessment was conducted, and eligible families were randomly assigned to the MS condition or the SS condition as described above. During the baseline assessment, youths and their caregivers were provided the option to participate in weekly assessments via email. Families opting to participate in the Internet-based MFS were informed that they would receive up to two email prompts each week, and that research staff would contact them by phone at times when the second prompt was not answered. Families choosing to not complete weekly surveys via email were contacted each week via telephone. As a part of the human subjects process, guided by the IRB, youths ($2.50) and caregivers ($5.00) in both study conditions were paid for the time required to complete the weekly assessments. At the completion of each youth’s treatment, a post-treatment assessment was conducted with a battery of questionnaires.

Measures. The following measures are relevant to the current study:

Measures Used at Baseline to Determine Study Eligibility (not used in study analyses)

Trauma History Screen (THS; Appendix M & N; Carlson et al., 2009). The THS is a 13-item self-report measure that examines 11 events and 1 general event, including military trauma, sexual assault, and natural disasters. For each event, respondents are asked to indicate whether the event occurred ("yes" or "no") and the number of times something like this happened. For each event endorsed, additional dimensions are assessed, including age when it happened, a description of what happened, whether there was actual or a threat of death or injury, feelings of helplessness and feelings of dissociation, a four-point scale for duration of distress ("not at all" to "a month or more") and a five-point scale for distress level ("not at all" to "very much"). The THS is administered at the baseline assessment to aid in determining participant eligibility. If a participant endorses a trauma on the THS, the Child PTSD Symptom Scale is also administered.

Child PTSD Symptom Scale (CPSS; Appendix O & P; Foa, Johnson, Feeny, & Treadwell, 2001). The CPSS is a 26-item self-report measure that assesses PTSD diagnostic criteria and symptom severity in children ages 8 to 18. It includes 2 event items, 17 symptom items, and 7 functional impairment items. Symptom items are rated on a 4-point frequency scale (0 = "not at all" to 3 = "5 or more times a week"). Functional impairment items are scored as 0 = "absent" or 1 = "present". The CPSS yields a total symptom severity scale score (ranging from 0 to 51) and a total severity-of-impairment score (ranging from 0 to 7). Scores can also be calculated for each of the three PTSD symptom clusters (i.e., B, C, and D). The CPSS has been shown to have high internal consistency and test-retest reliability across all subscales, very good convergent validity, and satisfactory divergent validity (Foa et al., 2001). The CPSS is administered at the baseline assessment in conjunction with the THS to aid in determining participant eligibility.

Measures Used in Study Analyses

Child Behavior Checklist and Youth Self Report (CBCL & YSR; Appendices A & B; Achenbach & Rescorla, 2001). The CBCL and YSR, respectively, are parallel caregiver- and youth-report measures with 98 items in common, each rated on a 3-point scale: 0 (*not true*), 1 (*somewhat or sometimes true*), and 2 (*very true or often true*). Both measures generate two broadband syndrome scales (e.g., Internalizing & Externalizing) as well as eight narrowband syndrome scales (e.g., Aggressive Behavior, Attention Problems, Rule-Breaking Behavior, Thought Problems, Anxious/Depressed, Social Problems, Withdrawn/Depressed, & Somatic Complaints). The CBCL and YSR have been shown to be high in reliability, validity, and clinical utility (Achenbach & Rescorla, 2001). Both measures were administered at the baseline and post-treatment time points. Results of the baseline CBCL and YSR were used in determining participant eligibility.

***Brief Problem Monitor (BPM; Appendix K & L; Achenbach, McConaughy, Ivanova, & Rescorla, 2011*).** The BPM is a 19-item checklist with parallel caregiver- and youth-report versions that was designed for weekly assessment of youth internalizing and externalizing problems. It consists of 4 subscales including Internalizing, Attention, Externalizing, and Total Problems. All 4 subscales of the BPM for both the youth and caregiver versions display good test-retest reliability and internal consistency, as well as acceptable criterion-related validity

(Achenbach et al., 2011). As part of the CTP-CT, the BPM is administered on a weekly basis to both youths and their caregivers throughout the course of treatment. Results of the BPM are included in the MFS dashboard displays which are available to clinicians and supervisors in the MS condition.

Top Problems (TP) Assessment (Appendix C; Weisz et al., 2011). The TP Assessment is a structured interview with parallel parent- and youth-report versions that was designed to identify the three problems of greatest concern to each informant at pretreatment, and then to track the severity of each problem weekly. Interviews were conducted over the telephone by research assistants blinded to treatment condition. As opposed to the nomothetic CBCL, YSR, and BPC, in which each informant rates the same set of researcher-generated items, the TP Assessment is an idiographic measure in which each participant rates a unique set of self-generated items (see Barlow & Nock, 2009). As part of the validation study, informant-generated top problems were coded for their correspondence to CBCL and YSR items (Weisz et al., 2011). Top problems largely corresponded to CBCL and YSR items while adding more specific information, demonstrating its clinical relevance and incremental value. TP Assessment scores, computed from summing the severity ratings across the three top problems of each informant, were shown to meet appropriate standards of reliability, validity, and sensitivity to change over time during the course of treatment. The TP Assessment was administered on a weekly basis to both youths and their caregivers during the course of treatment. Results of the TP Assessment were included in the MFS dashboard displays which were available to clinicians and supervisors in the MATCH condition.

Therapeutic Alliance Scale for Children (TASC; Appendices F & G; Shirk & Saiz, 1992). The TASC is a nine-item self-report measure that assesses youth and caregiver affect with the therapist as well as youth and caregiver perceived agreement with the therapist. All items are rated on a scale from 1 (*Very True*) to 4 (*Very False*). Total scores are calculated by summing all items to achieve a cumulative measure of alliance with the youth's clinician. The TASC has shown good reliability and validity in previous studies as well as excellent internal consistency (Hawley & Weisz, 2005; McLeod & Weisz, 2005; Shirk & Saiz, 1992). The TASC was administered at the post-treatment assessment time point.

Child Satisfaction Survey (Appendix Q; Hawley & Weisz, 2005). The Child Satisfaction Survey is a youth self-report measure with a total of 3 items rated on a scale from 1 (e.g., *Very True*) to 4 (e.g., *Very False*) that assess youth satisfaction with services received at the clinic. It demonstrated internal consistency of $\alpha = .74$ and 7- to 14-day test-retest reliability of $r = .73$. Total scores are calculated by summing all 3 items to achieve a cumulative measure of satisfaction with the treatment received.

Youth Services Survey for Families (YSS-F; Appendix K; Riley, Stromberg, & Clark, 2005). The YSS-F is a caregiver self-report measure with a total of 23 items that address satisfaction with services received during therapy. 21 of the 23 items are rated on a scale from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). A factor analysis identified 5 caregiver-perceived factors including Appropriateness of Services, Outcome, Participation in Treatment, Access, and Cultural Sensitivity. This measure showed overall internal consistency of $\alpha = .94$ for the full measure. Internal consistency alpha values for each of the 5 factors were as follows: Appropriateness of Services = .94, Outcome = .88, Participation in Treatment = .79, Access = .66, and Cultural Sensitivity = .89 (Riley et al., 2005). The Appropriateness of Services scale was used as a measure of caregiver satisfaction in the current study.

Family demographic questionnaire (Appendix J). A self-report demographic questionnaire was administered to caregivers of all youth participants prior to the start of treatment assessing for variables including youth age, youth gender, caregiver age, caregiver gender, youth ethnicity, and family gross annual income. Family gross annual income was operationalized as a set of income categories/ranges including the following: (a) $0 - $19,000; (b) $20,000 - $39,000; (c) $40,000 - $59,000; (d) $60,000 - $79,000; (e) $80,000 - $99,000; (f) $100,000 - $119,000; (g) $120,000 - $139,000; (h) $140,000 or more.

Research Questions. The current study was designed to investigate the following research questions:

(1) Using a MFS in which weekly progress data is collected via the Internet and telephone calls, do youths and their caregivers differ in their participation rates (PRs)?

Hypothesis: PRs for caregivers will be significantly higher than PRs for youths.

Rationale: Most treatment of youths is initiated by caregivers, and their motivation for treatment tends to be higher than that of their children. Their higher level of motivation is expected to make them more willing than their children to participate in the weekly assessments.

(2) Which demographic factors (i.e., youth gender, youth age, family gross annual income, caregiver gender, caregiver age, and total number of dependents) and clinical characteristics (i.e., Internalizing and Externalizing syndrome scale scores from the YSR and CBCL) are associated with youth and caregiver PRs?

Hypothesis: Family gross annual income (higher PR for higher gross income) and total number of dependents (lower PR for higher total number of dependents) will be significantly associated with youth and caregiver PRs.

Rationale: Family gross annual income and total number of dependents will significantly predict both youth and caregiver PRs as lower gross incomes and higher number of dependents may function as proxies for higher levels of family stress and less time available to participate in weekly telephone-based assessments. No specific hypotheses are proposed for youth age, youth gender, caregiver age, caregiver gender, or clinical characteristics. Younger youths may be developmentally less capable or less willing to participate in telephone-based assessments. Alternatively, older youths may be less motivated to participate in telephone-based assessments. Youths with higher scores on the Internalizing scale (on the YSR and CBCL) may be less likely to participate in telephone-based assessments due to the inhibiting effects of anxiety and depression symptoms. Alternatively, youths with higher scores on the Externalizing scale (on the YSR and CBCL) may be less willing or compliant in their participation due to certain clinical characteristics such as oppositionality and/or inattention.

(3) Do youth and caregiver PRs differ by treatment condition (MS vs. SS)?

Hypothesis: Youths and caregivers in the MS condition will show higher PRs than those in the SS condition.

Rationale: Clinical supervisors and clinicians in both the MS and SS conditions have access to feedback reports displaying the results of weekly youth and caregiver assessments, but only the MS clinicians have weekly supervision with

MATCH supervisors, in which they discuss the client dashboards, how to translate dashboard information into treatment plans and adjustments, and how to communicate dashboard information to families. The enriched dashboard use and communication activities in the MS condition should increase the relevance of youth and caregiver feedback to the treatment process, and thus potentially boost motivation by youths and caregivers in the MS condition to provide the weekly feedback.

(4) Are youth and caregiver PRs associated with youth and caregiver treatment engagement indicators, including therapeutic alliance and patient satisfaction?

Hypothesis: Youth and caregiver PRs will be positively associated with ratings of therapeutic alliance and patient satisfaction.

Rationale: Participation in routine assessments may prompt youths and caregivers to increase communication with clinicians about treatment and treatment progress, which may in turn improve therapeutic alliance and satisfaction. Alternatively, youths and caregivers who are more engaged may be more likely to complete the weekly assessments, such that PR may be a kind of index of therapeutic engagement. Either pattern would be reflected in a positive association between PR and the treatment engagement measures.

(5) Are youth and caregiver PRs associated with youth treatment outcomes?

Hypothesis: High youth and caregiver PRs will be associated with better treatment outcomes.

Rationale: More active involvement in the MFS process, as reflected in higher PRs, may enhance treatment effectiveness, for example, by improving the clinicians' communication and coordination with youths and caregivers. Alternatively, youth and caregiver PRs may be higher when the youth and caregiver can see that therapeutic progress is being made, and lower when therapy is not going well, because patient motivation may be thus undermined. As a third possibility, higher PRs may be a kind of index of how much effort youths and caregivers are investing in the treatment process, and more effort by youths and caregivers may be associated with better treatment outcomes. Any one, or any combination of these patterns, should result in a positive association between PR and outcome.

(6) Do the answers to questions 1, 4, and 5 differ as a function of whether clinicians have access to MFS discussions with MATCH supervisors (i.e., the MS vs. SS study condition)?

Hypothesis: Given the lack of prior evidence on which to base a prediction, no specific hypothesis is proposed. However, it seems important to determine whether the answers to any of the previous questions may differ depending on study condition. As an example, it is possible that the association between PR and treatment engagement and outcome measures will be stronger in the MS condition, where clinicians are actively involved in processing the MFS information with MATCH supervisors, than in the SS condition, where this is not the case.

(7) Using a MFS in which weekly progress data can be collected via the Internet and telephone calls, what demographic characteristics (i.e., gender, age, and family gross annual income) and clinical characteristics (i.e., problem profile) are associated with caregivers' choice to participate in Internet-based assessments as compared to telephone person-to-person assessments?

Hypothesis: This question is exploratory in nature.

Analyses. Using the caregiver and youth weekly assessments, PRs were calculated for each youth and caregiver by dividing the total number of weekly assessments completed by the total number of weeks in therapy. Total weekly assessments completed included assessments completed via the Internet or by telephone. To investigate whether PRs differed for youths vs. caregivers, for MS vs. SS, or as a function of the interaction, a 2 (Informant) x 2 (Study Condition) repeated measures ANOVA was carried out, with informant as the repeated measures factor and PRs as the dependent variable.

To examine whether any of the identified demographic and clinical variables predict youth and caregiver PRs, four multiple regression models were run. In the first and second models, youth and caregiver PRs, respectively, served as the dependent variable (DV); the variables of youth age, youth gender, caregiver age, caregiver gender, family gross annual income, and study condition (i.e., MS vs. SS) served as the independent variables (IVs). In the third model, youth PRs served as the DV, and the IVs included study condition as well as baseline T-scores on the YSR and CBCL broadband Internalizing and Externalizing scales. In the fourth model, caregiver PRs served as the DV, and the IVs included study condition as well as baseline T-scores on the YSR and CBCL broadband Internalizing and Externalizing scales. All IVs were entered concurrently for both regression models.

To investigate whether youth and caregiver PRs were associated with identified treatment engagement factors, four hierarchical linear regression models were completed. Candidate demographic variables serving as covariates were included in each model as well as study condition, youth and caregiver PRs, respectively, and the interaction between study condition and youth and caregiver PRs, respectively. Due to the significantly high correlation between youth and caregiver PRs, these variables were not entered as IVs into the same model. In models 1 and 2, youth- and caregiver-reported therapeutic alliance, respectively, were used as the DV. In models 3 and 4, youth- and caregiver-reported treatment satisfaction, respectively, were used as the DV. Because the CT-CTP study is currently ongoing, rates of session attendance are not currently available for this study, and as such, were not included in these analyses.

In order to examine whether youth and caregiver PRs are associated with youth treatment outcomes, two series of linear regression models were run. For the first method, hierarchical linear regression was employed with post-treatment T-scores on the Internalizing, Externalizing, & Total scales of the YSR and CBCL as the DV, respectively. Pre-treatment T-scores of these same measures and scales served as a covariate when applicable (e.g., pre-treatment T-scores of the Internalizing scale of the YSR included as a covariate in the model using post-treatment T-scores of the Internalizing scale of the YSR as the DV). Youth/caregiver PRs, study condition, and the interaction between youth/caregiver PRs and study condition served as IVs in each model. Each model was run separately for youths vs. caregivers due to the highly significant correlation between youth and caregiver PRs.

Multilevel linear regression was employed for the second analytic method. Weekly scores from the BPM (i.e., Internalizing and Externalizing scales) and TP Assessment (i.e., TP Average), respectively, were employed as the DV in a series of models to assess for trajectories of change from the start to the end of treatment. Linear mixed models (SPSS Mixed) were used in these analyses to allow for random slopes and random intercepts in each model. To account for their hierarchical structure of the data, all models were designed to have 2 levels with youth/caregiver PRs, time (i.e., number of days since the pre-treatment assessment), and the interaction between these variables nested within study participants. Each model was run separately for youths vs. caregivers due to the highly significant correlation between youth and caregiver PRs. These models included random slope effects to allow for variation in treatment outcomes as a function of time, random intercept effects to allow for variation in initial levels of treatment outcomes, an autoregressive covariance structure (AR1) to account for repeated measures, and Full Estimation Maximum Likelihood to account for missing data concerns. Differences in -2 log likelihoods (-2LL) were employed to assess goodness of fit between various model iterations. Trajectories of change were operationalized as the interaction between youth/caregiver PRs and the variable of time. A *positive* PRs x Time interaction would indicate that the rate of change in each outcome variable *increased* at higher levels of youth/caregiver PRs. Alternatively, a *negative* PRs x Time interaction would indicate that the rate of change in each outcome variable *decreased* at higher levels of youth/caregiver PRs.

Finally, to investigate what demographic and/or clinical characteristics may be associated with caregivers' choice of whether to participate in Internet-based assessments, a series of independent sample t-tests were run. The sample was divided into 2 groups based on caregivers' decisions at the time of the baseline assessment for the family (i.e., youth + caregiver) to participate in either the Internet-based MFS (with phone calls to be used when there was no email response) or telephone person-to-person assessments only. Analyses explored mean differences across these two groups on demographic variables (i.e., youth and caregiver age, total number of household members) as well as youth clinical characteristics as measured by the CBCL and YSR broadband and narrowband scales, youth and caregiver PRs, and measures of treatment engagement (i.e., therapeutic alliance, treatment satisfaction). Additionally, chi-square analyses were used to test for differences between these groups for categorical variables including youth and caregiver gender, youth ethnicity (Euro-American vs. other), and family gross annual income (median split).

As in Study 1, the Results section which follows notes all instances in which significant findings were no longer significant after application of familywise Holm-Bonferroni correction procedures (see Holm, 1979).

Results

Correlations and Descriptive Statistics. Zero-order correlations between study condition (MS vs. SS), demographic characteristics (youth age, youth gender, caregiver age, caregiver gender, family gross annual income, total number of dependents), clinical characteristics (Internalizing and Externalizing scales of the CBCL and YSR), youth- and caregiver-reported engagement factors (therapeutic alliance, treatment satisfaction), and youth and caregiver PRs are presented in Appendix T. Youth PRs were found to be significantly correlated with the following variables: (a) caregiver PRs, $r = .73$, (b) pre-treatment CBCL Internalizing T-scores, $r = -.226$, and (c) caregiver therapeutic alliance, $r = -.279$. Caregiver PRs were found to be significantly correlated with the following variables: (a) youth PRs, $r = .73$, (b) post-treatment CBCL Externalizing T-scores, $r = .185$ (nonsignificant with Holm-Bonferroni), (c) post-treatment YSR Internalizing T-scores, $r = .187$ (nonsignificant with Holm-Bonferroni), (d) post-treatment YSR Externalizing T-scores, $r = .207$ (nonsignificant with Holm-Bonferroni), (e) caregiver therapeutic alliance, $r = -.28$, and (f) caregiver treatment satisfaction, $r = -.231$.

Q1: Using a MFS in which weekly progress data is collected via the Internet and telephone calls, do youths and their caregivers differ in their participation rates (PRs)? A 2 x 2 repeated measures ANOVA was conducted to assess whether PRs differed for youths vs.

caregivers, for study conditions SS vs. MS, or as a function of an interaction. Informant (youth vs. caregiver) served as the repeated measures factor and study condition (SS vs. MS) served as the between subjects factor. Results of these analyses indicated that PRs were significantly associated with type of Informant, $F(1, 129) = 9.057$, $p = .003$, $\eta^2_{\text{partial}} = .066$, such that caregivers ($M = .91$, $SD = .16$) had significantly higher PRs than youths ($M = .87$, $SD = .20$). The main effect of Study Condition and the Informant x Study Condition interaction was nonsignificant. Mean PRs for youths and their caregivers by study condition are provided below in **Table 3**.

Table 3. Means and standard deviations of youth and caregiver PRs by study condition from the CT-CTP study.

		M	***SD***
Youth PRs	SS	0.871	0.207
	MS	0.867	0.205
	Total	**0.869**	**0.205**
Caregiver PRs	SS	0.920	0.156
	MS	0.900	0.172
	Total	**0.911**	**0.163**

Q2: Which demographic factors (i.e., youth gender, youth age, family gross annual income, caregiver age, caregiver gender, total number of dependents) and clinical characteristics (i.e., Internalizing and Externalizing broadband scales from the CBCL and YSR) are associated with youth and caregiver PRs? In order to assess the relation between various youth demographic and clinical characteristics, on the one hand, and youth and caregiver PRs, on the other, a series of multiple regression models were completed. In the first model, youth gender (male vs. female), youth age (continuous variable), caregiver gender (male vs. female), caregiver age (continuous variable), family gross annual income (dichotomous variable coded by a median split of greater or less than $40,000), total number of dependents (continuous variable), and study condition (SS vs. MS) were employed as the independent variables (IVs), and youth PRs were used as the dependent variable (DV). Results of this analysis indicated a nonsignificant fit of the model. All variables included in this model were nonsignificant predictors of youth PRs.

The same IVs as in the first model were employed for the second model, but the DV used in the second model was caregiver PRs. Results of this analysis indicated a nonsignificant fit of the model. The IV of total number of family dependents was found to be significantly related to caregiver PRs, $\beta = 0.022$, $p = .038$, such that families with a higher number of total dependents reported higher caregiver PRs as compared to families with a lower number of dependents. All other variables included in this model were nonsignificant predictors of caregiver PRs.

For the third model, pre-treatment CBCL and YSR Internalizing and Externalizing T-scores and study condition were employed as IVs, and youth PRs were used as the DV. Results of this analysis indicated that this model accounted for 5.2% of the variance in youth PRs, $R^2 = .052$, $F(5,123) = 2.396$, $p = .041$. Pre-treatment CBCL Internalizing T-scores did significantly predict youth PRs, such that youths with higher PRs had caregivers who reported lower pre-treatment CBCL Internalizing T-scores ($\beta = -0.004$, $p = .033$). Pre-treatment CBCL Externalizing T-scores, pretreatment YSR Internalizing and Externalizing T-scores, and study condition were nonsignificant predictors.

For the fourth model, pre-treatment CBCL and YSR Internalizing and Externalizing T-scores and study condition were used as IVs, and caregiver PRs were used as the DV. Results of this analysis indicated a nonsignificant fit of the model. All variables included in this model were nonsignificant predictors of caregiver PRs.

Q3: Do youth and caregiver PRs differ by treatment condition (MS vs. SS)? As reported in the results of Question 1 above, a 2 x 2 repeated measures ANOVA using Informant (youth vs. caregiver) as the repeated measures factor and study condition (SS vs. MS) as the between subjects factor yielded a significant main effect of Informant, but a nonsignificant effect of Study Condition and a nonsignificant interaction. In addition, results from Question 2 failed to identify study condition as a significant predictor of youth and caregiver PRs when controlling for various demographic and clinical characteristics of youths and their families.

Q4: Are youth and caregiver PRs associated with youth and caregiver treatment engagement factors, including therapeutic alliance and patient satisfaction? In order to examine the relation between youth and caregiver PRs and measures of treatment engagement, a series of hierarchical linear regression analyses were completed using therapeutic alliance and patient satisfaction as DVs in separate models. As a first analytic step, zero-order correlations were used to identify candidate demographic variables to serve as covariates in these models. Similar to the ME-CTP study (Study 1) described above, covariates included in the first step of each model included youth age, youth gender, caregiver age, caregiver gender, and family gross annual income (dichotomous variable coded by a median split of greater or less than $40,000). Nonsignificant covariates were then removed from the model in order to improve overall parsimony. Study condition, youth/caregiver PRs, and the interaction between study condition and youth and caregiver PRs, respectively, were additionally included as IVs in each model.

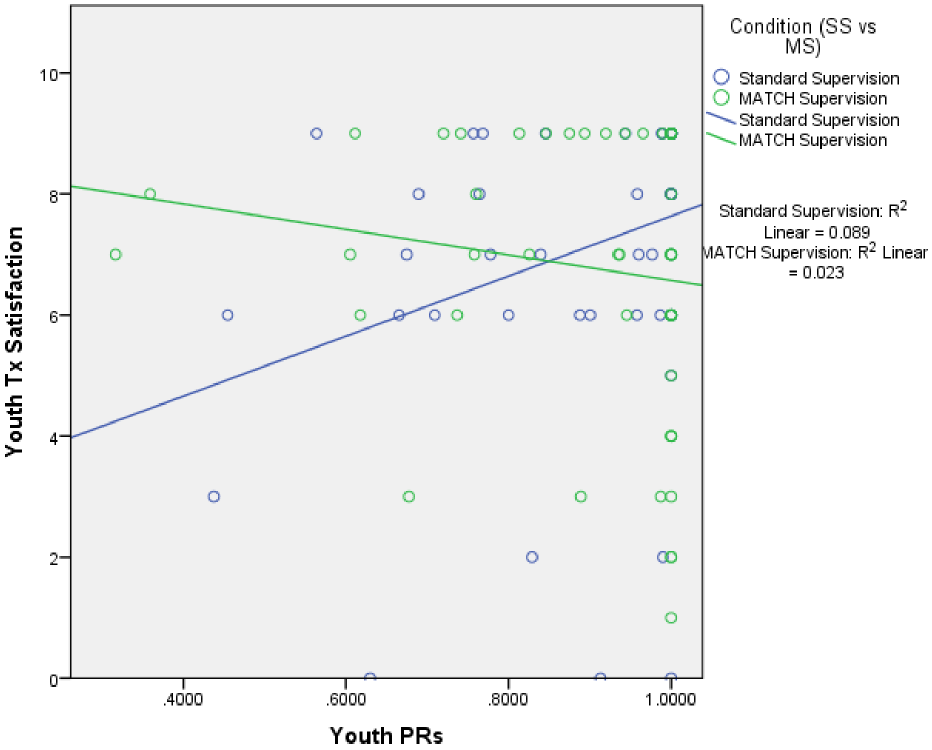
Therapeutic alliance. A series of hierarchical regression models were used to investigate the relation between youth and caregiver PRs, respectively, with youth- and caregiver-reported therapeutic alliance, respectively. In the first model, youth-reported therapeutic alliance was used as the DV; no demographic variables were found to be significantly related to youth therapeutic alliance, and as such were not included in the final model. Study condition, youth PRs, and the interaction between study condition and youth PRs were used as IVs. Of the original 131 youths who were included in this study, 89 completed the Therapeutic Alliance Scale for Children (TASC) and thus served as the sample for this model. Results of these analyses indicated that study condition, youth PRs, and the PRs x study condition interaction were not significantly related to youth-reported therapeutic alliance. Results of an independent samples *t*-test indicated significant difference in PRs for youths who completed the TASC ($M = .898$, $SD = .148$) as compared to youths who did not complete the TASC ($M = .807$, $SD = .283$), $t = -2.428$, $p = .017$.

A second model was used to explore the relation between caregiver PRs and caregiver-reported therapeutic alliance. Similar to the analyses above, no demographic variables were found to be significantly related to caregiver therapeutic alliance, and as such were not included in the final model. Caregiver-reported therapeutic alliance served as the DV with study condition, caregiver PRs, and the interaction between study condition and caregiver PRs serving as the IVs. Of the original 131 caregivers who were included in this study, 93 completed the Therapeutic Alliance Scale for Children (TASC) and thus served as the sample for this model. Results of these analyses indicated that study condition, caregiver PRs, and the study condition by PRs interaction were not significantly related to caregiver-reported therapeutic alliance. Results of an independent samples *t*-test indicated no significant difference in PRs for caregivers who completed the TASC as compared to caregivers who did not complete the TASC.

Patient satisfaction. Similar to the analyses with therapeutic alliance above, a series of hierarchical regression models were used to investigate the relation between youth and caregiver PRs, respectively, and youth- and caregiver-reported treatment satisfaction, respectively. Caregiver satisfaction was operationalized in this study as the Appropriateness of Services scale of the Youth Services Survey for Families (YSS-F), whereas youth treatment satisfaction was measured via the Child Satisfaction Survey (CSS).

In the first model, youth-reported treatment satisfaction was used as the DV, and youth age was entered as a covariate. Study condition, youth PRs, and the interaction between study condition and youth PRs were entered into the model in a second step. Of the original 131 youths who were included in this study, 111 completed the Youth Satisfaction Questionnaire (YSQ) and thus served as the sample for this model. Results of these analyses indicated that youth PRs and study condition were not significantly related to youth treatment satisfaction when controlling for youth age. However, the interaction between youth PRs and study condition was found to be a significant predictor of youth-reported treatment satisfaction, $\beta = -6.386$, $p = .023$. This result suggests that the two study conditions differed in the direction of the association between youth PRs and treatment satisfaction: In the standard supervision group, satisfaction increased marginally with increasing PRs ($\beta = 3.902$, $SE = 2.04$, $p = .058$), but in the MATCH supervision group, satisfaction declined nonsignificantly with increasing PRs (see **Graph 1,** below). Note, though, that results of an independent samples *t*-test indicated significant difference in PRs for youths who completed the YSQ ($M = .904$, $SD = .154$) as compared to youths who did not complete the YSQ ($M = .676$, $SD = .322$), $t = -4.989$, $p < .001$.

Graph 1. Interaction of youth PRs and study condition as a predictor of youth-reported treatment satisfaction.



An additional model was used to explore the relation between caregiver PRs and caregiver-reported treatment satisfaction. In this hierarchical model, none of the candidate covariates were significantly related to caregiver treatment satisfaction and were consequently not included in this model. Caregiver-reported treatment satisfaction served as the DV and caregiver PRs, study condition, and the interaction between PRs and study condition were the IVs. Of the original 131 caregivers who were included in this study, 118 completed the YSS-F and thus served as the sample for this model. Results of these analyses indicated that study condition, caregiver PRs, and the study condition by PRs interaction were not significantly related to caregiver-reported treatment satisfaction. Results of an independent samples *t*-test indicated significant difference in PRs for caregivers who completed the YSS-F (*M* = .924, *SD* =

.139) as compared to caregivers who did not complete the YSS-F (*M* = .786, *SD* = .283), *t* = -2.984, *p* = .003.

Q5: Are youth and caregiver PRs associated with youth treatment outcomes? Similar to models used for Study 1 above, two series of linear regression models were completed to examine the relation between youth and caregiver PRs and various measures of treatment outcomes. Models were run separately for youth vs. caregiver variables.

In the first series of models completed, youth post-treatment T-scores on the Internalizing, Externalizing, and Total scales of the YSR were used as DVs in respective hierarchical linear regression models with pre-treatment T-scores on Internalizing, Externalizing, and Total scales of the YSR serving as covariates, respectively. In addition, the variables of youth PRs, study condition, and the interaction between youth PRs and study condition were employed as IVs in these models. Results of all three of these analyses indicated that youth post-treatment YSR scales did not differ as a function of youth PRs, study condition, or the interaction between youth PRs and study condition.

A second series of models was completed using caregiver post-treatment T-scores on the Internalizing, Externalizing, and Total scales of the CBCL as DVs in respective models with pre-treatment T-scores on Internalizing, Externalizing, and Total scales of the CBCL serving as covariates, respectively. In addition, the variables of caregiver PRs and study condition were employed as IVs in these models. Results of all three of these analyses indicated that caregiver post-treatment CBCL scales did not differ as a function of caregiver PRs, study condition, or the interaction between caregiver PRs and study condition.

Next, a third (youths) and fourth (caregivers) series of models were run in which several different repeated variables (i.e., BPM subscales and average Top Problems) served as the DV in order to explore trajectories of change over time. As described above, these models included youth/caregiver PRs, time, and the interaction between youth/caregiver PRs and time as IVs with random slopes and intercepts for each model. Trajectories of change were examined via the interaction between youth/caregiver PRs and the variable of time. All models were run separately for youths vs. caregivers.

Results from models included in the first part of Question 5 above indicated that study condition was not significantly associated with post-treatment YSR scales. Consequently, study condition and its corresponding interactions were excluded from multilevel analyses using various youth treatment outcomes as DVs to increase the overall power of each model. Similar to analyses from Study 1 above, models were run initially within reporters (e.g., youth PRs with youth outcomes) and then again between reporters (e.g., caregiver PRs with youth outcomes). In the first series of models, youth BPM Internalizing and Externalizing subscales and average youth Top Problem scores were used as the DV, respectively, with youth PRs, time, and the interaction between youth PRs and time as IVs. Results of these analyses did not show any significant findings. The youth PRs x Time interaction included in these models was not significantly related to youth BPM Internalizing, BPM Externalizing, or average Top Problems scores.

Next, three separate multilevel models were completed in which *youth* BPM Internalizing and Externalizing subscales and average youth Top Problem scores were used as the DV, respectively, with *caregiver* PRs, time, and the interaction between *caregiver* PRs and time as IVs. Results of these analyses failed to produce any significant findings. The caregiver PRs x Time interaction was nonsignificant across all three models, suggesting that trajectories of change in *youth* BPM Internalizing, BPM Externalizing, and average TP scores did not vary as a function of *caregiver* PRs.

For models examining trajectories of change in caregiver-reported outcome measures, results from models included in the second part of Question 5 above indicated that study condition was not significantly associated with post-treatment CBCL scales. Consequently, study condition and its corresponding interactions were excluded from multilevel analyses using various caregiver treatment outcomes as DVs to increase the overall power of each model. Similar to the findings of youth-reported outcome measures, models were run initially within reporters (e.g., caregiver PRs with caregiver outcomes) and then again between reporters (e.g., youth PRs with caregiver outcomes). For analyses examining effects within reporters, multilevel models were completed using caregiver BPM Internalizing, BPM Externalizing subscales, and average Top Problem scores as the DV, respectively and caregiver PRs, time, and the interaction between caregiver PRs and time served as the IVs. Results of these analyses once again failed to indicate any significant findings. The caregiver PRs x Time interaction was nonsignificant across all three models, suggesting that trajectories of change in caregiver BPM Internalizing, BPM Externalizing, and average TP scores did not vary as a function of caregiver PRs.

Finally, an additional 3 multilevel models were completed using *caregiver* BPM Internalizing, BPM Externalizing, and average TP scores as the DV, respectively, with *youth* PRs, time, and the interaction between *youth* PRs and time as IVs. Results of these analyses failed to produce any significant findings. The youth PRs x Time interaction was nonsignificant across all three models, suggesting that trajectories of change in *caregiver* BPC Internalizing, BPC Externalizing, and average TP scores did not vary as a function of *youth* PRs.

Q6. Do the answers to questions 1, 4, and 5 differ as a function of whether clinicians have access to MFS discussions with MATCH supervisors (i.e., the MS vs. SS study condition)? Similar to Study 1 above, no additional analyses were completed for Question 6. Instead, analyses for Questions 1, 4, and 5 included tests of interactions of variables of interest with study condition. Analyses for Question 1 yielded a nonsignificant interaction of informant by study condition. Analyses for Question 4 showed three nonsignificant interactions involving study condition, but the analysis of youth-reported treatment satisfaction did show a significant interaction between youth PRs and study condition; in the standard supervision group satisfaction increased marginally with increasing PRs ($\beta = 3.902$, $SE = 2.04$, $p = .058$), but in the MATCH supervision group, satisfaction declined nonsignificantly with increasing PRs. Results of analyses for Question 5, focused on youth treatment outcomes, revealed no significant interactions between youth and caregiver PRs, respectively, and study condition.

Q7: What demographic characteristics (i.e., youth gender, youth age, caregiver gender, caregiver age, total number of dependents, and family gross annual income) and clinical characteristics (i.e., problem profiles) are associated with caregivers' choice to participate in Internet-based assessments as compared to telephone person-to-person assessments? As identified above, participants in the CT-CTP project were given the choice when enrolled to participate in a MFS either via email with electronic questionnaires or via telephone. Of the 131 families included for this dissertation research, 44 chose to participate in a MFS via telephone whereas 87 chose to participate via email. In order to explore possible differences between these groups, a series of independent t-tests were completed. Results of these independent t-tests, as shown in **Table 4** below, indicated significantly higher means for the telephone vs. email group on the total number of dependents, caregiver-reported treatment satisfaction, and caregiver-reported therapeutic alliance. These results maintained statistical significance after applying the familywise Holm-Bonferroni correction procedure.

Table 4. Results of independent sample t-tests for various youth and caregiver demographic and clinical characteristics by choice to participate in a MFS by telephone vs. email.

	t	**df**	***p***	**Telephone *M* (SD)**	**Email *M* (SD)**
Youth Age	0.48	129	0.63	10.84 (2.40)	10.62 (2.52)
Caregiver Age	0.61	129	0.54	39.18 (11.22)	38.16 (7.66)
# Dependents	2.69	127	**0.008**	3.47 (1.33)	2.80 (1.31)
Youth PRs	-1.56	129	0.12	.83 (.24)	.89 (.18)
Caregiver PRs	-0.16	129	0.88	.91 (.14)	.91 (.17)
Pre-Tx CBCL Internalizing	-0.01	129	0.99	64.32 (10.11)	64.33 (8.43)
Pre-Tx CBCL Externalizing	1.47	129	0.14	65.52 (9.22)	62.94 (9.60)
Pre-Tx YSR Internalizing	-1.39	127	0.17	55.86 (11.93)	58.87 (11.35)
Pre-Tx YSR Externalizing	0.09	127	0.93	54.64 (10.56)	54.48 (9.65)
Post-Tx CBCL Internalizing	-0.30	119	0.77	55.55 (11.24)	56.16 (10.43)
Post-Tx CBCL Externalizing	-0.06	119	0.95	57.80 (12.39)	57.93 (10.71)
Post-Tx YSR Internalizing	-1.29	113	0.20	44.49 (11.86)	47.67 (12.51)
Post-Tx YSR Externalizing	0.24	113	0.81	46.92 (13.47)	46.37 (10.30)
Caregiver Tx Satisfaction	2.61	116	**0.010**	26.13 (5.02)	23.32 (5.72)
Youth Tx Satisfaction	-0.60	109	0.55	6.81 (2.54)	7.09 (2.27)
Caregiver Therapeutic Alliance	2.37	91	**0.020**	34.10 (2.94)	32.41 (3.33)
Youth Therapeutic Alliance	1.48	87	0.14	31.68 (5.11)	29.98 (4.97)

Note. Positive *t*-values indicate that higher scores on the variable examined were associated with greater likelihood of choosing telephone rather than email.

Additional analyses were completed to assess for differences between the participants choosing to participate in a MFS via email vs. telephone. Results of various Chi-square analyses, as shown in **Table 5** below, indicated significant associations between the following variables and families who chose email vs. telephone MFS participation: (a) youth ethnicity (Euro-

American vs. other), χ^2 (1) = 6.07, *p* = .014, and (b) family gross annual income, χ^2 (1) = 15.52, *p* < .001. All other variables were not significantly related to email vs. telephone MFS participation. These results maintained statistical significance when applying the familywise Holm-Bonferroni corrections procedure.

Table 5. Results of Chi-square tests for various youth and caregiver demographic characteristics by choice to participate in a MFS by telephone vs. email.

	***N* Telephone**	***N* Email**	**χ^2**	**df**	***p***	**Odds Ratio**
Youth Gender			3.68	1	0.055	0.49
Male	26	36				
Female	18	51				
Caregiver Gender			1.24	1	0.266	N/A
Male	1	6				
Female	43	81				
Youth Ethnicity			6.10	1	**0.014**	0.36
Euro-American	10	39				
Other	34	48				
Family Gross Annual Income			15.52	1	**0.000**	7.63
$40,000 or less	39	46				
> $40,0000	4	36				

Discussion

Study 2 incorporated data from a large, multi-site randomized controlled trial (CT-CTP) testing the effectiveness of two approaches to outpatient supervision and clinician skill-building in MATCH. In the MATCH Supervision (MS) condition, clinicians were trained in the MATCH intervention, received weekly supervision from MATCH consultants, and had access to MFS information from weekly youth and caregiver assessments. In the Standard Supervision (SS) condition, clinicians also received MATCH training and had access to MFS information from weekly youth and caregiver assessments, but these clinicians participated in the usual form of peer supervision within their sites. Families enrolled in the CT-CTP study were asked to participate in a MFS that assessed youth outcomes weekly in one of two ways – by email or by telephone. Similar to Study 1 above, Study 2 was designed to explore the participation of youths and their caregivers in an existing MFS, various factors germane to MFS participation, and whether MFS participation affected youth treatment engagement and treatment outcomes.

Overall, families participating in Study 2 were highly compliant in their participation in weekly assessments via a MFS. Youth (*M* = .869, *SD* = .205) and caregiver PRs (*M* = .911, *SD* = .163) from Study 2 were significantly greater as compared to youth (*M* = .728, *SD* = .202) and caregiver PRs (*M* = .774, *SD* = .184) from Study 1. Reasons for this difference in participant PRs across studies is not readily known. Youth and caregiver PRs in Study 2 were shown to not differ as a function of participation via telephone vs. email, and as such the email feature included in Study 2's MFS does not appear to explain this difference. Given the significant findings from Study 1 of study condition being significantly related to participant PRs, one plausible consideration is that clinicians involved with Study 2, all of whom provided the MATCH intervention and had access to the results of weekly data, were more proactive in encouraging families to participate in weekly assessments. It may be that clinicians in Study 2 in both study conditions regularly accessed and used data from weekly assessments during the course of psychotherapy. Unfortunately, data on clinicians' access to the results of weekly assessments is not currently available and as such remains a hypothesis for future research.

Results of the Study 2 provided limited support for the initial hypotheses and failed to replicate a number of the findings from Study 1. The one consistent finding between Study 1 and 2, however, was that youths participated in a MFS at a lower rate than their caregivers. The replication of this finding from Study 1 to Study 2 suggests that youths may be less motivated to participate in a MFS or may have more barriers to participation as compared to their caregivers. This may relate to the fact that youths typically do not initiate their own treatment and may be less motivated than their caregivers to engage in the experience; or it may reflect lower motivation to participate in a MFS in particular. Alternatively, youths may have less access to MFSs that collect data outside of therapy sessions. Youths may not have easy access to personal cell phones or email addresses which may serve to hinder their participation rates. Either interpretation may suggest a need for developers of MFSs to consider ways to make MFSs more accessible, appealing, and intrinsically motivating to youth participants.

Further analyses failed to replicate the findings from Study 1 indicating that caregiver age was associated with youth and caregiver PRs. In addition, and contrary to our original hypothesis, results from Study 2 indicated that families with a higher number of dependents had higher caregiver PRs. Also contrary to our original hypotheses, the variables of family gross annual income and study condition were not significantly related to youth or caregiver PRs.

Similar to Study 1, we originally hypothesized that study condition (MS vs. SS) would play a role in youth and caregiver PRs such that participants in the MS condition would have higher PRs than those in the SS condition. Because clinicians in the MS condition participated in weekly supervision sessions with MATCH supervisors, these clinicians were routinely coached in how to effectively apply the information in client dashboards to therapy (e.g., how to translate dashboard information into treatment plans and therapy adjustments, how to communicate dashboard information to families). Consequently, we hypothesized that this increased emphasis on client dashboards during weekly supervision would translate to increased use of a MFS by youths and caregivers in the MS condition. Contrary to our hypothesis, results of Study 2 did not find a significant difference in youth or caregiver PRs as a function of study condition, even when controlling for various demographic and clinical characteristics of youths and their caregivers. In evaluating these findings, it is useful to note that the difference between the two study conditions in Study 2 was markedly less stark than the difference between the two conditions in Study 1; clinicians in both study 2 conditions had full access to information from participant PRs, whereas the two conditions in Study 1 involved full access vs. no access whatever. Because clinicians in the Study 2 SS condition had full access to client dashboards, it may be that clinicians in both Study 2 conditions used the dashboards rather similarly, including their communication of dashboard information to families. Alternatively, it may be that clinicians in both Study 2 conditions primarily employed dashboard data as an administrative tool, with limited communication of the data with youths or their caregivers.

Results of Study 1 above indicated that youth and caregiver PRs were not related to youth- and caregiver-reported therapeutic alliance or rates of session attendance. Similarly, results of Study 2 suggested that youth and caregiver PRs were not related to youth- or caregiver-reported therapeutic alliance. However, in line with our hypothesis, results from Study 2 further suggested that higher youth and caregiver PRs were associated with higher youth- and caregiver-reported treatment satisfaction. These findings suggest, in part, that higher rates of youth and caregiver participation in a MFS may be positively associated with factors of treatment engagement. Alternatively, one possible explanation for findings contrary to our hypothesis is that the high frequency of weekly assessments in this study may have been perceived as overly taxing to youths and/or caregivers, which, in turn, may have negatively impacted youths' and/or caregivers' overall impressions of alliance with their youth's therapist. However, an alternative explanation for these findings may be equally plausible. In both Studies 1 and 2, therapeutic alliance and treatment satisfaction were measured following the completion of treatment. As such, these assessments of treatment satisfaction and therapeutic alliance were assessed at only one point in time in these studies, which consequently limited the sensitivity of the analyses presented here. In both Studies 1 and 2, we examined whether youth and caregiver rates of participation in a MFS were predictive of therapeutic alliance and treatment satisfaction; we were not able to assess reciprocal or iterative relations between these variables. Consequently, it is possible that the variables of therapeutic alliance and/or treatment satisfaction may be predictive of rates of participation in a MFS. For example, if the therapeutic alliance between a caregiver and therapist declines during therapy, the caregiver may consequently feel confused or at a loss regarding what is actually occurring in therapy sessions. This caregiver may then be more motivated to engage with a MFS as an additional or alternative way to communicate about the therapy process. Similarly, if a caregiver becomes increasingly dissatisfied with how therapy is progressing, this caregiver may be more motivated to participate in a MFS as a means of expressing this frustration/lack of satisfaction/lack of progress. Unfortunately, we do not have data from Studies 1 or 2 that would be needed to properly test whether therapeutic alliance and treatment satisfaction may be predictive of rates of participation in a MFS. However, prior research has shown that therapeutic alliance varies over time during the course of outpatient psychotherapy (Whipple et al., 2003; Karver et al., 2008; McLeod, 2011) and that therapeutic alliance and treatment satisfaction are highly correlated (Hawley & Weisz, 2005). Thus, these ideas remain plausible but untested.

For analyses focusing on the association of youth and caregiver PRs with youth treatment outcomes in Study 2, results were somewhat inconsistent with those found in Study 1. Similar to Study 1, in the first series of models, the outcomes of interest were youth- and caregiver-reported outcomes at the conclusion of therapy (i.e., in the post-treatment assessment).

In contrast to findings from Study 1, results from Study 2 failed to find any significant associations between youth and caregiver PRs and measures of treatment outcomes. Results from Study 1 found that youth PRs were negatively associated with YSR Externalizing and Total T-scores at the post-treatment assessment. These findings suggest that youths with higher PRs in Study 1 reported lower externalizing (e.g., noncompliance, aggressive behavior, anger difficulties) and total problems at the conclusion of therapy.

Further analyses were completed examining the relation between youth and caregiver PRs and weekly youth- and caregiver-reported outcomes. As was the case in Study 1, a PRs x Time interaction was included in these models to assess whether youth trajectories of change varied as function of youth and caregiver PRs. Results of these analyses were contrary to our initial hypothesis in that no significant PRs x Time interactions were found in any of the models completed for Study 1 or Study 2. Specifically, these results suggest that trajectories of change in weekly youth and caregiver outcome measures were not associated with youth and caregiver PRs, a finding contrary to our initial hypothesis.

A final series of analyses examined various characteristics of families choosing to participate in Internet-based assessments (i.e., email) as compared to telephone person-to-person assessments throughout the course of therapy. Results of these analyses indicated that families who participated in telephone person-to-person assessments reported significantly higher numbers of dependents than those families participating in Internet-based assessments. These results suggest that caregivers with a higher number of dependents may have less time or less overall desire for managing email and instead preferred the experience of speaking with someone directly over the telephone. In addition, further results indicated that caregivers who participated in telephone person-to-person assessments reported significantly higher ratings of both therapeutic alliance and treatment satisfaction as compared to caregivers participating in Internet-based assessments. Given that the telephone-based assessments in this study involved speaking with a live person on a weekly basis throughout the course of therapy, it may be that caregivers felt more involved or more "heard" (i.e., felt that their concerns were effectively being communicated) when participating in telephone- vs. Internet-based assessments. Consequently, caregivers participating in telephone-based assessments may have developed a better sense or more favorable impression of how therapy was progressing or being delivered, which, in turn, may have resulted in more positive reports of therapeutic alliance and treatment satisfaction.

Further results from analyses examining family demographic factors indicated that family gross annual income and youth ethnicity were statistically different between families choosing to participate in Study 2 via email vs. telephone assessments. These results indicated that families with reported annual incomes greater than $40,000 were more likely to choose participation via email as compared to participation via telephone. In addition, 91% of families who chose to participate via telephone were families who reported annual incomes equal to or less than $40,000. It may be that families with higher reported annual incomes were more likely to choose participation via email due to easier access to the Internet and/or access to Internet-capable devices (e.g., smart phones, tablets, laptops). Additional results indicated that families with Euro-American ethnic backgrounds were more likely to choose participation via email as compared to telephone. Some 80% of families self-identifying as Euro-American chose to participated via email whereas 59% of non-Euro-American families chose the email option.

Results from Question 7 above additionally indicated that there were no statistically significant differences in PRs between youths or caregivers participating via person-to-person telephone calls vs. email, and that average PRs for both youths and caregivers in these groups were greater than 80%. It remains unclear as to why no differences were found in PRs between the telephone vs. email groups, as data is not currently available as to the number of successful vs. unsuccessful attempts to contact families. This lack of a difference and high PRs across groups, however, suggests positive implications for future methods of data collection. Specifically, if it remains consistent that youths and caregivers can reliably participate in weekly assessments via email or other electronic access, this might provide new opportunities for data collection methods and help to promote the adoption of MFSs in settings with fewer resources (e.g., lack of staff to call families or manually enter questionnaires into databases).

In summary, the results of Study 2 (CT-CTP) largely failed to replicate the findings from Study 1. The one consistent finding across both studies (that was additionally in line with our initial hypothesis) is that youths appear to participate in MFSs at a lower rate than their caregivers. Studies 1 and 2 were mixed in results of various demographic factors that were predictive of youth and caregiver MFS participation, and the result in Study 2 for the total number of dependents being positively associated with caregiver PRs was contrary to our original hypothesis. Results of Study 2 further failed to replicate the findings from Study 1 that youth and caregiver PRs were associated with higher reports of youth and caregiver treatment satisfaction. In addition, results of Study 1 indicated that higher youth PRs were associated with lower youth-reported Externalizing and Total problems at the conclusion of therapy; these results were not replicated in Study 2.

Chapter 4 – Cross-Study Comparisons

Background

The research presented above as part of Studies 1 (ME-CTP) and 2 (CT-CTP) investigated questions related to youth and caregiver participation in existing MFSs. More specifically, this research addressed questions related to the rate at which youths and their caregivers participated in MFSs, characteristics of youths and their caregivers that are associated with MFS participation, whether PRs differed based on clinician access to feedback or weekly supervision that incorporated patient dashboards, the impact of MFS participation on therapy process factors, and the impact of MFS participation on treatment outcomes. These research questions were addressed via complementary analyses across Studies 1 and 2, but these studies differed in their settings, research designs, and the nature of the MFSs used. By comparing the results of analyses from Study 1 to Study 2, we were able to gauge how robust the findings on these questions are across substantial changes in methods, context, and technology.

As discussed in greater detail in the previous chapter, several key differences were found when comparing the results of Study 1 and Study 2. These differences are summarized as the following:

- Results of Study 2 failed to replicate the findings of Study 1 that caregiver age was significantly associated with youth and caregiver PRs.
- Results of Study 2 indicated, contrary to our original hypothesis, that a greater amount of total family dependents was associated with higher caregiver PRs.
- Results of Study 2 failed to replicate the finding from Study 1 that PRs differed as a function of study condition.

- Results of Study 2 failed to replicate that higher youth and caregiver treatment satisfaction were associated with higher youth and caregiver PRs.
- Results of Study 2 failed to replicate that higher youth PRs were associated with lower reports of youth externalizing and total symptoms at the conclusion of treatment.

In an effort to understand these differences between Studies 1 and 2, it is important to note potentially contributing factors. One factor likely germane to these differences is the variable of study condition. As described above and in line with our original hypothesis, the results from Study 1 indicated that PRs differed as a function of study condition. That is, PRs were found to be higher in the MATCH study condition as compared to the Usual Care study condition. Conversely, no differences were found in PRs between study conditions in Study 2, a study in which both conditions employed the MATCH treatment intervention but differed in the type of supervision provided to clinicians. These results suggest, in part, that use of the MATCH intervention appears to be related to overall PRs in a MFS. Consequently, in order to more acutely understand youth and caregiver PRs in a MFS, it may be beneficial to investigate PRs with a higher level of specificity (i.e., solely within the MATCH treatment condition) and to compare these results across Studies 1 and 2.

Analyses with greater specificity would necessitate comparing smaller samples of participants that are more closely matched on treatment intervention conditions. In Study 1, participating families were randomly assigned to clinicians in the MATCH condition, which included the MATCH treatment interventions as well as MATCH supervision (i.e., weekly supervision from MATCH consultants and access to MFS information from weekly youth and caregiver assessments), or the Usual Care condition, which placed no constraints on therapeutic interventions or supervisory methods. Alternatively, in Study 2, participating families were randomly assigned to one of two conditions, both of which employed the MATCH treatment. In the MS condition, clinicians engaged in weekly MATCH supervision and had access to MFS information. In the SS condition, clinicians had access to MFS information, but did not engage in weekly MATCH supervision and instead employed typical supervisory methods. Thus, when broadly examining study conditions across both Studies 1 and 2, these study conditions can be denoted as follows: (a) MATCH intervention + MATCH supervision (Study 1, MATCH condition), (b) Usual Care + Usual supervision (Study 1, UC condition), (c) MATCH intervention + MATCH supervision (Study 2, MS condition), and (d) MATCH intervention + Usual supervision (Study 2, SS condition). Viewed in this context, the MATCH condition from Study 1 and the MS Condition from Study 2 appear most similar in their overall designs of treatment interventions and supervisory methods.

In light of the results from Studies 1 and 2 and the differences in these results noted above, a third wave of analyses was completed in order to more precisely assess youth and caregiver PRs in a MFS and the relations between PRs and other relevant factors. These analyses focused on two subsamples from Studies 1 and 2: the MATCH study condition from Study 1 and the MS study condition from Study 2. Such analyses allowed for a finer-grained investigation of PRs across similar treatment conditions as well as a testing of the robustness of effects found in Studies 1 and 2.

Study 1 – Maine Clinic Treatment Project (ME-CTP), MATCH Study Condition only

Method

Participants. Participants included 70 youths randomized to the MATCH study condition who ranged in age from 8 – 16 years old and their caregivers who participated in outpatient mental health therapy as part of ME-CTP. Youths had a mean age of 11.4 years (*SD* = 1.96), were 55.7% female, and were predominantly Caucasian (Caucasian = 82.9%, African American = 1.4%, Mixed = 15.7%, other = 0%). Caregivers had a mean age of 42.55 years (*SD* = 10.94), were predominantly female (77.1%), and were largely biological parents (biological = 55.7%, adoptive = 17.1%, foster = 15.7%, grandparent = 5.7%, step = 0%, other = 5.7%). Inclusion and exclusion criteria remained the same as described above for the full sample in Study 1.

Procedures. Treatment procedures are the same as described above for the full sample in Study 1.

Measures. The same measures as described above for the full sample in Study 1 are relevant to the current analyses.

Research Questions. The current study was designed to investigate similar questions to those posed in Study 1 above. Because the current sample includes only participants in the MATCH condition, research questions exploring the variable of study condition were excluded from the current analyses. Research questions included the following:

(1) Using a MFS in which weekly progress data is collected by telephone calls only, do youths and their caregivers differ in their participation rates (PRs)?

Hypothesis: PRs for caregivers will be significantly higher than PRs for youths.

Rationale: Most treatment of youths is initiated by caregivers, and their motivation for treatment tends to be higher than that of their children. Caregivers' higher level of motivation is expected to make them more willing than their children to participate in the weekly assessments.

(2) Which demographic factors (i.e., youth gender, youth age, family gross annual income, caregiver age, caregiver gender, and total number of dependents) and clinical characteristics (i.e., Internalizing and Externalizing broadband scales from the CBCL and YSR at pre-treatment) are associated with youth and caregiver PRs?

Hypothesis: Family gross annual income (higher PR for higher gross income) and total number of dependents (lower PR for higher total number of dependents) will be significantly associated with youth and caregiver PRs.

Rationale: Family gross annual income and total number of dependents will significantly predict both youth and caregiver PRs as lower gross incomes and higher number of dependents may function as proxies for higher levels of family stress and less time available to participate in weekly telephone-based assessments. No specific hypotheses are proposed for youth age, youth gender, caregiver age, caregiver gender, or clinical characteristics. Younger youths may be developmentally less capable or less willing to participate in telephone-based assessments. Alternatively, older youths may less motivated to participate in telephone-based assessments. Youths with higher scores on the Internalizing scale (on the YSR and CBCL) may be less likely to participate in telephone-based assessments due to the inhibiting effects of anxiety and depression symptoms. Alternatively, youths with higher scores on the Externalizing scale (on the YSR and CBCL) may be less willing or compliant in their participation due to certain clinical characteristics such as oppositionality and/or inattention.

(3) Are youth and caregiver PRs associated with youth and caregiver treatment engagement factors, including therapeutic alliance, patient satisfaction, and rates of session attendance (i.e., percent of scheduled sessions attended)?

Hypothesis: Youth and caregiver PRs will be positively correlated with ratings of therapeutic alliance, patient satisfaction, and rates of session attendance.

Rationale: Participation in routine telephone assessments may prompt youths and caregivers to focus more on improving during therapy and to increase communication with clinicians about treatment and treatment progress, which may in turn improve alliance and satisfaction as well as rates of session attendance. Alternatively, youths and caregivers who are more engaged may be more likely to complete the weekly phone assessments, such that PR may be an index of therapeutic engagement. Either pattern would be reflected in a positive association between PR and the treatment engagement measures.

(4) Are youth and caregiver PRs associated with youth treatment outcomes?

Hypothesis: High youth and caregiver PRs will be associated with better treatment outcomes.

Rationale: More active involvement in the MFS process, as reflected in higher PRs, may enhance treatment effectiveness, for example, by improving the clinicians' communication and coordination with youths and caregivers. Alternatively, youth and caregiver PRs may be higher when the youth and caregiver can see that therapeutic progress is being made, and lower when therapy is not going well, because patient motivation may be thus undermined. As a third possibility, higher PRs may be a kind of index of how much effort youths and caregivers are investing

> in the treatment process, and more effort by youths and caregivers may be associated with better treatment outcomes. Any one, or any combination of these patterns, should result in a positive association between PR and outcome.

Analyses. Using the caregiver and youth weekly assessments, PRs were calculated for each youth and caregiver by dividing the total number of weekly assessments completed by the total number of weeks in therapy. To investigate whether PRs differed for youths vs. caregivers, a paired-samples t-test was conducted.

To examine whether any of the identified demographic and clinical variables predict youth and caregiver PRs, four multiple regression models were run. In the first and second models, youth and caregiver PRs, respectively, served as the dependent variable (DV); the baseline variables of youth age, youth gender, caregiver age, caregiver gender, family gross annual income, and total number of dependents served as the independent variables (IVs). In the third model, youth PRs served as the DV, and the IVs included baseline T-scores on the YSR Internalizing and Externalizing scales. In the fourth model, caregiver PRs served as the DV, and the IVs included baseline T-scores on the CBCL Internalizing and Externalizing scales. All IVs were entered concurrently for both regression models.

To investigate whether youth and caregiver PRs were associated with identified treatment engagement factors, six hierarchical linear regression models were completed, three for youths and three for caregivers. Candidate demographic variables serving as covariates were included in each model as well as youth and caregiver PRs, respectively. In models 1 and 2, youth- and caregiver-reported therapeutic alliance, respectively, were used as the DV. In models 3 and 4, youth- and caregiver-reported treatment satisfaction, respectively, were used as the DV. Finally, in models 5 and 6, rates of session attendance were employed as DVs in both models.

Finally, to examine whether youth and caregiver PRs were associated with youth treatment outcomes, two series of linear regression models were run. For the first method, hierarchical linear regression was employed with post-treatment T-scores on the Internalizing, Externalizing, & Total scales of the YSR and CBCL as the DV, respectively. Pre-treatment T-scores of these same measures and scales served as covariates when applicable (e.g., pre-treatment T-scores of the Internalizing scale of the YSR included as a covariate in the model using post-treatment T-scores of the Internalizing scale of the YSR as the DV). Youth/caregiver PRs served as IVs in each model. Each model was run separately for youths and caregivers.

Multilevel linear regression was employed for the second analytic method. Weekly scores from the BPC (i.e., Internalizing and Externalizing scales) and TP Assessment (i.e., TP Average), respectively, were employed as the DV in a series of models to assess for trajectories of change from the start to the end of treatment. Linear mixed models (SPSS Mixed) were used in these analyses to allow for random slopes and random intercepts in each model. To account for the hierarchical structure of the data, all models were designed to have 2 levels with youth/caregiver PRs, time (i.e., number of days since the pre-treatment assessment), and the interaction between these variables nested within study participants. Each model was run separately for youths vs. caregivers. These models included random slope effects to allow for variation in treatment outcomes as a function of time, random intercept effects to allow for variation in initial levels of treatment outcomes, an autoregressive covariance structure (AR1) to account for repeated measures, and Full Estimation Maximum Likelihood to address missing data concerns. Differences in -2 log likelihoods (-2LL) were employed to assess goodness of fit between various model iterations. Trajectories of change were operationalized as the interaction between youth/caregiver PRs and the variable of time. A *positive* PRs x Time interaction would indicate that the rate (i.e., slope) of problem reduction during treatment was faster (i.e., steeper) at higher levels of youth/caregiver PRs. Alternatively, a *negative* PRs x Time interaction would indicate that the rate of problem reduction during treatment was slower at higher levels of youth/caregiver PRs.

As was the case for the full samples of Study 1 and Study 2 above, the Results section which follows notes all instances in which significant findings were no longer significant after application of familywise Holm-Bonferroni correction procedures (see Holm, 1979).

Results

Zero-Order Correlations. Zero-order correlations between demographic characteristics (youth age, youth gender, caregiver age, caregiver gender, family gross annual income, total number of dependents), clinical characteristics (Internalizing and Externalizing scales of the CBCL and YSR), youth- and caregiver-reported engagement factors (therapeutic alliance, treatment satisfaction, rates of session attendance), and youth and caregiver PRs are presented in Appendix U. Youth PRs were found to be significantly correlated with the following variables: (a) caregiver age, $r = .254$, and (b) caregiver PRs, $r = .895$. Caregiver PRs were found to be significantly correlated with the following variables: (a) caregiver age, $r = .268$, and (b) youth PRs, $r = .895$.

Q1: Using a MFS in which weekly progress data is collected by telephone calls only, do youths and their caregivers differ in their participation rates (PRs)? A paired-samples t-test was conducted to examine differences in youth vs. caregiver PRs. Results of these analyses indicated that caregiver PRs ($M = .81$, $SD = .16$) were significantly greater than youth PRs ($M = .77$, $SD = .16$); $t = 4.587$, $p < .001$.

Q2: Which demographic factors (i.e., youth gender, youth age, family gross annual income, caregiver age, caregiver gender, total number of dependents) and clinical characteristics (i.e., Internalizing and Externalizing broadband scales from the CBCL and YSR) are associated with youth and caregiver PRs? In order to assess the relation between various youth demographic and clinical characteristics, on the one hand, and youth and caregiver PRs, on the other, a series of multiple regression models were completed. In the first model, youth and caregiver gender (male vs. female), youth and caregiver age (continuous variables), family gross annual income (dichotomous variable coded by a median split of greater or less than $40,000), and total number of dependents (continuous variable) were employed as the independent variables (IVs), and youth PRs were used as the dependent variable (DV). Results of this analysis showed a nonsignificant fit of the model. All IVs included in the model were nonsignificant predictors.

The same IVs as in the first model were employed for the second model, but the DV used in the second model was caregiver PRs. Results of this analysis indicated a nonsignificant fit of the model. The IVs of youth gender ($\beta = .093$, $p = .018$) and caregiver age ($\beta = .004$, $p = .02$) were significantly associated with caregiver PRs. These results indicate that caregivers of male youths had higher PRs as compared to female youths and that older caregivers had higher PRs as compared to younger caregivers. The remaining IVs included in the model were found to be nonsignificant predictors.

For the third model, pre-treatment YSR Internalizing and Externalizing T-scores were employed as IVs, and youth PRs were used as the DV. Results of this analysis indicated a nonsignificant fit of the model. No IVs included in the model were found to be significant predictors.

For the fourth model, pre-treatment CBCL Internalizing and Externalizing T-scores and study condition were used as IVs, and caregiver PRs were used as the DV. Results of this analysis indicated a nonsignificant fit of the model. No IVs included in the model were found to be significant predictors.

Q3: Are youth and caregiver PRs associated with youth and caregiver treatment engagement factors, including therapeutic alliance, patient satisfaction, and rates of session attendance (i.e., percent of scheduled sessions attended)? In order to examine the relation between youth and caregiver PRs and various measures of treatment engagement, a series of hierarchical linear regression analyses were completed using therapeutic alliance, patient satisfaction, and rates of session attendance as DVs in separate models. As a first analytic step, candidate demographic variables used in Study 1 analyses were included as covariates in these models. Covariates included in the first step of each model included youth age, youth gender, caregiver age, caregiver gender, and family gross annual income (dichotomous variable coded by a median split of greater or less than $40,000). Nonsignificant covariates were then removed from the model in order to improve overall parsimony.

Therapeutic alliance. A series of hierarchical regression models were used to investigate the association of youth and caregiver PRs with youth- and caregiver-reported therapeutic alliance. In the first model, youth-reported therapeutic alliance was used as the DV, and the covariate controlled in the first step of this model was youth age. Youth PRs were entered into the model in a second step. Results of these analyses indicated that youth PRs were not significantly related to youth-reported therapeutic alliance. Results of an independent samples *t*-test indicated a nonsignificant difference in PRs for youths who completed the TASC ($M = .770$, *SD* = .150, *N* = 55) as compared to youths who did not complete the TASC (*M* = .773, *SD* = .206, *N* = 15).

A second model was used to explore the relation between caregiver PRs and caregiver-reported therapeutic alliance. In this hierarchical model, IVs controlled for in the first step included youth age. Caregiver-reported therapeutic alliance served as the DV. Results of this analysis indicated that this model accounted for 18.5% of the variance in caregiver-reported therapeutic alliance, $R^2 = .185$, $F(1,59) = 4.114$, $p = .047$. While controlling for youth age, caregiver PRs did significantly predict caregiver therapeutic alliance, such that caregivers with higher PRs reported higher levels of therapeutic alliance ($\beta = 8.551$, $p = .047$). Results of an independent samples *t*-test indicated a nonsignificant difference in PRs for caregivers who completed the TASC (*M* = .821, *SD* = .155, *N* = 62) as compared to caregivers who did not complete the TASC (*M* = .741, *SD* = .199, *N* = 8).

Patient satisfaction. Similar to the analyses with therapeutic alliance above, a series of hierarchical regression models were used to investigate the relation between youth and caregiver PRs, respectively, and youth- and caregiver-reported treatment satisfaction, respectively. In the first model, youth-reported treatment satisfaction was used as the DV, and youth gender was entered as a covariate. Youth PRs were entered into the model in a second step. Results of these analyses indicated that youth PRs were not significantly associated with youth reports of overall treatment satisfaction. Results of an independent samples *t*-test yielded a nonsignificant difference in PRs for youths who completed the YSQ (*M* = .782, *SD* = .155, *n* = 53) as compared to youths who did not complete the YSQ (*M* = .737, *SD* = .182, *n* = 17).

An additional model was used to explore the relation between caregiver PRs and caregiver-reported treatment satisfaction. In this hierarchical model, no IVs were controlled for in the first step as all candidate variables were found to be nonsignificant. Caregiver-reported treatment satisfaction served as the DV. Results of these analyses indicated that caregiver PRs were not significantly associated with caregiver reports of overall treatment satisfaction. Results of an independent samples *t*-test indicated that PRs for caregivers who completed the YSQ (M = .830, SD = .136, n = 61) were significantly higher as compared to caregivers who did not complete the YSQ (M = .685, SD = .251, n = 9), t = -2.637, p = .01.

Rates of session attendance. A final series of hierarchical regression models were used to investigate the relation between youth and caregiver PRs, respectively, with rates of session attendance. Rate of session attendance was defined as the ratio of the number of therapy sessions attended divided by the number of therapy sessions scheduled, and this metric was used as the DV for these analyses. In the first model, caregiver gender was entered as a covariate in the first step and youth PRs entered as an IV in the second step. Results of these analyses indicated that youth PRs were not significantly associated with rates of session attendance.

An additional model was used to explore the relation between caregiver PRs and rates of session attendance. In this hierarchical model, IVs controlled for in the first step included caregiver gender. Results of these analyses indicated that there was no significant relation between caregiver PRs and rates of session attendance.

Q4: Are youth and caregiver PRs associated with youth treatment outcomes? In order to examine the relation between youth and caregiver PRs and various measures of treatment outcome, two series of linear regression models were completed. Models were run separately for youth vs. caregiver variables.

In the first series of models, youth post-treatment T-scores on the Internalizing, Externalizing, and Total scales of the YSR were used as DVs in respective hierarchical linear regression models with pre-treatment T-scores on Internalizing, Externalizing, and Total scales of the YSR serving as covariates, respectively. In addition, the variable of youth PRs was employed as an IV in these models. Results of these analyses indicated that youth PRs did not significantly predict post-treatment YSR Internalizing, Externalizing, or Total T-scores.

A second series of models was completed using caregiver post-treatment T-scores on the Internalizing, Externalizing, and Total scales of the CBCL as DVs in respective models with pre-treatment T-scores on Internalizing, Externalizing, and Total scales of the CBCL serving as covariates, respectively. In addition, the variable of caregiver PRs was employed as an IV in these models. Results of all three of these analyses indicated that caregiver post-treatment CBCL scales were not significantly related to caregiver PRs.

Next, a third (youths) and fourth (caregivers) series of models were run in which several different repeated variables (i.e., BPC subscales and average Top Problems) served as the DV in order to explore trajectories of change over time. As described above, these models included youth and caregiver PRs, time, and the interaction between these variables as IVs with random slopes and intercepts for each model. Trajectories of change were examined via the interaction between youth/caregiver PRs and the variable of time. Models were run initially within reporters (e.g., youths PRs with youth outcomes) and then again between reporters (e.g., caregiver PRs with youth outcomes). All models were run separately for youths vs. caregivers.

A third series of models were run in which youth-reported BPC Internalizing, BPC Externalizing, and average Top Problems, respectively, served as DVs with youth PRs, time, and the interaction between youth PRs and time as IVs. Results of these analyses did not show any significant findings. The PRs x Time interaction included in these models was not significantly related to youth BPC Internalizing, BPC Externalizing, or average Top Problems scores.

Next, three separate multilevel models were completed in which *youth* BPC Internalizing and Externalizing subscales and average youth Top Problem scores were used as the DV, respectively, with *caregiver* PRs, time, and the interaction between *caregiver* PRs and time as IVs. Results of these analyses failed to produce any significant findings. The caregiver PRs x Time interaction was nonsignificant across all three models, suggesting that trajectories of change in *youth* BPC Internalizing, BPC Externalizing, and average TP scores did not vary as a function of *caregiver* PRs.

A fourth series of multilevel models described above were repeated using caregiver BPC Internalizing and Externalizing subscales as well as average caregiver Top Problem scores as the DV, respectively. Results of analyses exploring trajectories of change in caregiver-reported outcome measures (i.e., BPC Internalizing, BPC Externalizing, and average Top Problems) did not show any significant findings. The PRs x Time interaction included in these models was not significantly related to caregiver BPC Internalizing, BPC Externalizing, or average Top Problems scores.

Finally, an additional 3 multilevel models were completed using caregiver BPC Internalizing, BPC Externalizing, and average TP scores as the DV, respectively, with *youth* PRs, time, and the interaction between *youth* PRs and time as IVs. Once again, results of these analyses failed to produce any significant findings. The caregiver PRs x Time interaction was nonsignificant across all three models, suggesting that trajectories of change in *caregiver* BPC Internalizing, BPC Externalizing, and average TP scores did not vary as a function of *youth* PRs.

Discussion

This third wave of analyses was completed using only study participants that were randomly assigned to the MATCH study condition as part of the larger ME-CTP study (Study 1).

These analyses were conducted in order to investigate dissertation research questions with a greater level of specificity and to enable comparisons across Studies 1 and 2 with groups of participants that are most similar in terms of interventions received.

Similar to the original results from Study 1, findings of these analyses provided mixed results in regard to our original hypotheses. Analogous to the original results from Study 1, analyses with the MATCH-only sample indicated that youths participated in a MFS at a lower rate as compared to their caregivers. Results of these analyses did replicate the original findings from Study 1 that caregiver age was significantly associated with caregiver PRs. However, these results did not replicate the finding from Study 1 that caregiver age was also significantly associated with youth PRs. In contrast to Study 1, these results further indicated that youth gender was predictive of caregiver PRs. Finally, contrary to our hypothesis, results of this wave of analyses indicated that the variables of total number of dependents and family gross annual income were not significantly related to youth or caregiver PRs.

For analyses investigating the association between youth and caregiver PRs and various measures of treatment engagement, results of this wave of analyses did not find any significant relations between youth or caregiver PRs and the variables of youth- and caregiver-reported treatment satisfaction or rates of session attendance. In addition, no association was found between youth PRs and youth-reported therapeutic alliance. However, as predicted in our original study hypothesis, a significant relation was found between caregiver PRs and caregiver-reported therapeutic alliance, such that caregivers with higher PRs reported higher levels of therapeutic alliance. In contrast to the original results from Study 1, these findings did not reveal any significant association between youth and caregiver PRs and ratings of treatment satisfaction.

Further analyses we used to explore the relation between youth and caregiver PRs and various measures of treatment outcome. Contrary to our hypothesis and the results from Study 1, no significant associations were found between youth/caregiver PRs and YSR/CBCL subscales. Similarly, for analyses in which multilevel models were used to investigate youth trajectories of change across treatment, results failed to indicate any significant associations between youth and caregiver Time x PRs interactions and weekly treatment outcome measures.

In summary, results of analyses using the MATCH-only condition from Study 1 replicated some of the original findings from Study 1 and provided mixed results for our original hypotheses. These findings continue to suggest some important differences in the rates at which youths and their caregivers participate in a MFS, factors that may be associated with youth and caregiver MFS participation, and some evidence that caregiver PRs may be associated with treatment engagement factors. These findings using the MATCH-only condition (i.e., MATCH condition) from Study 1 will be compared to similar analyses using the MATCH-only study condition (i.e., MS condition) from Study 2.

Study 2 – Connecticut Clinic Treatment Project, MATCH Supervision (MS) Study Condition only

Method

Participants. Participants included 61 youths in the range of 7 – 15 years of age and their caregivers randomized into the MATCH Supervision (MS) study condition as part of the Connecticut Clinic Treatment Project (CT-CTP). Youths had a mean age of 10.9 years (*SD* = 2.57), were 50.8% female, and were racially diverse (Caucasian = 41.0%, African American = 26.2%, Latino/Hispanic = 18.0%, Mixed = 9.0%). Caregivers had a mean age of 39.4 years (*SD*

= 8.94), were predominantly female (93.4%), and were largely biological parents (biological = 91.8%, adoptive = 3.3%, foster = 1.6%, step = 0%, other = 3.3%). Inclusion and exclusion criteria remained the same as described above for the full sample in Study 2.

Procedures. Treatment procedures are the same as described above for the full sample in Study 2.

Measures. The same measures as described above for the full sample in Study 2 are relevant to the current analyses.

Research Questions. The current study was designed to investigate similar questions to those posed in Study 2 above. Because the current sample includes only participants in the MS condition, research questions exploring the variable of study condition were excluded from the current analyses. In addition, exploratory analyses investigating characteristics of participants who chose to participate in Internet-based vs. telephone person-to-person assessments are not included in this wave of analyses. Thus, research questions included the following:

(1) Using a MFS in which weekly progress data is collected via the Internet and telephone calls, do youths and their caregivers differ in their participation rates (PRs)?

Hypothesis: PRs for caregivers will be significantly higher than PRs for youths.

Rationale: Most treatment of youths is initiated by caregivers, and their motivation for treatment tends to be higher than that of their children. Their higher level of motivation is expected to make them more willing than their children to participate in the weekly assessments.

(2) Which demographic factors (i.e., youth gender, youth age, family gross annual income, caregiver gender, caregiver age, and total number of dependents) and

clinical characteristics (i.e., Internalizing and Externalizing syndrome scale scores from the YSR and CBCL) are associated with youth and caregiver PRs?

Hypothesis: Family gross annual income (higher PR for higher gross income) and total number of dependents (lower PR for higher total number of dependents) will be significantly associated with youth and caregiver PRs.

Rationale: Family gross annual income and total number of dependents will significantly predict both youth and caregiver PRs as lower gross incomes and higher number of dependents may function as proxies for higher levels of family stress and less time available to participate in weekly telephone-based assessments. No specific hypotheses are proposed for youth age, youth gender, caregiver age, caregiver gender, or clinical characteristics. Younger youths may be developmentally less capable or less willing to participate in telephone-based assessments. Alternatively, older youths may less motivated to participate in telephone-based assessments. Youths with higher scores on the Internalizing scale (on the YSR and CBCL) may be less likely to participate in telephone-based assessments due to the inhibiting effects of anxiety and depression symptoms. Alternatively, youths with higher scores on the Externalizing scale (on the YSR and CBCL) may be less willing or compliant in their participation due to certain clinical characteristics such as oppositionality and/or inattention.

(3) Are youth and caregiver PRs associated with youth and caregiver treatment engagement indicators, including therapeutic alliance and patient satisfaction?

Hypothesis: Youth and caregiver PRs will be positively associated with ratings of therapeutic alliance and patient satisfaction.

Rationale: Participation in routine assessments may prompt youths and caregivers to increase communication with clinicians about treatment and treatment progress, which may in turn improve therapeutic alliance and satisfaction. Alternatively, youths and caregivers who are more engaged may be more likely to complete the weekly assessments, such that PR may be a kind of index of therapeutic engagement. Either pattern would be reflected in a positive association between PR and the treatment engagement measures.

(4) Are youth and caregiver PRs associated with youth treatment outcomes?

Hypothesis: High youth and caregiver PRs will be associated with better treatment outcomes.

Rationale: More active involvement in the MFS process, as reflected in higher PRs, may enhance treatment effectiveness, for example, by improving the clinicians' communication and coordination with youths and caregivers. Alternatively, youth and caregiver PRs may be higher when the youth and caregiver can see that therapeutic progress is being made, and lower when therapy is not going well, because patient motivation may be thus undermined. As a third possibility, higher PRs may be a kind of index of how much effort youths and caregivers are investing in the treatment process, and more effort by youths and caregivers may be associated with better treatment outcomes. Any one, or any combination of these patterns, should result in a positive association between PR and outcome.

Analyses. Using the caregiver and youth weekly assessments, PRs were calculated for each youth and caregiver by dividing the total number of weekly assessments completed by the total number of weeks in therapy. Total weekly assessments completed included assessments completed via the Internet or by telephone. To investigate whether PRs differed for youths vs. caregivers, a paired-samples t-test was conducted.

To examine whether any of the identified demographic and clinical variables predict youth and caregiver PRs, four multiple regression models were run. In the first and second models, youth and caregiver PRs, respectively, served as the dependent variable (DV); the variables of youth age, youth gender, caregiver age, caregiver gender, and family gross annual income served as the independent variables (IVs). In the third model, youth PRs served as the DV, and the IVs included baseline T-scores on the YSR broadband Internalizing and Externalizing scales. In the fourth model, caregiver PRs served as the DV, and the IVs included baseline T-scores on the CBCL broadband Internalizing and Externalizing scales. All IVs were entered concurrently for both regression models.

To investigate whether youth and caregiver PRs were associated with identified treatment engagement factors, four hierarchical linear regression models were completed. Candidate demographic variables serving as covariates were included in each model as well as youth and caregiver PRs, respectively. Due to the significantly high correlation between youth and caregiver PRs, these variables were not entered as IVs into the same model. In models 1 and 2, youth- and caregiver-reported therapeutic alliance, respectively, were used as the DV. In models 3 and 4, youth- and caregiver-reported treatment satisfaction, respectively, were used as the DV. Because the CT-CTP study is currently ongoing, rates of session attendance are not currently available for this study, and as such, were not included in these analyses.

In order to examine whether youth and caregiver PRs were associated with youth treatment outcomes, two series of linear regression models were run. For the first method, hierarchical linear regression was employed with post-treatment T-scores on the Internalizing, Externalizing, & Total scales of the YSR and CBCL as the DV, respectively. Pre-treatment T-scores of these same measures and scales served as a covariate when applicable (e.g., pre-treatment T-scores of the Internalizing scale of the YSR included as a covariate in the model using post-treatment T-scores of the Internalizing scale of the YSR as the DV). Youth/caregiver PRs served as IVs in each model. Each model was run separately for youths vs. caregivers due to the highly significant correlation between youth and caregiver PRs.

Multilevel linear regression was employed for the second analytic method. Weekly scores from the BPM (i.e., Internalizing and Externalizing scales) and TP Assessment (i.e., TP Average), respectively, were employed as the DV in a series of models to assess for trajectories of change from the start to the end of treatment. Linear mixed models (SPSS Mixed) were used in these analyses to allow for random slopes and random intercepts in each model. To account for their hierarchical structure of the data, all models were designed to have 2 levels with youth/caregiver PRs, time (i.e., number of days since the pre-treatment assessment), and the interaction between these variables nested within study participants. Each model was run separately for youths vs. caregivers due to the highly significant correlation between youth and caregiver PRs. These models included random slope effects to allow for variation in treatment outcomes as a function of time, random intercept effects to allow for variation in initial levels of treatment outcomes, an autoregressive covariance structure (AR1) to account for repeated measures, and Full Estimation Maximum Likelihood to account for missing data concerns. Differences in -2 log likelihoods (-2LL) were employed to assess goodness of fit between various model iterations. Trajectories of change were operationalized as the interaction between youth/caregiver PRs and the variable of time. A *positive* PRs x Time interaction would indicate that the rate of change in each outcome variable *increased* at higher levels of youth/caregiver

PRs. Alternatively, a *negative* PRs x Time interaction would indicate that the rate of change in each outcome variable *decreased* at higher levels of youth/caregiver PRs.

As with the full samples of Study 1 and Study 2 above, the Results section which follows notes all instances in which significant findings were no longer significant after application of familywise Holm-Bonferroni correction procedures (see Holm, 1979).

Results

Correlations and Descriptive Statistics. Zero-order correlations between demographic characteristics (youth age, youth gender, caregiver age, caregiver gender, family gross annual income, total number of dependents), clinical characteristics (Internalizing and Externalizing scales of the CBCL and YSR), youth- and caregiver-reported engagement factors (therapeutic alliance, treatment satisfaction), and youth and caregiver PRs are presented in Appendix V. Youth PRs were found to be significantly correlated with the following variables: (a) caregiver PRs = .622, (b) total number of dependents = .282, and (c) pre-treatment CBCL Internalizing T-scores = -.272. Caregiver PRs were found to be significantly correlated with the following variables: (a) youth PRs = .622, (b) total number of dependents = .325, and (f) caregiver therapeutic alliance = -.337.

Q1: Using a MFS in which weekly progress data is collected via the Internet and telephone calls, do youths and their caregivers differ in their participation rates (PRs)? A paired-samples t-test was conducted to examine differences in youth vs. caregiver PRs. Results of these analyses indicated no significant differences in caregiver (*M* = .90, *SD* = .17) vs. youth PRs (*M* = .87, *SD* = .20).

Q2: Which demographic factors (i.e., youth gender, youth age, family gross annual income, caregiver age, caregiver gender, total number of dependents) and clinical characteristics (i.e., Internalizing and Externalizing broadband scales from the CBCL and YSR) are associated with youth and caregiver PRs? In order to assess the relation between various youth demographic and clinical characteristics, on the one hand, and youth and caregiver PRs, on the other, a series of multiple regression models was completed. In the first model, youth gender (male vs. female), youth age (continuous variable), caregiver gender (male vs. female), caregiver age (continuous variable), family gross annual income (dichotomous variable coded by a median split of greater or less than $40,000), and total number of dependents (continuous variable) were employed as the independent variables (IVs), and youth PRs were used as the dependent variable (DV). Results of this analysis indicated a nonsignificant fit of the model. Total number of dependents was found to significantly predict youth PRs such that youths in families with a greater number of dependents were more likely to have higher PRs ($\beta = .045$, $p = .043$). All other IVs were nonsignificant predictors.

The same IVs as in the first model were employed for the second model, but the DV used in the second model was caregiver PRs. Results of this analysis indicated a nonsignificant fit of the model. Total number of dependents was found to significantly predict caregiver PRs such that caregivers in families with a greater number of dependents were more likely to have higher PRs ($\beta = .046$, $p = .015$). All other variables included in this model were nonsignificant predictors of caregiver PRs.

For the third model, pre-treatment CBCL and YSR Internalizing and Externalizing T-scores were employed as IVs, and youth PRs were used as the DV. Results of this analysis indicated a nonsignificant fit of the model. All variables included in this model were nonsignificant predictors of youth PRs.

For the fourth model, pre-treatment CBCL and YSR Internalizing and Externalizing T-scores were used as IVs, and caregiver PRs were used as the DV. Results of this analysis indicated a nonsignificant fit of the model. All variables included in this model were nonsignificant predictors of caregiver PRs.

Q3: Are youth and caregiver PRs associated with youth and caregiver treatment engagement factors, including therapeutic alliance and patient satisfaction? In order to examine the relation between youth and caregiver PRs and measures of treatment engagement, a series of hierarchical linear regression analyses were completed using therapeutic alliance and patient satisfaction as DVs in separate models. As a first analytic step, zero-order correlations were used to identify candidate demographic variables to serve as covariates in these models. Similar to Study 2 described above, covariates included in the first step of each model included youth age, youth gender, caregiver age, caregiver gender, total number of family dependents, and family gross annual income (dichotomous variable coded by a median split of greater or less than $40,000). Nonsignificant covariates were then removed from the model in order to improve overall parsimony.

Therapeutic alliance. A series of hierarchical regression models were used to investigate the relation between youth and caregiver PRs, respectively, with youth- and caregiver-reported therapeutic alliance, respectively. In the first model, youth-reported therapeutic alliance was used as the DV; caregiver gender, youth age, caregiver age, and youth PRs were used as IVs. Results of these analyses indicated that youth PRs were not significantly related to youth-reported therapeutic alliance while controlling for youth age, caregiver gender, and caregiver age. Results of an independent samples *t*-test indicated a nonsignificant difference in PRs for youths who completed the TASC (*M* = .901, *SD* = .149, *N* = 38) as compared to youths who did not complete the TASC (*M* = .810, *SD* = .267, *N* = 23).

A second model was used to explore the relation between caregiver PRs and caregiver-reported therapeutic alliance. None of the candidate covariates were significantly related to caregiver therapeutic alliance and were consequently not included in this model. Caregiver-reported therapeutic alliance served as the DV with caregiver PRs serving as the IV. Results of this analysis indicated that caregiver PRs significantly accounted for 11.4% of the variance in caregiver therapeutic alliance, $R^2 = .114$, $F(1,38) = 4.876$, $p = .033$. Contrary to our hypothesis, these results indicated that lower caregiver PRs were significantly related to higher caregiver therapeutic alliance ($\beta = -8.272$, $p = .033$). Results of an independent samples *t*-test indicated a nonsignificant difference in PRs for caregivers who completed the TASC (*M* = .909, *SD* = .154, *N* = 40) as compared to youths who did not complete the TASC (*M* = .884, *SD* = .205, *N* = 21). Results of an independent samples *t*-test indicated a nonsignificant difference in PRs for caregivers who completed the TASC (*M* = .909, *SD* = .154, *N* = 40) as compared to caregivers who did not complete the TASC (*M* = .884, *SD* = .205, *N* = 21).

Patient satisfaction. Similar to the analyses with therapeutic alliance above, a series of hierarchical regression models were used to investigate the relation between youth and caregiver PRs, respectively, and youth- and caregiver-reported treatment satisfaction, respectively. Caregiver satisfaction was operationalized in this study as the Appropriateness of Services scale of the Youth Services Survey for Families (YSS-F), whereas youth treatment satisfaction was measured via the Child Satisfaction Survey (CSS).

In the first model, youth-reported treatment satisfaction was used as the DV, and youth age and total number of dependents were entered as covariates. Youth PRs were entered into the model in a second step. Results of these analyses indicated that youth PRs were not significantly related to youth treatment satisfaction when controlling for relevant covariates. Results of an independent samples *t*-test indicated a significant difference in PRs for youths who completed the CSS (*M* = .897, *SD* = .164, *N* = 52) as compared to youths who did not complete the CSS (*M* = .691, *SD* = .320, *N* = 9).

An additional model was used to explore the relation between caregiver PRs and caregiver-reported treatment satisfaction. In this hierarchical model, none of the candidate covariates were significantly related to caregiver treatment satisfaction and were consequently not included in this model. Caregiver-reported treatment satisfaction served as the DV and caregiver PRs were the IV. Results of these analyses indicated that caregiver PRs were not significantly related to caregiver treatment satisfaction. Results of an independent samples *t*-test indicated a nonsignificant difference in PRs for caregivers who completed the YSS-F (*M* = .910 *SD* = .163, *N* = 56) as compared to caregivers who did not complete the YSS-F (*M* = .790, *SD* = .247, *N* = 5).

Q4: Are youth and caregiver PRs associated with youth treatment outcomes? Similar to models used for Study 2 above, two series of linear regression models were completed to examine the relation between youth and caregiver PRs and various measures of treatment outcomes. Models were run separately for youth vs. caregiver variables.

In the first series of models completed, youth post-treatment T-scores on the Internalizing, Externalizing, and Total scales of the YSR were used as DVs in respective hierarchical linear regression models with pre-treatment T-scores on Internalizing, Externalizing, and Total scales of the YSR serving as covariates, respectively. In addition, the variable of youth PRs was employed as an IV in these models. Results of these analyses indicated that youth PRs were significantly associated with post-treatment YSR Externalizing ($\beta = 0.595$, $p < .001$) and YSR Total T-scores ($\beta = 4.59$, $p = .002$), such that higher youth PRs were related to higher reports of both externalizing and total problems at the completion of therapy. While controlling for pre-treatment T-scores, youth PRs did not significantly predict post-treatment YSR Internalizing T-scores.

A second series of models was completed using caregiver post-treatment T-scores on the Internalizing, Externalizing, and Total scales of the CBCL as DVs in respective models with pre-treatment T-scores on Internalizing, Externalizing, and Total scales of the CBCL serving as covariates, respectively. In addition, the variable of caregiver PRs was employed as an IV in these models. Results of these analyses indicated that caregiver PRs were significantly associated with post-treatment CBCL Internalizing ($\beta = 0.725$, $p < .001$), Externalizing ($\beta = 0.968$, $p < .001$), and Total T-scores ($\beta = 1.035$, $p < .001$) while controlling for pre-treatment T-scores. These results indicate that higher caregiver PRs were associated with higher caregiver reports of youth internalizing, externalizing, and total problems at the completion of therapy.

Next, a third (youths) and fourth (caregivers) series of models were run in which several different repeated variables (i.e., BPM subscales and average Top Problems) served as the DV in order to explore trajectories of change over time. As described above, these models included youth and caregiver PRs, time, and the interaction between these variables as IVs with random slopes and intercepts for each model. Trajectories of change were examined via the interaction between youth/caregiver PRs and the variable of time. All models were run separately for youths vs. caregivers. Models were run initially within reporters (e.g., youths PRs with youth outcomes) and then again between reporters (e.g., caregiver PRs with youth outcomes).

Results of analyses exploring trajectories of change in youth-reported outcome measures (i.e., BPM Internalizing, BPM Externalizing, and average Top Problems) as a function of youth PRs, time, and the youth PRs x Time interaction did not show any significant findings. The youth PRs x Time interaction included in these models was not significantly related to youth BPM Internalizing, BPM Externalizing, or average Top Problems scores.

Next, three separate multilevel models were completed in which *youth* BPM Internalizing and Externalizing subscales and average youth Top Problem scores were used as the DV, respectively, with *caregiver* PRs, time, and the interaction between *caregiver* PRs and time as IVs. Results of these analyses failed to produce any significant findings. The caregiver PRs x Time interaction was nonsignificant across all three models, suggesting that trajectories of change in *youth* BPM Internalizing, BPM Externalizing, and average TP scores did not vary as a function of *caregiver* PRs.

For models examining trajectories of change in caregiver-reported outcome measures, results of analyses exploring trajectories of change in caregiver-reported outcome measures (i.e., BPM Internalizing, BPM Externalizing, and average Top Problems) as a function of caregiver PRs, time, and the caregiver PRs x Time interaction did not show any significant findings. The PRs x Time interaction included in these models was not significantly related to caregiver BPM Internalizing, BPM Externalizing, or average Top Problems scores.

Finally, an additional 3 multilevel models were completed using *caregiver* BPM Internalizing, BPM Externalizing, and average TP scores as the DV, respectively, with *youth* PRs, time, and the interaction between *youth* PRs and time as IVs. Results of these analyses failed to produce any significant findings. The youth PRs x Time interaction was nonsignificant across all three models, suggesting that trajectories of change in *caregiver* BPC Internalizing, BPC Externalizing, and average TP scores did not vary as a function of *youth* PRs.

Discussion

This fourth wave of analyses was completed using only study participants that were randomly assigned to the MS study condition as part of the larger CT-CTP study (Study 2). These analyses were conducted in order to investigate dissertation research questions with a greater level of specificity and to enable comparisons across Studies 1 and 2 with groups of participants that are most similar in terms of interventions received.

Results of this fourth wave of analyses using the MS study condition (from Study 2) were predominantly contrary to our initial hypotheses and failed to replicate a number of the findings from analyses above using the MATCH study condition (from Study 1). Unlike results from the other three waves of analyses (i.e., Study 1, Study 2, Study 1 MATCH only), no differences were found in PRs between youth and caregivers for this fourth wave of analyses. It may be that due to such high rates of both youth and caregiver PRs in Study 2 that a ceiling effect is limiting the ability to detect differences between these two groups.

Further analyses identified inconsistencies across findings from the MATCH and MS conditions. Analyses using the MATCH study condition identified that caregiver age was significantly related to higher caregiver PRs, and that youth gender (i.e., male) was associated with higher caregiver PRs. These findings were not replicated in analyses with the MS condition. In addition, results from the MATCH condition found no association between the total number of family dependents and youth or caregiver PRs whereas results from the MS condition indicated that a higher number of total dependents was significantly related to higher youth and caregiver PRs. Contrary to our original hypotheses, the variable of family gross annual income was not significantly related to youth or caregiver PRs in either the MATCH or MS conditions. These results suggest, in part, that youth and family characteristics may play a role in how youths and caregivers participate in MFSs, but further research is necessary to clarify these factors.

For analyses assessing the relation between youth and caregiver PRs and measures of treatment engagement (i.e., treatment alliance, treatment satisfaction), results from the MATCH and MS conditions were contradictory. Specifically, results of analyses using the MATCH condition supported our original hypothesis in that higher caregiver PRs were associated with higher caregiver ratings of alliance. However, results of analyses using the MS condition suggested that higher caregiver PRs were associated with *lower* caregiver alliance. Thus, results from the MS condition suggest that frequent MFS use may have a negative impact on caregivers' ratings of alliance with their youth's therapist. Having a means to communicate with therapists via a MFS may ultimately result in caregivers engaging less frequently with their youths' therapists. Alternatively, as previously suggested above, it may be that caregivers who feel more and more disconnected from their youths' therapists rely more heavily on the use of MFSs as a means of communication during treatment. Another possibility is that our finding reflects effects of increased measurement induced by requests to complete the MFS weekly.

The final series of analyses focused on examining the relation between youth and caregiver PRs with youth treatment outcomes. Results from these analyses using the MS condition are inconsistent with results from the MATCH condition and contrary to our original hypotheses. Results from the MS condition indicated that higher youth PRs are related to higher reports of youth externalizing and total problems at the conclusion of therapy. Results from the MATCH condition found no relation between youth or caregiver PRs and youth- and caregiver-reported outcomes at the post-treatment assessment. In addition, results from the MS condition suggest that higher caregiver PRs are associated with higher reports of internalizing, externalizing, and total youth problems at the conclusion of therapy. These results were not found in any of the other three waves of analyses. These findings suggest that youths and caregivers of youths who continue to experience difficulties at the conclusion of therapy participated in a MFS at a higher rate than youths and caregivers of youths who did not experience such problems. Though likely improbable, these findings might suggest that higher rates of MFS use may negatively impact youths' functioning over the course of therapy. It may be that frequent reminders of youths' problems (via engagement in a MFS) may serve to exacerbate those problems, or participants' perception of them. Alternatively, it may be that those youths who failed to improve over the course of therapy were more motivated to participate in a MFS as a means of communicating their ongoing and worsening problems.

In summary, the results of analyses using the MS condition from Study 2 (CT-CTP) failed to replicate the findings from analyses using the MATCH condition from Study 1 (ME-CTP), and findings across the MS and MATCH conditions were frequently contrary to study hypotheses. In addition, analyses using the MATCH and MS conditions suggested various demographic variables (i.e., youth age, total number of dependents) that may be related to youth and caregiver PRs, but these findings were not consistent across the two samples. Although we originally hypothesized that youth and caregiver PRs would be positively associated with various measures of treatment engagement (i.e., therapeutic alliance, treatment satisfaction), our results failed to consistently support these hypotheses. Our findings suggest that youth and caregiver PRs may be related to measures of treatment engagement, but more research is necessary to clarify these possible relationships. Finally, results of these analyses provided conflicting evidence for the relation between youth PRs and youth treatment outcomes. Analyses using the full sample from Study 1 suggested that youths with higher PRs had lower ratings of externalizing and total problems at the conclusion of therapy. However, the direction of this finding was reversed in analyses with the MS condition, such that youths with higher PRs reported a higher level of externalizing and overall problems at the completion of therapy. Thus, these results suggest that youth PRs may be related to youth treatment outcomes, but further research is necessary to understand this association.

Chapter 5 – Conclusion

Discussion

Extant research has suggested that the use of objective, routine monitoring of patient mental health outcomes and the provision of feedback to clinicians may improve various patient outcomes during psychotherapy (Shimokawa et al., 2010; Bickman et al., 2011; Gondek et al., 2016; Krägeloh et al., 2015). Consequently, researchers and clinicians have begun employing electronic MFSs to facilitate collecting patient outcome data and to supply this data as feedback. Existing research on the use of MFSs has predominantly focused on investigating whether the provision of routine feedback to clinicians positively impacts the mental health outcomes of *adult* psychotherapy patients; fewer studies have examined the use of MFSs with youths as well as factors related to participant engagement or use of MFSs. The current dissertation research, therefore, was designed to investigate factors related to MFS engagement and use by youths and their caregiver caregivers during the course of youth psychotherapy. This dissertation research is, to my knowledge, the first study to explore the degree to which youths and caregivers participate in existing MFSs, what factors may be related to MFS participation, and whether MFS participation is associated with various measures of therapy engagement and treatment outcomes.

This dissertation research investigated multiple questions related to youth and caregiver engagement and use of MFSs across two existing and related research studies, the Maine Clinic Treatment Project (ME-CTP, Study 1) and the Connecticut Clinic Treatment Project (CT-CTP, Study 2). In total, four complimentary waves of analyses were completed with the data from Studies 1 and 2: (a) full sample, Study 1, (b) full sample, Study 2, (c), MATCH-only condition, Study 1, and (d) MS-only condition, Study 2. These 4 waves of analyses provided opportunities to compare results across studies in order to examine the robustness of findings across different settings with diverse populations.

Q1: Do youths and their caregivers differ in their participation rates (PRs) in existing MFSs?

In line with our original hypotheses, results of analyses exploring differences in PRs for youths vs. caregivers found that youths participated in MFSs at a lower rate than their caregivers in three out of four waves of analyses. This result was not replicated in analyses investigating PRs in the MS only condition from Study 2. As reported above, youths rarely self-refer for psychotherapy, and consequently caregivers may have been more motivated to engage with the related procedures, including the MFS, as a component of therapy. Alternatively, the findings may reflect youths' more limited understanding of how to respond to the questions, or more limited access to phone and email, relative to their caregivers.

These results suggest that developers and proponents of MFSs should consider methods/strategies to increase youths' participation in MFSs and to identify possible barriers associated with MFS use. One such strategy may involve the overall design of MFSs to make MFSs more aesthetically pleasing to youths. Alternatively, principles of human behavior may be applied to increase the likelihood that youths will participate in MFSs. For example, MFSs could be designed to provide various internal or external rewards for participating youths such as unlocking special features or prizes for repeated use. Additionally, it may be that providing youths and caregivers with longitudinal results of the surveys they complete may serve to increase motivation to engage with MFSs. Alternatively, if the barriers for youths are more structural—e.g., limited access to phone and email - those might be addressed through problem solving with caregivers at the beginning of treatment.

It is important to note that both youths and caregivers were compensated in both Studies 1 and 2 for their participation in weekly MFS surveys via periodic gift cards. Consequently, the PRs found as part of this research may be inflated as compared to samples of participants who are not provided with similar compensation. In addition, the means of compensation may have disproportionately impacted caregivers vs. youths in these studies. Compensation was typically provided via mail and often to the attention of caregivers. Consequently, caregivers may have experienced easier access to this compensation which may have in turn boosted caregiver participation relative to youth participation. Additional research would be beneficial to investigate PRs for youths and caregivers when compensation is not provided and/or alternative forms of compensation for MFS use.

Overall, participation rates for caregivers and youths across Studies 1 and 2 were generally high as can be seen in the summary table provided below (Table 6). Average participation rates for youths ranged from 68 – 87%, whereas caregivers participation rates ranged from 73 – 92%.

Table 6. Average participation rates by youths and caregivers across Studies 1 and 2 by treatment conditions.

	ME-CTP (Study 1)			**CT-CTP (Study 2)**		
		M	***SD***		***M***	***SD***
Youth PRs	UC	0.687	0.229	SS	0.871	0.207
	MATCH	0.771	0.162	MS	0.867	0.205
	Total	**0.728**	**0.202**	**Total**	**0.869**	**0.205**
Caregiver PRs	UC	0.738	0.199	SS	0.92	0.156
	MATCH	0.811	0.161	MS	0.9	0.172
	Total	**0.774**	**0.184**	**Total**	**0.911**	**0.163**

Despite the recent increase in research on the use of MFSs during the course of psychotherapy, few studies to-date have focused specifically on how and the extent to which youths and caregivers participate in MFSs. At least two prior studies have provided MFS participation data where MFS participation by youths and caregivers occurred during or directly following therapy sessions. Bickman and colleagues (2011) indicated that youths, on average, completed 11 research records (i.e., assessments) while engaged in therapy and that youths participated in therapy for an average of 16.5 weeks. Thus, youths in this study had a mean participation rate of approximately 75%. In a follow up study by Bickman et al. (2015), participation rates are provided for both youths and caregivers, though it is argued by these authors that caregiver participation rates are likely an underestimation of true participation rates due to caregivers not always being present at each clinical therapy session held. Youth participation rates were reported to range from 54 – 67%, whereas caregiver participation rates ranged from 35 – 44%. In comparison to participation rates found as part of this dissertation research, youths and caregivers in Studies 1 and 2 on average met or exceeded the rates seen in these two prior studies by Bickman and colleagues. As reported above, both youths and caregivers were compensated for participation in weekly assessments which may have served to inflate true participation rates in Studies 1 and 2. In addition, the MFS data collection methods used in Studies 1 and 2 of weekly person-to-person telephone calls or automatically-generated emails are somewhat distinct as compared to reported methods of other MFSs. Traditionally, MFSs have employed paper and pencil methods for collecting data during or immediately following therapy sessions (Lambert et al., 2002), but recent advance in technology have moved more towards electronic methods of collecting data (Bickman, 2008). As reported by Lyon et al. (2016) in their review of the characteristics and capabilities of existing MFSs, 84% of MFSs surveyed were internet-based. However, these authors additionally report that only 36.7% of MFSs has the option for service recipients to enter their own data. As a result, the unique methods of data collection employed by the MFSs used as part of this dissertation research may have influenced that rates at which youths and caregivers participated in weekly assessments, but more research is necessary to further understand how, why, and to what extent youths and caregivers engage with MFSs.

Q2: Which demographic factors (i.e., youth gender, youth age, family gross annual income, caregiver age, caregiver gender, total number of dependents) and clinical characteristics (i.e., Internalizing and Externalizing broadband scales from the CBCL and YSR) are associated with youth and caregiver PRs?

Results of these analyses across Studies 1 and 2 provided mixed findings. Although there were some significant correlations between youth and caregiver PRs, on the one hand, and certain clinical and demographic variables, on the other, regression analyses did not show significant associations. The null results of the regression findings could have a number of explanations, including the impact of including predictors that were correlated with one another, but the findings may also raise doubts about the extent to which various clinical and demographic characteristics of youths and caregivers actually do impact youth or caregiver participation in existing MFSs. The latter interpretation might suggest that MFSs may not need to be modified or adapted in specific ways according to youths' clinical profiles, and that MFSs may be appropriate for monitoring a wide array of youth mental health problems. In addition, no evidence was found for our original hypothesis that higher levels of family gross annual income would be associated with higher youth and caregiver PRs. This finding indicates that MFSs appear appropriate for use with families across a diverse range of socioeconomic statuses.

Several significant associations were found between youth and caregiver PRs and various participant demographic factors, but these results were not replicated across all analyses. Caregiver age was found to be positively associated with both caregiver and youth PRs in analyses using the full sample from Study 1 and the MATCH-only sample, but not for the full sample in Study 2 or the MS-only sample. It may be that older caregivers are more likely to have older youths, and as such may have more time available for participation in MFSs since self-sufficiency generally tends to improve as youths transition from children into adolescents. Should this finding and interpretation hold true, MFS developers and users should consider designing MFSs to be quick and easy to use by limiting the total number of questions/questionnaires to be answered on a frequent basis.

In addition, youth gender was found to be associated with caregiver PRs and pre-treatment CBCL Internalizing T-scores were shown to be related to youth PRs. In the MATCH-only sample, caregiver PRs were higher for male as compared to female youths, but this finding was not replicated in other waves of analyses. Results of analyses with the full sample from Study 2 indicated that youth PRs were generally lower for youths whose caregivers reported a higher amount of internalizing problems at the baseline assessment, but these results were not replicated across other waves of analyses.

Finally, results indicated that the variable of total number of dependents was significantly associated with both youth and caregiver PRs in analyses using the MS-only sample, but not for any other wave of analyses. This finding was contrary to our original hypothesis in that the higher number of family dependents was positively associated with higher youth and caregiver

PRs. We had originally hypothesized that a higher number of dependents would serve as a proxy for higher levels of family stress and less time available for participation in a MFS. It may be that caregivers with a higher number of dependents appreciated or found some benefit in the frequent task of reviewing and/or considering the progress of their youth during psychotherapy, a task that may have gone otherwise unaccomplished or forgotten without the frequent reminders of a MFS.

In summary, results of these analyses suggest some initial demographic factors that may be germane to youth and caregiver PRs, but that further research is necessary to fully understand these factors. In particular, future research employing mixed model designs including both qualitative and quantitative methodologies may be particularly suited to address and answer many of the questions raised as a result of the current research.

Q3: Do youth and caregiver PRs differ by treatment condition?

Analyses investigating the impact of treatment condition on youth and caregiver PRs were limited to the full samples from Study 1 and 2 since additional analyses used data from only those participants in the MATCH and MS study conditions. Analyses from Study 1 provided support for the original hypothesis that youths and caregivers in the MATCH study conditions would show higher PRs than participants in the comparison group, but this finding was not evident in the analyses of Study 2. This could not properly be considered a failure to replicate, because the two study conditions in Study 2 did not correspond to the conditions in Study 1. The results of repeated measures ANOVAs from Study 1 yielded a significant main effect of study condition. In addition, study condition was found to be a significant predictor of youth and caregiver PRs during hierarchical linear regression analyses from Study 1 when various demographic and clinical characteristics were included as covariates in these models. These results suggest, in part, that use of the MATCH intervention may result in some type of increase in the use of a MFS for youths and their caregivers, but further research is necessary to explore this relation more fully.

The findings just noted did offer support for our original hypothesis that the use of the MATCH intervention would be associated with higher youth and caregiver PRs. The design of Study 2 could not provide a test of that hypothesis, but given that Study 2 involved use of MATCH in both study conditions, the relatively higher overall PRs in Study 2 than in Study 1 might be seen as indirect support for the hypothesis. Of course, the MATCH intervention is only one of many different types of evidence-based interventions. Given that some prior evidence suggests that MFS use during psychotherapy may, under some conditions, improve the overall therapy process and/or therapy outcomes for patients and their families, it would be a detriment if such benefits were limited to only one specific intervention type, such as MATCH. Ideally, the potential benefits of MFS use would operate independently from the particular type of intervention chosen by clinicians. Future research would benefit from the evaluation of MFS use across multiple intervention types and styles.

Q4: Are youth and caregiver PRs associated with youth and caregiver treatment engagement factors, including therapeutic alliance, patient satisfaction, and therapy attendance?

We originally hypothesized that youth and caregiver PRs would be positively associated with various treatment engagement factors, including therapeutic alliance, patient satisfaction, and rates of therapy attendance. Results of analyses across all four waves of analyses largely failed to support our hypothesis, and at times results indicated the opposite of what we originally predicted. Findings from analyses using the full sample from Study 1 did indicate that higher youth and caregiver PRs were associated with higher rates of caregiver- and youth-reported treatment satisfaction, but these results were not replicated in further analyses using the MATCH-only study condition. Caregiver PRs were found to be positively related to caregiver reports of therapeutic alliance in analyses with the MATCH-only study condition, but this finding was not replicated in any other waves of analyses. When using the MS-only sample from Study 2, findings were counter to our original hypothesis in that higher caregiver PRs were associated with lower caregiver-reported therapeutic alliance. This negative relation between caregiver PRs and caregiver-reported therapeutic alliance was not replicated in any other analyses.

These unexpected results highlight some of the possible downsides to MFS use during the course of psychotherapy. As reported above, it may be that caregivers became frustrated or overtaxed with being asked to frequently complete questionnaires via a MFS, and this frustration may have influenced caregivers' perceptions of therapy. Alternatively, the use of a MFS may have resulted in caregivers being less likely to engage with their youth's clinician or the therapy process. Given that caregivers' ratings of key treatment outcomes were provided on a weekly basis, caregivers may have been less proactive about participating in the therapy process or meeting with their youths' clinicians to ask questions/address concerns due to the expectation that clinicians were receiving necessary information via a MFS.

An alternative interpretation of these results, as suggested above, depends on the timing and direction of these effects, and whether caregivers view the use of MFSs as a means of communication with clinicians. Our original hypothesis postulated the specific direction of the possible effect between youth and caregiver PRs and measures of treatment engagement. Specifically, we hypothesized that youth and caregiver PRs would be predictive of therapeutic alliance and treatment satisfaction at the completion of therapy. It is highly likely, however, that reports of therapeutic alliance and treatment satisfaction wax and wane throughout therapy, and as such, there may be iterative effects between these variables and youth and caregiver PRs. Thus, one interpretation of these results is that lower caregiver therapeutic alliance and/or treatment satisfaction may actually result in higher caregiver PRs, especially in the event that caregivers view MFS use as a means of communicating with clinicians. For example, it may be that variability exists in the frequency and manner in which clinicians involve caregivers during the therapy process for youths. If true, it may be that in instances where caregivers are less involved, these caregivers may feel less aligned and less connected with their youths' clinicians. Consequently, these caregivers may have experienced increased motivation to participate in a MFS as a means of communicating with clinicians. Unfortunately, data were not available in the current dissertation research to parse such possible scenarios, and as such this area remains a topic for future research.

One additional factor that may have contributed to these results is the role and behavior of therapists when provided with feedback. Youth- and caregiver-reported therapeutic alliance and treatment satisfaction are likely linked to the behaviors of therapists which may or may not have been altered as a result of being provided with weekly feedback from the MFSs. Unfortunately, data on therapists' access and use of MFSs feedback is not available in the current dissertation research and remains an important area for future research.

Q5: Are youth and caregiver PRs associated with youth treatment outcomes?

Analyses investigating the relation between youth and caregiver PRs and various treatment outcomes yielded mixed results across all four waves of analyses. In support of our original hypothesis, analyses using the full sample from Study 1 indicated that higher youth PRs were associated with lower reports of youth externalizing and total problems at the completion of therapy. In contrast, analyses using the MS-only sample from Study 2 found that higher youth PRs were associated with higher youth reports of externalizing and total problems at the completion of treatment. In addition, further results from the MS-only sample found that higher caregiver PRs were predictive of higher caregiver reports of internalizing, externalizing, and total problems at the conclusion of therapy. One possible explanation of these findings again depends on whether youths and/or caregivers viewed MFS use as a means of communicating with clinicians. For example, if youth problems failed to significantly improve or worsened over the course of treatment, youths and caregivers may have been more likely to participate in a MFS as a means of communicating this lack of progress to clinicians. Specific to caregivers, prior research has shown that externalizing or “undercontrolled” problems (e.g., arguing, disobedience) are more likely to result in a referral for clinical intervention (Weisz & Weiss, 1991). Consequently, it may be that caregivers deem externalizing problems in youths as especially troubling, and a lack of improvement in such problems during therapy may motivate caregivers to participate in MFSs at a high rate.

Q6. Do the answers to questions 1, 4, and 5 differ as a function of whether clinicians have access to youth and caregiver feedback (i.e., the MATCH vs. UC study condition) or MFS discussions with MATCH supervisors (i.e., the MS vs. SS study condition)?

As reported above, no additional analyses were completed to investigate Question 6; rather, the interactions of variables of interest with study condition were included in analyses from Questions 1, 4, and 5. In addition, analyses were limited to using the full samples from Study 1 and Study 2 in order to explore the impact of treatment condition across various research questions. Results of analyses for Study 1 failed to identify study condition as a significant moderator for Questions 1, 4, and 5; no interaction terms included in analyses for Questions 1, 4, and 5 were found to be significant. Similar results were found for Study 2 with one exception. In analyses for Question 4, the findings for youth-reported treatment satisfaction did show a significant interaction between youth PRs and study condition, with treatment satisfaction increasing marginally with increasing PRs in the standard supervision group ($\beta = 3.902$, $SE = 2.04$, $p = .058$), but with a nonsignificant trend in the opposite direction for the MATCH supervision group. The analyses for Question 5, addressing youth treatment outcomes, did not show any significant interactions between youth and caregiver PRs, respectively, and study condition. In summary, these results failed to provide evidence that study condition significantly moderated associations between youth and caregiver PRs, respectively, and various measures of youth treatment outcomes and therapy engagement.

It is possible that variables other than study condition might have a more substantial impact on the relation between PRs and measures of outcome and therapy engagement. For example, clinician behaviors, such as accessing and employing patient feedback during therapy, may be more relevant variables to examine. If that were true, it might be expected that clinicians in the MATCH treatment condition in Study 1 would be more likely to change their behaviors as compared to clinicians in the UC condition since only MATCH clinicians had access to weekly feedback. However, prior research has shown that clinicians have highly variable participation rates in MFSs, and such variability does not appear directly linked to specific treatment modalities (Bickman et al., 2011; Landes at al., 2014; Bickman et al., 2016). Unfortunately, data on clinicians' behaviors associated with weekly feedback was not available as part of this dissertation research and these questions remain an important focus of future research.

Q7: For participants in Study 2, what demographic characteristics (i.e., youth gender, youth age, caregiver gender, caregiver age, total number of dependents, and family gross annual income) and clinical characteristics (i.e., problem profiles) are associated with caregivers' choice to participate in Internet-based assessments as compared to telephone person-to-person assessments?

Understanding the nature of families' engagement with MFSs is an important first step in ensuring caregiver and youth participation in MFSs. As described above, one procedural difference between Studies 1 (ME-CTP) and 2 (CT-CTP) was that participants in Study 2 were provided with the option to participate in a MFS either via email with electronic questionnaires or via telephone (only the telephone option was available in Study 1). The use of automated emails as part of MFSs is a feature that is likely considered to improve access and save time for families while simultaneously reducing burdens (e.g., staffing costs, employee workflow) for organizations employing MFSs. However, when provided with a choice between automated emails vs. person-to-person telephone calls, one third of families chose to participate via telephone-only. Exploratory analyses were conducted to assess for differences in demographic and clinical characteristics between these two groups of study participants.

Results of these analyses indicated that families with self-reported annual incomes greater than $40,000 and ethnicities categorized as Euro-American were more likely to choose to participate via email as compared to participation via telephone. In addition, of those families choosing to participate via telephone, 91% were families that reported annual incomes of $40,000 or less and 77% were families of non-Euro-American ethnicity. These results suggest that higher levels of family income and Euro-American ethnicity appear related to the choice to participate via email-only. Prior research has shown that socioeconomic status and ethnicity are closely interrelated, with more than double the rate of African-American and Latino youths living in poverty as compared to non-Hispanic White youths (Kids Count Data Center, 2016). It may be that families with higher reported annual incomes or Euro-American ethnicity are more likely to have Internet access within their home, or greater access to Internet-capable devices such as smart phones or tablets which may facilitate the completion of weekly assessments. In line with this interpretation, a 2016 study conducted by the Pew Research Center found that adults from households with annual incomes of less than $30,000 were approximately eight times less likely than more affluent adults to use the Internet (Anderson & Perrin, 2016).

Reports of lower total family annual income do not necessarily equate to the lack of Internet use, and in turn, the choice to participate in Study 2 via telephone-only, however. As indicated in the Pew Research Center poll described above, only 13% of American adults reported not using the Internet, whereas 34% of families from Study 2 chose to participate via telephone-only. In addition, only 4% of adults in the age range of 30 – 49 years reported not using the Internet in the Pew Research Center study, and the mean age of caregivers from Study 2 was 38.5 years (*SD* = 8.98). Thus, it seems likely that families opting to participate in Study 2 via telephone calls only may have had additional reasons for this decision other than constraints on access to the Internet. Additional research may be needed to identify those additional reasons.

Further results of these analyses indicated that families who chose to participate via telephone had significantly higher total number of dependents, caregiver-reported treatment satisfaction, and caregiver-reported therapeutic alliance as compared to those families choosing to participate via email. If it is presumed that the variable of total number of dependents serves as a proxy for caregiver time and/or stress, it might be expected that families choosing to participate via email would have a higher total number of dependents as compared to families participating via telephone. This expectation, however, builds on another assumption – i.e., that participation via email is the quickest and easiest method of completing weekly questionnaires. While this may be the case for some families, results of these analyses suggest that participating in a MFS via telephone may be the preferred option for families with a higher number of dependents. It may be that caregivers in families with a higher number of dependents find that completing surveys via email is a more time-consuming and/or stressful process. In addition, caregiver reports of therapeutic alliance and treatment satisfaction were shown to be significantly higher among caregivers participating via the telephone-only option as compared to the email option. It may be that speaking weekly with a consistent individual via telephone over the course of several weeks to months provided caregivers with some type of benefit. For example, caregivers may have been able to develop friendly relationships with weekly telephone callers which in turn may have impacted caregivers' perceptions of the overall therapy process.

Strengths and Weaknesses

The dissertation research presented above has various strengths and weaknesses. In terms of strengths, the studies are the first known studies to date that focus specifically on the extent to which outpatient therapy participants engage in MFSs. Most existing literature on the use of

MFSs as part of therapy has focused solely on the impact of MFSs on therapeutic outcomes. Few studies to date have examined how MFS participants engage with such systems, or what factors may be associated with varying levels of engagement. In addition, extant research on MFSs has predominantly focused on adult populations. A significant strength of the present research is the specific emphasis on youth populations and their caregivers during the course of outpatient psychotherapy. Finally, a further strength of this dissertation research is the examination of research questions across two distinct studies. Multiple comparisons of research questions were completed in order to investigate the robustness of findings across different study designs, different MFSs, and different settings.

This dissertation research is not without various methodological limitations. One limitation is that, while both studies were randomized controlled trials, the randomization did not focus separately on different types of MFSs and was not designed to test the specific questions posed in this dissertation research. Consequently, the tests conducted here were somewhat tangential to the original purposes of both studies, making findings difficult to interpret with precision, in part because treatment conditions were confounded with MFS conditions. In principle, future research could be designed in ways that would provide a precise focus on the questions examined here. For example, future research could include a large sample of youths and caregivers with random assignment to different therapy conditions crossed with random assignment to different MFS procedures.

Second, the primary method for assessing youth and caregiver engagement with MFSs was through the calculation of a specific statistic – participation rates (PRs). As described above, PRs were defined as the total number of completed weekly assessments by study participants divided by the total number of weeks in therapy. While PRs provide helpful insight into how participants engage with MFSs, the calculation of PRs likely includes a certain amount of error within this statistic. More specifically, there are factors not specific to study participants that may have impacted participant PRs. For example, the total number of telephone calls that were made to participating families, including both successful and unsuccessful attempts, could have impacted the rate in which families participated in weekly assessments. Families who received multiple telephone calls over the course of each week may have been more likely to successfully complete each week's assessment. Alternatively, a high rate of weekly telephone calls may have unintentionally frustrated certain families and in turn impacted PRs and/or satisfaction and alliance. Unfortunately, data on the total number of attempts to contact families was not available as part of this dissertation research. In addition, the method in which data was collected via MFSs across Studies 1 and 2 (i.e., person-to-person telephone calls, automated weekly emails) was somewhat novel as compared to existing MFSs, and this mode of data collection may have contributed to youth and caregiver PRs. Prior research and anecdotal evidence suggests that MFSs are more typically employed as part of the therapy process where clinicians or clinic staff are responsible for collecting weekly assessments from families. For example, as reported by Bickman et al. (2015), caregiver PRs were likely underestimated in their study as caregivers did not always attend therapy appointments. Thus, it may be that the novel data collection methods used in this dissertation research are not truly representative of how MFSs are typically used in outpatient behavioral health, and that these methods have impacted both youth and caregiver PRs.

A third important methodological weakness is that both youths and their caregivers were incentivized to participate in weekly assessments in both Studies 1 and 2. As described above, families were provided with compensation for participation in study assessments, often in the form of gift cards. While the amount of compensation for study participants was determined by IRB review to be appropriate (and at level low enough not to be coercive), PRs included as part of these studies may have been inflated due to the compensation offered.

A fourth overall study weakness includes limitations to the samples included in Studies 1 and 2. Sampling limitations in youth age, caregiver gender, and participant ethnicity may reduce the generalizability of results to a broader population. For example, age ranges for youths in this dissertation research were limited to children in the range of 8 – 16 years of age. Consequently, it remains largely unknown how youths outside of this age range might engage with MFSs, especially youths in mid- to late-adolescence. In addition, caregivers across both Study 1 and Study 2 were predominantly female. As such, little information was generated as to how male caregivers, especially fathers, engage with MFSs. Further sampling limitations include the race and ethnicity of study participants. While greater heterogeneity in race and ethnicity was found for participants in Study 2 of this dissertation research, approximately 80% of participants in Study 1 identified as Caucasian. An additional methodological weakness includes missing data association with measures of treatment engagement. For both Studies 1 and 2, a notable percentage of the sample did not complete questionnaires related to therapeutic alliance or treatment satisfaction. Analyses above indicated that significant differences in PRs were found between youths and caregivers who completed these measures as compared to those who did not. Consequently, analyses focused on treatment engagement factors may include a biased sample, complicating interpretation of the findings. Additional research should be conducted with diverse samples in order to explore possible differences related to these factors.

A fifth methodological flaw for this dissertation research included the timing at which certain constructs were measured during the course of psychotherapy. Specifically, certain therapy engagement factors such as treatment satisfaction and therapeutic alliance were only measured at the completion of therapy for each family. Consequently, analyses presented above were unable to explore possible iterative effects and temporal relationships between measures of therapy engagement and youth and caregiver PRs. Future studies should make efforts to assess therapy engagement factors at multiple time points during the course of treatment.

Finally, an additional weakness in this study design was the lack of data on therapists' behaviors in response to weekly feedback. It was not known in either Studies 1 or 2 the rate at which therapists accessed feedback data and the extent to which therapists incorporated this information into therapy sessions with youths and caregivers. It is possible that youth and caregiver PRs could be strongly impacted by therapists' behaviors in reaction to weekly feedback data, as well as possible iterative effects between youth and caregiver PRs and various measures of treatment engagement (i.e., therapeutic alliance, treatment satisfaction). This remains an important area of future research as prior studies have indicated that youth treatment outcomes are related to therapists' access to feedback in a dose-response manner such that higher rates of accessing feedback by clinicians resulted in faster improvements to youth treatment outcomes (Bickman et al., 2011).

Future Directions

This dissertation research was designed to answer various questions related to how youths and their caregivers participate in MFSs, and how such participation may be related to aspects of psychotherapy and youth treatment outcomes. The results suggest multiple questions worthy of further investigation, including what characteristics of youths and caregivers are related to MFS use, the relation between MFS use and treatment engagement factors as well as youth treatment outcomes, strategies for increasing participation in MFSs, and how MFS use may be impacted by various treatment modalities.

As described above, the use of MFSs is likely to become more common as technology and methods of data collection continue to improve over time. Consequently, future research should continue to investigate how various groups of individuals participate in MFSs, especially youths, caregivers, and clinicians. Understanding how families engage with MFSs remains a critical first step in ensuring that the process of progress monitoring during psychotherapy is feasible, sustainable, and beneficial for all parties involved. Future research should continue to investigate how and why families choose to participate in MFSs, as well as examining mediators and moderators of such participation.

Results of analyses above suggested some evidence that various characteristics of youths and their caregivers may be related to MFS use. Future studies should continue to explore these factors, especially the potential impact of youth age on MFS participation. If youth participation in MFSs varies as a function of age, examples of important questions to answer include (1) At what age or developmental level are MFSs ineffective, too complex, or otherwise inappropriate? (2) How can MFS participation be maximized at various youth ages? and (3) What design features should be considered in the development of MFSs in order to improve overall youth participation?

Future studies should continue to investigate the relation between MFS participation rates and various measures of youth treatment outcomes. Analyses above provided some initial support that MFS participation may be related to how quickly youths improve during the course of psychotherapy. An important question worthy of additional research includes understanding the optimal rate at which MFS participation should occur in order to maximize therapeutic gains.

For example, should MFS participation occur at a higher rate at the start of therapy and then gradually reduce over time? Are daily, weekly, biweekly, or monthly assessments most efficacious? Future research should also consider the overall content of assessments in order to maximize the utility of these measures while simultaneously balancing the needs and capacity of youths and caregivers.

We had originally hypothesized that youth and caregiver PRs would be related to measures of treatment engagement, including treatment satisfaction and therapeutic alliance. Results of analyses above were inconclusive, but some findings suggested results contrary to our hypotheses. Future research should continue to explore the impact of MFS use of measures of treatment engagement, and to the extent possible, test for iterative and temporal relations between engagement factors and MFS participation.

Future research should continue to explore ways in which youth and caregiver participation in MFS can be improved and sustained over time. Our results indicated fairly high rates of MFS participation, and that youth and caregiver PRs appeared to increase from Study 1 (youths $M = .614$, $SD = .312$, caregivers $M = .778$, $SD = .194$) to Study 2 (youths $M = .936$, $SD = .289$, caregivers $M = 1.007$, $SD = .321$). It may be that the use of automated emails improved overall participation rates for study participants in Study 2, but this question was not specifically tested because the study did not include random assignment to email versus phone. Future studies should assess participation rates when participants are assigned to different methods, and in the absence of monetary incentives, as well as further methods for maximizing youth and caregiver participation.

A final area worthy of additional investigation is the use of MFSs with various psychotherapy modalities. Numerous psychological interventions have been developed since the early days of psychotherapy, and both clinical expertise and empirical evidence have resulted in various schools of thought and theoretical orientations. The research presented above primarily examined the use of MFSs with the MATCH intervention, and results suggested some impact of the MATCH intervention on youth and caregiver participation rates. Future research should continue to investigate the role of MFSs in conjunction with various forms of psychotherapy. It may be that certain types of psychological interventions may benefit to a greater or lesser degree from the use of MFSs.

In summary, the concept of clinicians collecting information from psychotherapy patients with the intent to inform clinical decision making is certainly not a novel idea. However, prior research has shown that certain biases and human error can undermine the accuracy of clinicians' subjective judgments. Recent research has suggested that the use of MFSs may help overcome the risks associated with subjective clinical judgments and may, under some conditions, positively impact patient treatment outcomes. This dissertation research continues adds to this body of research by examining how youths and their caregivers participate in MFSs, and whether such participation is related to various aspects of psychotherapy and youth treatment outcomes. The findings of these two studies, while mixed, highlight significant questions that warrant attention, and may thus contribute to the agenda for future research.

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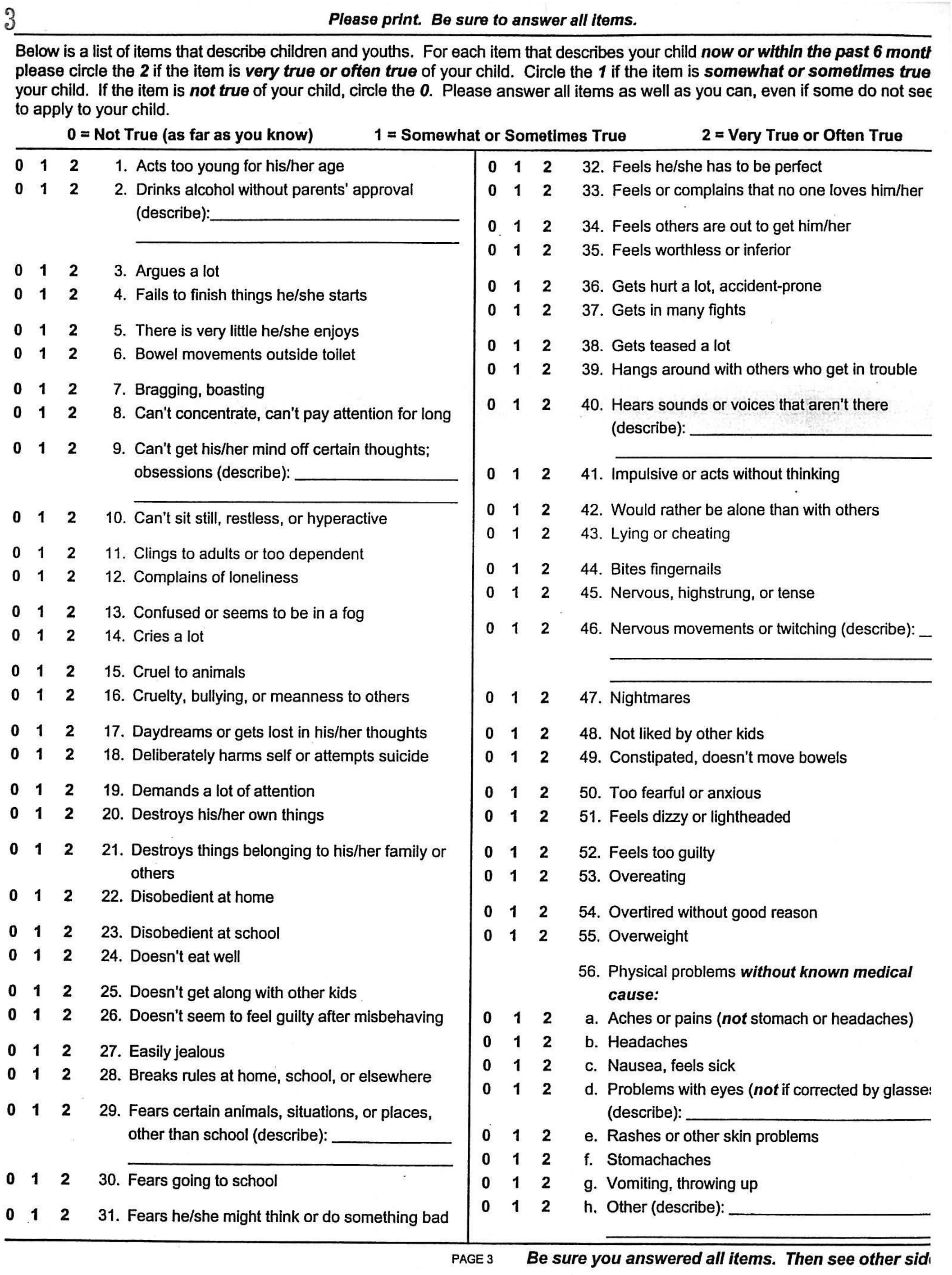
Appendix Table of Contents

Measures: Study 1

Measures: Study 2

Appendix A - Child Behavior Checklist (Study 1 & 2)



3

Please print. Be sure to answer all items.

Below is a list of items that describe children and youths. For each item that describes your child ***now or within the past 6 mont*** please circle the **2** if the item is ***very true or often true*** of your child. Circle the ***1*** if the item is ***somewhat or sometimes true*** your child. If the item is ***not true*** of your child, circle the ***0***. Please answer all items as well as you can, even if some do not se to apply to your child.

0 = Not True (as far as you know) **1 = Somewhat or Sometimes True** **2 = Very True or Often True**

0 1 2 1. Acts too young for his/her age
0 1 2 2. Drinks alcohol without parents' approval (describe): ____________
0 1 2 3. Argues a lot
0 1 2 4. Fails to finish things he/she starts
0 1 2 5. There is very little he/she enjoys
0 1 2 6. Bowel movements outside toilet
0 1 2 7. Bragging, boasting
0 1 2 8. Can't concentrate, can't pay attention for long
0 1 2 9. Can't get his/her mind off certain thoughts; obsessions (describe): ____________
0 1 2 10. Can't sit still, restless, or hyperactive
0 1 2 11. Clings to adults or too dependent
0 1 2 12. Complains of loneliness
0 1 2 13. Confused or seems to be in a fog
0 1 2 14. Cries a lot
0 1 2 15. Cruel to animals
0 1 2 16. Cruelty, bullying, or meanness to others
0 1 2 17. Daydreams or gets lost in his/her thoughts
0 1 2 18. Deliberately harms self or attempts suicide
0 1 2 19. Demands a lot of attention
0 1 2 20. Destroys his/her own things
0 1 2 21. Destroys things belonging to his/her family or others
0 1 2 22. Disobedient at home
0 1 2 23. Disobedient at school
0 1 2 24. Doesn't eat well
0 1 2 25. Doesn't get along with other kids
0 1 2 26. Doesn't seem to feel guilty after misbehaving
0 1 2 27. Easily jealous
0 1 2 28. Breaks rules at home, school, or elsewhere
0 1 2 29. Fears certain animals, situations, or places, other than school (describe): ____________
0 1 2 30. Fears going to school
0 1 2 31. Fears he/she might think or do something bad
0 1 2 32. Feels he/she has to be perfect
0 1 2 33. Feels or complains that no one loves him/her
0 1 2 34. Feels others are out to get him/her
0 1 2 35. Feels worthless or inferior
0 1 2 36. Gets hurt a lot, accident-prone
0 1 2 37. Gets in many fights
0 1 2 38. Gets teased a lot
0 1 2 39. Hangs around with others who get in trouble
0 1 2 40. Hears sounds or voices that aren't there (describe): ____________
0 1 2 41. Impulsive or acts without thinking
0 1 2 42. Would rather be alone than with others
0 1 2 43. Lying or cheating
0 1 2 44. Bites fingernails
0 1 2 45. Nervous, highstrung, or tense
0 1 2 46. Nervous movements or twitching (describe): ____________
0 1 2 47. Nightmares
0 1 2 48. Not liked by other kids
0 1 2 49. Constipated, doesn't move bowels
0 1 2 50. Too fearful or anxious
0 1 2 51. Feels dizzy or lightheaded
0 1 2 52. Feels too guilty
0 1 2 53. Overeating
0 1 2 54. Overtired without good reason
0 1 2 55. Overweight

56. Physical problems ***without known medical cause:***
0 1 2 a. Aches or pains (***not*** stomach or headaches)
0 1 2 b. Headaches
0 1 2 c. Nausea, feels sick
0 1 2 d. Problems with eyes (***not*** if corrected by glasse (describe): ____________
0 1 2 e. Rashes or other skin problems
0 1 2 f. Stomachaches
0 1 2 g. Vomiting, throwing up
0 1 2 h. Other (describe): ____________

PAGE 3 ***Be sure you answered all items. Then see other sid***

Please print. Be sure to answer all items.

0 = Not True (as far as you know) **1 = Somewhat or Sometimes True** **2 = Very True or Often True**

0 1 2 57. Physically attacks people
0 1 2 58. Picks nose, skin, or other parts of body (describe): ____________
____

0 1 2 59. Plays with own sex parts in public
0 1 2 60. Plays with own sex parts too much

0 1 2 61. Poor school work
0 1 2 62. Poorly coordinated or clumsy

0 1 2 63. Prefers being with older kids
0 1 2 64. Prefers being with younger kids

0 1 2 65. Refuses to talk
0 1 2 66. Repeats certain acts over and over; compulsions (describe): ____________
____

0 1 2 67. Runs away from home
0 1 2 68. Screams a lot

0 1 2 69. Secretive, keeps things to self
0 1 2 70. Sees things that aren't there (describe): ____
____
____

0 1 2 71. Self-conscious or easily embarrassed
0 1 2 72. Sets fires

0 1 2 73. Sexual problems (describe): ____________
____
____

0 1 2 74. Showing off or clowning

0 1 2 75. Too shy or timid
0 1 2 76. Sleeps less than most kids

0 1 2 77. Sleeps more than most kids during day and/or night (describe): ____________
____

0 1 2 78. Inattentive or easily distracted

0 1 2 79. Speech problem (describe): ____________
____

0 1 2 80. Stares blankly

0 1 2 81. Steals at home
0 1 2 82. Steals outside the home

0 1 2 83. Stores up too many things he/she doesn't need (describe): ____________
____
____

0 1 2 84. Strange behavior (describe): ____________
____

0 1 2 85. Strange ideas (describe): ____________
____

0 1 2 86. Stubborn, sullen, or irritable
0 1 2 87. Sudden changes in mood or feelings

0 1 2 88. Sulks a lot
0 1 2 89. Suspicious

0 1 2 90. Swearing or obscene language
0 1 2 91. Talks about killing self

0 1 2 92. Talks or walks in sleep (describe): ____________
____

0 1 2 93. Talks too much

0 1 2 94. Teases a lot
0 1 2 95. Temper tantrums or hot temper

0 1 2 96. Thinks about sex too much
0 1 2 97. Threatens people

0 1 2 98. Thumb-sucking
0 1 2 99. Smokes, chews, or sniffs tobacco

0 1 2 100. Trouble sleeping (describe): ____________
____

0 1 2 101. Truancy, skips school

0 1 2 102. Underactive, slow moving, or lacks energy
0 1 2 103. Unhappy, sad, or depressed

0 1 2 104. Unusually loud
0 1 2 105. Uses drugs for nonmedical purposes (***don't*** include alcohol or tobacco) (describe): ____________
____
____

0 1 2 106. Vandalism
0 1 2 107. Wets self during the day

0 1 2 108. Wets the bed
0 1 2 109. Whining

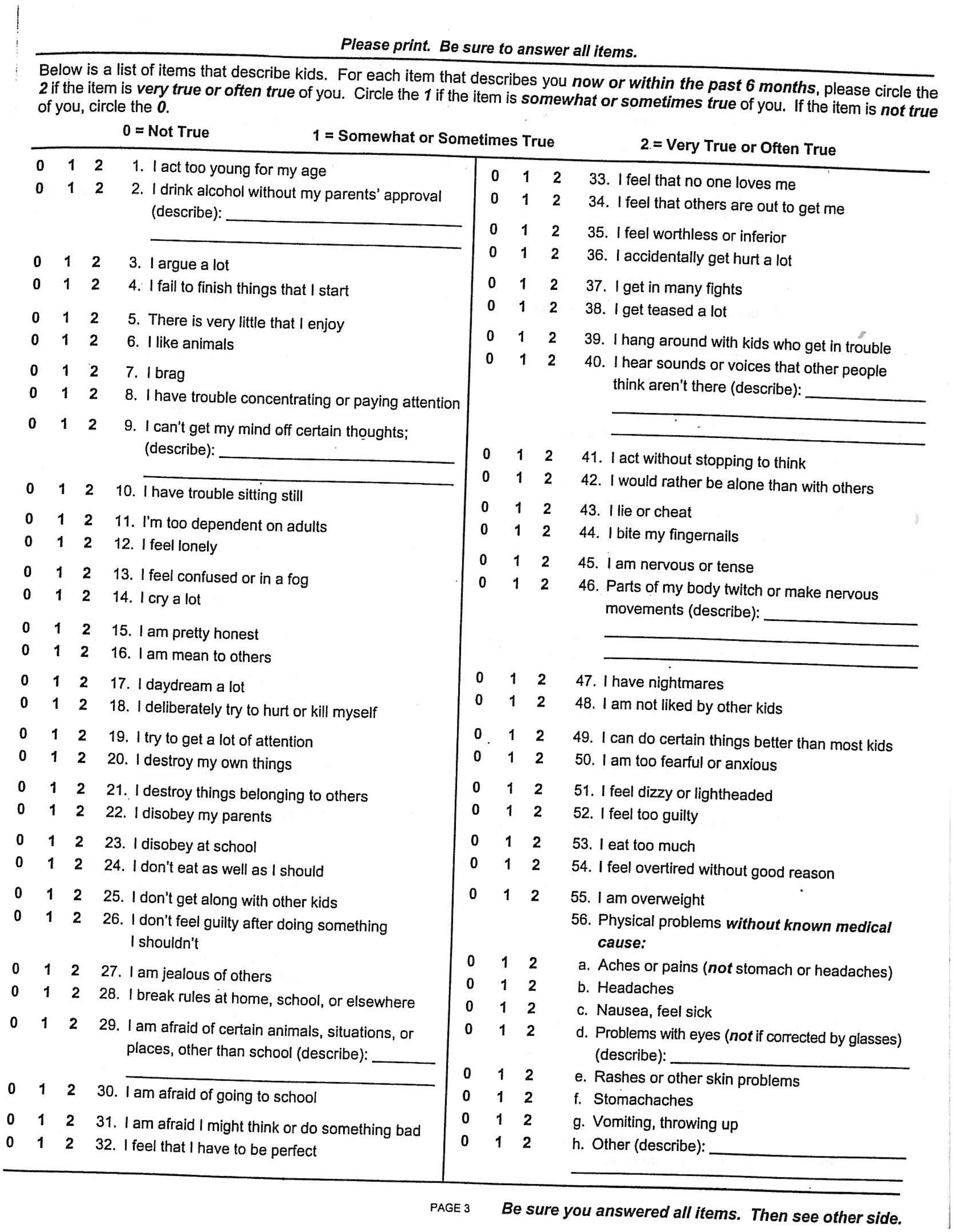
0 1 2 110. Wishes to be of opposite sex
0 1 2 111. Withdrawn, doesn't get involved with others

0 1 2 112. Worries

113. Please write in any problems your child has that were not listed above:
0 1 2 ____________
0 1 2 ____________
0 1 2 ____________

Please be sure you answered all items.

Appendix B – Youth Self Report (Study 1 & 2)



Please print. Be sure to answer all items.

Below is a list of items that describe kids. For each item that describes you ***now or within the past 6 months***, please circle the ***2*** if the item is ***very true or often true*** of you. Circle the ***1*** if the item is ***somewhat or sometimes true*** of you. If the item is ***not true*** of you, circle the ***0***.

0 = Not True **1 = Somewhat or Sometimes True** **2 = Very True or Often True**

0 1 2 1. I act too young for my age
0 1 2 2. I drink alcohol without my parents' approval (describe): ____________

0 1 2 3. I argue a lot
0 1 2 4. I fail to finish things that I start

0 1 2 5. There is very little that I enjoy
0 1 2 6. I like animals

0 1 2 7. I brag
0 1 2 8. I have trouble concentrating or paying attention

0 1 2 9. I can't get my mind off certain thoughts; (describe): ____________

0 1 2 10. I have trouble sitting still

0 1 2 11. I'm too dependent on adults
0 1 2 12. I feel lonely

0 1 2 13. I feel confused or in a fog
0 1 2 14. I cry a lot

0 1 2 15. I am pretty honest
0 1 2 16. I am mean to others

0 1 2 17. I daydream a lot
0 1 2 18. I deliberately try to hurt or kill myself

0 1 2 19. I try to get a lot of attention
0 1 2 20. I destroy my own things

0 1 2 21. I destroy things belonging to others
0 1 2 22. I disobey my parents

0 1 2 23. I disobey at school
0 1 2 24. I don't eat as well as I should

0 1 2 25. I don't get along with other kids
0 1 2 26. I don't feel guilty after doing something I shouldn't

0 1 2 27. I am jealous of others
0 1 2 28. I break rules at home, school, or elsewhere

0 1 2 29. I am afraid of certain animals, situations, or places, other than school (describe): ____________

0 1 2 30. I am afraid of going to school

0 1 2 31. I am afraid I might think or do something bad
0 1 2 32. I feel that I have to be perfect

0 1 2 33. I feel that no one loves me
0 1 2 34. I feel that others are out to get me

0 1 2 35. I feel worthless or inferior
0 1 2 36. I accidentally get hurt a lot

0 1 2 37. I get in many fights
0 1 2 38. I get teased a lot

0 1 2 39. I hang around with kids who get in trouble
0 1 2 40. I hear sounds or voices that other people think aren't there (describe): ____________

0 1 2 41. I act without stopping to think
0 1 2 42. I would rather be alone than with others

0 1 2 43. I lie or cheat
0 1 2 44. I bite my fingernails

0 1 2 45. I am nervous or tense
0 1 2 46. Parts of my body twitch or make nervous movements (describe): ____________

0 1 2 47. I have nightmares
0 1 2 48. I am not liked by other kids

0 1 2 49. I can do certain things better than most kids
0 1 2 50. I am too fearful or anxious

0 1 2 51. I feel dizzy or lightheaded
0 1 2 52. I feel too guilty

0 1 2 53. I eat too much
0 1 2 54. I feel overtired without good reason

0 1 2 55. I am overweight
56. Physical problems ***without known medical cause:***
0 1 2 a. Aches or pains (***not*** stomach or headaches)
0 1 2 b. Headaches
0 1 2 c. Nausea, feel sick
0 1 2 d. Problems with eyes (***not*** if corrected by glasses) (describe): ____________
0 1 2 e. Rashes or other skin problems
0 1 2 f. Stomachaches
0 1 2 g. Vomiting, throwing up
0 1 2 h. Other (describe): ____________

PAGE 3 ***Be sure you answered all items. Then see other side.***

Please print. Be sure to answer all items.

0 = Not True **1 = Somewhat or Sometimes True** **2 = Very True or Often True**

0 1 2 57. I physically attack people
0 1 2 58. I pick my skin or other parts of my body (describe): ____________________
____
0 1 2 59. I can be pretty friendly
0 1 2 60. I like to try new things
0 1 2 61. My school work is poor
0 1 2 62. I am poorly coordinated or clumsy
0 1 2 63. I would rather be with older kids than kids my own age
0 1 2 64. I would rather be with younger kids than kids my own age
0 1 2 65. I refuse to talk
0 1 2 66. I repeat certain acts over and over (describe):
____
____
0 1 2 67. I run away from home
0 1 2 68. I scream a lot
0 1 2 69. I am secretive or keep things to myself
0 1 2 70. I see things that other people think aren't there (describe): ____________________
____
0 1 2 71. I am self-conscious or easily embarrassed
0 1 2 72. I set fires
0 1 2 73. I can work well with my hands
0 1 2 74. I show off or clown
0 1 2 75. I am too shy or timid
0 1 2 76. I sleep less than most kids
0 1 2 77. I sleep more than most kids during day and/or night (describe): ____________________
____
0 1 2 78. I am inattentive or easily distracted
0 1 2 79. I have a speech problem (describe): __________
____
0 1 2 80. I stand up for my rights
0 1 2 81. I steal at home
0 1 2 82. I steal from places other than home
0 1 2 83. I store up too many things I don't need (describe): ____________________
____
0 1 2 84. I do things other people think are strange (describe): ____________________
____
0 1 2 85. I have thoughts that other people would think are strange (describe): ____________________
____
0 1 2 86. I am stubborn
0 1 2 87. My moods or feelings change suddenly
0 1 2 88. I enjoy being with people
0 1 2 89. I am suspicious
0 1 2 90. I swear or use dirty language
0 1 2 91. I think about killing myself
0 1 2 92. I like to make others laugh
0 1 2 93. I talk too much
0 1 2 94. I tease others a lot
0 1 2 95. I have a hot temper
0 1 2 96. I think about sex too much
0 1 2 97. I threaten to hurt people
0 1 2 98. I like to help others
0 1 2 99. I smoke, chew, or sniff tobacco
0 1 2 100. I have trouble sleeping (describe): __________
____
0 1 2 101. I cut classes or skip school
0 1 2 102. I don't have much energy
0 1 2 103. I am unhappy, sad, or depressed
0 1 2 104. I am louder than other kids
0 1 2 105. I use drugs for nonmedical purposes (***don't*** include alcohol or tobacco) (describe): __________
____
____
____
0 1 2 106. I like to be fair to others
0 1 2 107. I enjoy a good joke
0 1 2 108. I like to take life easy
0 1 2 109. I try to help other people when I can
0 1 2 110. I wish I were of the opposite sex
0 1 2 111. I keep from getting involved with others
0 1 2 112. I worry a lot

Please be sure you answered all items.

Please write down anything else that describes your feelings, behavior, or interests:

Appendix C – Top Problems Assessment (Study 1 & 2)

Problems

I am now going to read you the top three problems you told us about in your first meeting with us. For each, I want you to rate how much of a problem it still is, from **0** “*not at all a problem*” to **10** “*a huge problem*.” OK?

Problem	Rating	Notes
1.		
2.		
3.		

Appendix D – Brief Problem Checklist (Study 1)

Items

Now I'm going to read you a list of items that describe children in general. For each item, I just need you to tell me how true you think it is of your child in the ***last week***, either "very true," "somewhat true," or "not true." And remember, I am just asking about how things have been this week. OK?

Item	Answers			Notes
4. Argues a lot	Not True	Somewhat true	Very True	
5. Destroys things belonging to his/her family or others	Not True	Somewhat true	Very True	
6. Disobedient at home or at school	Not True	Somewhat true	Very True	
7. Feels too guilty	Not True	Somewhat true	Very True	
8. Feels worthless or inferior	Not True	Somewhat true	Very True	
9. Self-conscious or easily embarrassed	Not True	Somewhat true	Very True	
10. Stubborn, sullen, or irritable	Not True	Somewhat true	Very True	
11. Temper tantrums or hot temper	Not True	Somewhat true	Very True	
12. Threatens people	Not True	Somewhat true	Very True	
13. Too fearful or anxious	Not True	Somewhat true	Very True	
14. Unhappy, sad, or depressed	Not True	Somewhat true	Very True	
15. Worries	Not True	Somewhat true	Very True	

Appendix E – UCLA Post-traumatic Stress Disorder Reaction Index (Study 1)

ID#__________

<u>For all families:</u> I'm going to read a list of VERY SCARY, DANGEROUS, OR VIOLENT things that sometimes happen to children. These are times where someone was HURT VERY BADLY OR KILLED, or could have been. Some children have had these experiences; some children have not had these experiences. For each question, say "Yes" if this scary thing HAPPENED TO *<u>(name of child).</u>* Say "No" if it DID *NOT* HAPPEN *<u>(name of child).</u>*

1) Being in a big earthquake that badly damaged the building *<u>(child's name</u>)* was in. Yes [ ] No [ ]

2) Being in another kind of **disaster**, like a fire, tornado, flood or hurricane. Yes [ ] No [ ]

3) Being in a bad **accident**, like a **very serious** car accident. Yes [ ] No [ ]

4) Being in place where a **war** was going on around *<u>(child's name</u>)*. Yes [ ] No [ ]

5) Being **hit, punched, or kicked very hard** at home.

(**DO NOT INCLUDE** ordinary fights between brothers & sisters). Yes [ ] No [ ]

6) Seeing a family member being **hit, punched or kicked very hard** at home.

(**DO NOT INCLUDE** ordinary fights between brothers & sisters). Yes [ ]
No [ ]

----

7) Being **beaten up, shot at or threatened to be hurt badly** in your child's town. Yes [ ]
No [ ]

----

8) Seeing someone in your child's town being **beaten up, shot at or killed.** Yes [ ]
No [ ]

----

9) Seeing a **dead body** in your child's town (do not include funerals). Yes [ ]
No [ ]

----

10) Having an adult or someone much older touch *(child's name)*

private sexual body parts when *(child's name)* did not want them to. Yes [ ]
No [ ]

----

11) Hearing about the **violent death or serious injury** of a loved one. Yes [ ]
No [ ]

----

12) Having **painful and scary medical treatment in a hospital** when *(child's name)*

was very sick or badly injured. Yes [ ]
No [ ]

----

13) **OTHER** than the situations described above, has **ANYTHING ELSE** ever happened

to *(child's name)* that was **REALLY SCARY, DANGEROUS, OR VIOLENT?** Yes [ ]
No [ ]

Please state what happened: ____

*****If #1-13 are ALL NO, discontinue assessment here.***

----

14) a) If the caregiver answered "YES" to only **ONE** thing in the questions #1 to #13, place the number of that thing (#1 to #13) in this blank. # ____________

b) If the caregiver answered "YES" to **MORE THAN ONE THING** ask, "You said that your child experienced (name traumas). Which of those experiences **BOTHERS (*child's name*) THE MOST NOW?"** #___________

c) About how long ago did (target trauma identified in 14a or 14b) happen to *(child's name)*? ______

d) Please tell me what happened:____

____

____

____

FOR THE *NEXT* QUESTIONS, please tell me "Yes, No, or Don't know" to answer HOW (child's name) FELT during or right after (*name trauma*). If you **did not know** (child's name) at the time of the trauma but have some reason to know how he/she felt during or right after (name trauma), please let me know what leads you to believe that (child's name) reacted in that particular way. Only say "Don't Know" if you absolutely cannot give an answer.

(****For foster parents** who did not witness the child's reactions first-hand but answer "yes" to the following questions, **gently** query "Can you tell me a little bit more about why you think that (child's name) reacted in that way?" and record responses next to the item.)

----

15) Was your child afraid that he/she would die? Yes [ ] No [ ] Don't know [ ]

---

16) Was your child afraid that he/she would

be seriously injured? Yes [ ] No [ ] Don't know [ ]

---

17) Was your child seriously injured? Yes [ ] No [ ]

---

18) Was your child afraid that someone

else would die? Yes [ ] No [ ] Don't know [ ]

---

19) Was your child afraid that someone else

would be seriously injured? Yes [ ] No [ ] Don't know [ ]

---

20) Was someone else seriously injured? Yes [ ] No [ ]

---

21) Did someone die? Yes [ ] No [ ]

*****If #15-21 are ALL NO, discontinue assessment here.***

22) Did your child feel terrified? Yes [ ] No [ ] Don't know [ ]

---

23) Did your child feel intense helplessness? Yes [ ] No [ ] Don't know [ ]

----

24) Did your child feel horrified; was what

he/she saw disgusting or gross? Yes [ ] No [ ] Don't know [ ]

----

25) Did your child get hysterical or run around? Yes [ ] No [ ] Don't know [ ]

----

26) Did your child feel very confused? Yes [ ] No [ ] Don't know [ ]

----

27) Did your child feel like what was happening did not seem

real in some way, like it was going on in a movie instead

of real life? Yes [ ] No [ ] Don't know [ ]

___**If #22-26 are ALL NO, discontinue assessment here.___

Appendix F – Therapeutic Alliance Scale for Children: Child Version (Study 1)

1. I looked forward to meeting with my therapist.

1	2	3	4
Very true	Mostly true	Mostly false	Very false

2. When I was with my therapist, I wanted the sessions to end quickly.

1	2	3	4
Very true	Mostly true	Mostly false	Very false

3. I liked spending time with my therapist.

1	2	3	4
Very true	Mostly true	Mostly false	Very false

4. I liked my therapist.

1	2	3	4
Very true	Mostly true	Mostly false	Very false

5. I’d rather have done other things than meet with my therapist.

1	2	3	4
Very true	Mostly true	Mostly false	Very false

6. I feel like my therapist was on my side and tried to help me.

1	2	3	4
Very true	Mostly true	Mostly false	Very false

7. I wished my therapist would leave me alone.

1	2	3	4
Very true	Mostly true	Mostly false	Very false

8. My therapist and I agreed on what we should work on (and talk about) in therapy?

1	2	3	4
Very true	Mostly true	Mostly false	Very false

9. My therapist listened to me in deciding what to talk about in therapy.

1	2	3	4
Very true	Mostly true	Mostly false	Very false

Appendix G – Therapeutic Alliance Scale for Children: Caregiver Version (Study 1)

1. I looked forward to meeting with my child’s therapist. Is this statement…

1	2	3	4
Not like me	A little like me	Mostly like me	Very much like me

2. When I was with my child’s therapist, I wanted the sessions to end quickly. Is this statement…

1	2	3	4
Not like me	A little like me	Mostly like me	Very much like me

3. I liked spending time with my child’s therapist. Is this statement…

1	2	3	4
Not like me	A little like me	Mostly like me	Very much like me

4. I liked my child’s therapist. Is this statement…

1	2	3	4
Not like me	A little like me	Mostly like me	Very much like me

5. I’d rather have done other things than meet with my child’s therapist. Is this statement…

1	2	3	4
Not like me	A little like me	Mostly like me	Very much like me

6. I feel like my child’s therapist was on my side and tried to help me. Is this statement…

1	2	3	4
Not like me	A little like me	Mostly like me	Very much like me

7. I wished my child’s therapist would leave me alone. Is this statement…

1	2	3	4
Not like me	A little like me	Mostly like me	Very much like me

8. How well did you and the therapist agree on appropriate treatment goals for your child?

   1. The therapist and I did not agree on treatment goals.
   2. The therapist and I agreed on a few treatment goals.
   3. The therapist and I agreed on most treatment goals.
   4. The therapist and I agreed on all treatment goals.

9. Do you feel the therapist listened to your concerns and considered them in your child's treatment plan?

1	2	3	4
Not at all	A little	Mostly	Very much

Appendix H – Client Satisfaction Questionnaire: Youth Version (Study 1)

We want to know how we can make our program better. Please answer the following questions about the help you have received. We want to know your honest opinion, even if it is not positive. Please circle your answer.

1. **Overall, how happy are you with the help you got?**

1	2	3	4
Very unhappy	A little happy	Mostly happy	Very happy

2. **If you had a friend that needed help, would you tell your friend about our program?**

1	2	3	4
No, never	No, I don’t think so	Yes, I think so	Yes, definitely

3. **Did you get the kind of help you wanted?**

1	2	3	4
No, not at all	No, not really	Yes, mostly	Yes, totally

4. **If you had your choice, would you choose to do the same kinds of things you did here?**

1	2	3	4
No, never	No, I don’t think so	Yes, I think so	Yes, definitely

5. **Do you think the help you got here will make things better for you later on?**

1	2	3	4
No, not at all	No, not really	Yes, mostly	Yes, totally

6. **How would you rate the help you got?**

1	2	3	4
Poor	Fair	Good	Excellent

7. **How happy are you with how much help you got?**

1	2	3	4
Very unhappy	A little happy	Mostly happy	Very happy

8. Would you come back to our program if you needed help again?

1	2	3	4
No, never	No, I don’t think so	Yes, I think so	Yes, definitely

Appendix I – Client Satisfaction Questionnaire: Caregiver Version (Study 1)

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?

1	*2*	*3*	*4*
-----------------------	-----------------------	-----------------------	-----------------------
No, definitively not	*No, not really*	*Yes, generally*	*Yes, definitively*

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?

1	*2*	*3*	*4*
-----------------------	-----------------------	-----------------------	-----------------------
No, definitively not	*No, not really*	*Yes, generally*	*Yes, definitively*

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

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

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?

1	*2*	*3*	*4*
-----------------------	-----------------------	-----------------------	-----------------------
No, definitively not	*No, not really*	*Yes, generally*	*Yes, definitively*

Appendix J – Family Demographics Questionnaire (Study 1 & 2)

Child's Name (Last, First): ________________________________ Nickname: _______________

Home address:
____

____

Family's telephone number(s): Home (   ) ___________________

Work (   ) ___________________

Other (   ) ____________________

Is it okay if we call you at work? ___No ___Yes

Emergency /Contacts

1) Name of Family Member (not living in same home) to contact in case of emergency:
____

Phone: (   ) _________________

2) Name of another Family Member (not living in same home) to contact in case of emergency:
____

Phone: (   ) _________________

Child Information

Date of Birth: ____________________ Age: _________ Sex (circle one): BOY GIRL

Ethnicity (check only one):

____ Caucasian

____ Black

____ Latino/Hispanic

____ Asian

____ Mixed (Specify: ____)

____ Other (Specify: ____)

Child's birth order (e.g., first, middle, last): ____

Family Information

Please list child's brothers and sisters (including natural, half, and step):

Name	Relationship (circle one)	Sex	Age	Is this sibling living with the child? (circle yes or no)
1)	Natural Half Step Other: ____________			YES NO
2)	Natural Half Step Other: ____________			YES NO
3)	Natural Half Step Other: ____________			YES NO
4)	Natural Half Step Other: ____________			YES NO
5)	Natural Half Step Other: ____________			YES NO

IF MORE SIBLINGS, continue on reverse.

Please list all adults that live in the home (or homes if child resides in more than one) with the child:

Name	Relationship to the child (circle one)			Sex	Age
1)	Biological Parent	Step Parent	Grandparent		
	Adoptive Parent	Foster Parent	Other:		
2)	Biological Parent	Step Parent	Grandparent		
	Adoptive Parent	Foster Parent	Other:		
3)	Biological Parent	Step Parent	Grandparent		
	Adoptive Parent	Foster Parent	Other:		
4)	Biological Parent	Step Parent	Grandparent		
	Adoptive Parent	Foster Parent	Other:		
5)	Biological Parent	Step Parent	Grandparent		
	Adoptive Parent	Foster Parent	Other:		

IF MORE ADULTS LIVING IN THE HOME, continue on reverse.

Family Income

Total family gross annual income for last year (circle one):

$0 - $19,000 $20,000 - $39,000 $40,000 - $59,000 $60,000 - $79,000

$80,000 - $99,000 $100,000 - $119,000 $120,000 - $139,000 $140,000 or more

Total number of people dependent on this income __________

Who is financially responsible for the child? Who is supporting the child? _________________

Parent Information

How long has the child been living with you? _________ years ________months

CHECK HERE IF WHOLE LIFE _______

Are you currently regularly sharing parenting duties with another adult, like a spouse, ex-spouse, boyfriend, girlfriend, or other family member? _____ No _____ Yes

If YES, Have you been sharing these parenting duties for six months or longer?

_____ No _____ Yes

If YES, please identify this adult's relationship to parent AND to child:

____

Which adults whom [your child] has lived with have taken care of him/her in the last year?

____

Which of these adults does [your child] feel closest to?

____

Caregiver 1	**Caregiver 2**
DOB: ____________________	DOB: ____________________
Relationship (check one):	
_________ Natural parent	_________ Natural parent
_________ Step-parent	_________ Step-parent
_________ Adoptive parent	_________ Adoptive parent
_________ Foster-parent	_________ Foster-parent
_________ Other (Explain________________)	_________ Other
(Explain________________)	
Highest Grade Completed (check one):	
________6th or less	________6th or less
________7th, 8th, 9th	________7th, 8th, 9th
________10th, 11th	________10th, 11th
________GED	________GED
________High school diploma	________High school diploma
________At least 1 yr. college	________At least 1 yr. college
________College degree (BA)	________College degree (BA)
________Grad./Prof. degree	________Grad./Prof. degree
Marital status (circle one):	
Married	Married
Divorced	Divorced
Separated	Separated
Widowed	Widowed
Never married	Never married
Living with partner	Living with partner
Present Occupation(s):	
____________________________________	____________________________________

Appendix K – Brief Problem Monitor: Parent Form (Study 2)

Below is a list of items that describe children and youths. Please rate each item to describe your child ***now or within the past______ days.*** Please circle the ***2*** if the item is ***very true*** of your child. Circle the ***1*** if the item is ***somewhat true*** of your child. If the item is ***not true*** of your child, circle the ***0***. ***Please answer all items as well as you can, even if some do not seem to apply to your child.***

0 = Not True (as far as you know) 1 = Somewhat True 2 = Very True

0 1 2 1. Acts too young for his/her age ____
0 1 2 2. Argues a lot ____
0 1 2 3. Fails to finish things he/she starts ____
0 1 2 4. Can't concentrate, can't pay attention for long____
0 1 2 5. Can't sit still, restless, or hyperactive ____
0 1 2 6. Destroys things belonging to his/her family or others__________________________________
0 1 2 7. Disobedient at home ____
0 1 2 8. Disobedient at school ____
0 1 2 9. Feels worthless or inferior ____
0 1 2 10. Impulsive or acts without thinking ____
0 1 2 11. Too fearful or anxious ____
0 1 2 12. Feels too guilty ____
0 1 2 13. Self-conscious or easily embarrassed ____
0 1 2 14. Inattentive or easily distracted ____
0 1 2 15. Stubborn, sullen, or irritable ____
0 1 2 16. Temper tantrums or hot temper ____
0 1 2 17. Threatens people ____
0 1 2 18. Unhappy, sad, or depressed ____
0 1 2 19. Worries ____
Additional items
0 1 2
____
0 1 2
____
0 1 2
____

Appendix L – Brief Problem Monitor: Youth Form (Study 2)

Below is a list of items that describe kids. Please rate each item that describes you ***now or within the past ______ days.*** Please circle the ***2*** if the item is ***very true*** of you. Circle the ***1*** if the item is ***somewhat true*** of you. If the item is ***not true*** of you, circle the ***0. Please answer all items as well as you can.***
0 = Not True 1 = Somewhat True 2 = Very True

Please print
0 1 2 1. I act too young for my age ____
0 1 2 2. I argue a lot ____
0 1 2 3. I fail to finish things I start ____
0 1 2 4. I have trouble concentrating or paying attention______________________________________
0 1 2 5. I have trouble sitting still ____
0 1 2 6. I destroy things belonging to others ____
0 1 2 7. I disobey my parents ____
0 1 2 8. I disobey at school ____
0 1 2 9. I feel worthless or inferior ____
0 1 2 10. I act without stopping to think ____
0 1 2 11. I am too fearful or anxious ____
0 1 2 12. I feel too guilty ____
0 1 2 13. I am self-conscious or easily embarrassed ____
0 1 2 14. I am inattentive or easily distracted ____
0 1 2 15. I am stubborn ____
0 1 2 16. I have a hot temper ____
0 1 2 17. I threaten to hurt people ____
0 1 2 18. I am unhappy, sad, or depressed ____
0 1 2 19. I worry a lot ____
Additional items
0 1 2
____
0 1 2
____
0 1 2
____

Appendix M – Trauma History Screen: Parent Version (Study 2)

Name: ________________ID: ____
Date: ___________DOB: _________

Trauma History Screen (THS)
Parent Version

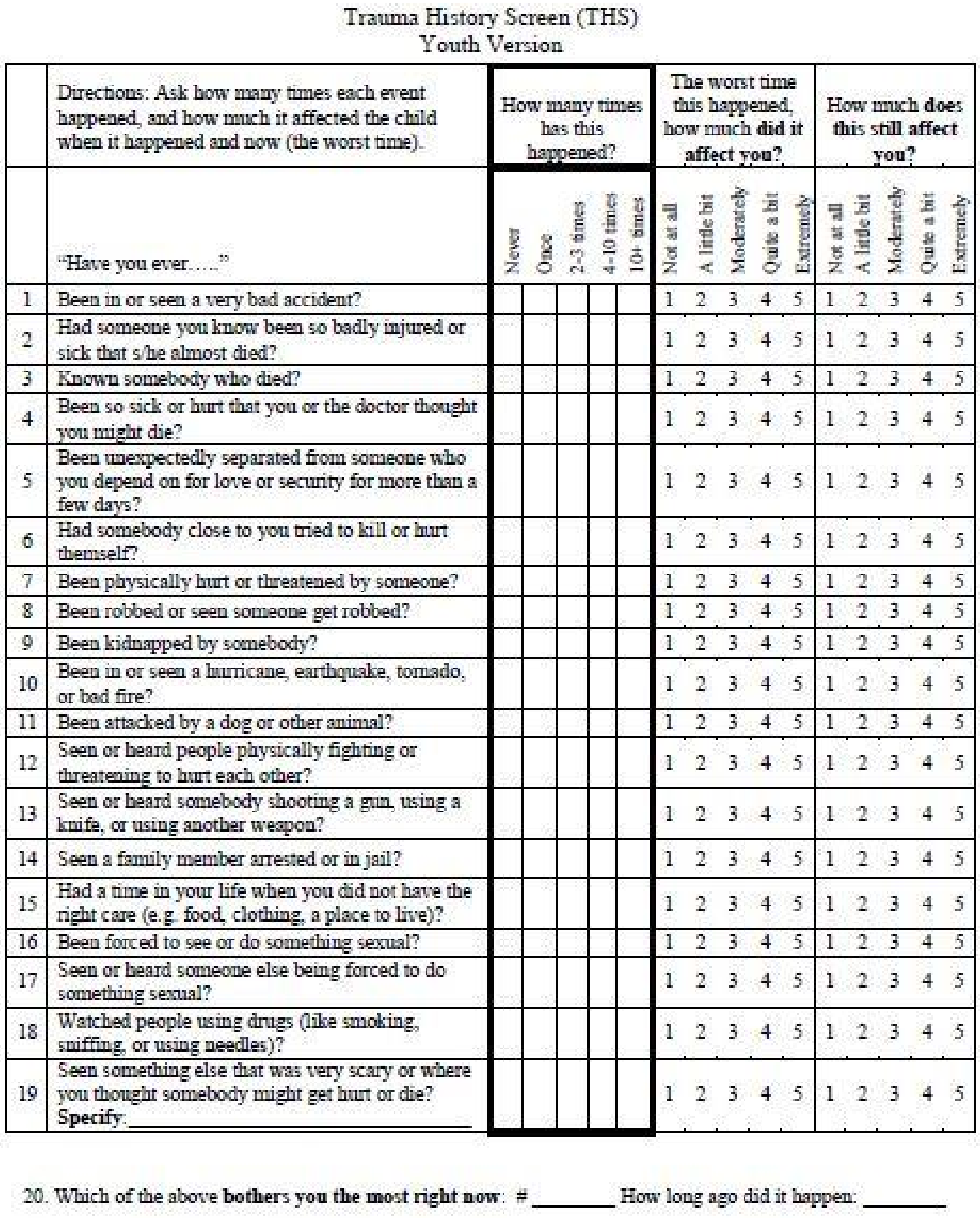
	Directions: Ask how many times each event happened, and how much it affected the child when it happened and now (the worst time).	How many times has this happened?					The worst time this happened, how much **did it affect him/her?**					How much **does this still affect your child?**				
	"Has your child ever….."	Never	Once	2-3 times	4-10 times	10+ times	Not at all	A little bit	Moderately	Quite a bit	Extremely	Not at all	A little bit	Moderately	Quite a bit	Extremely
1	Been in or seen a very bad accident?						1	2	3	4	5	1	2	3	4	5
2	Had someone s/he know been so badly injured or sick that s/he almost died?						1	2	3	4	5	1	2	3	4	5
3	Known somebody who died?						1	2	3	4	5	1	2	3	4	5
4	Been so sick or hurt that you or the doctor thought s/he might die?						1	2	3	4	5	1	2	3	4	5
5	Been unexpectedly separated from someone who s/he depends on for love or security for more than a few days?						1	2	3	4	5	1	2	3	4	5
6	Had somebody close to him/her try to kill or hurt themself?						1	2	3	4	5	1	2	3	4	5
7	Been physically hurt or threatened by someone?						1	2	3	4	5	1	2	3	4	5
8	Been robbed or seen someone get robbed?						1	2	3	4	5	1	2	3	4	5
9	Been kidnapped by somebody?						1	2	3	4	5	1	2	3	4	5
10	Been in or seen a hurricane, earthquake, tornado, or bad fire?						1	2	3	4	5	1	2	3	4	5
11	Been attacked by a dog or other animal?						1	2	3	4	5	1	2	3	4	5
12	Seen or heard people physically fighting or threatening to hurt each other?						1	2	3	4	5	1	2	3	4	5
13	Seen or heard somebody shooting a gun, using a knife, or using another weapon?						1	2	3	4	5	1	2	3	4	5
14	Seen a family member arrested or in jail?						1	2	3	4	5	1	2	3	4	5
15	Had a time in your life when s/he did not have the right care (e.g. food, clothing, a place to live)?						1	2	3	4	5	1	2	3	4	5
16	Been forced to see or do something sexual?						1	2	3	4	5	1	2	3	4	5
17	Seen or heard someone else being forced to do something sexual?						1	2	3	4	5	1	2	3	4	5
18	Watched people using drugs (like smoking, sniffing, or using needles)?						1	2	3	4	5	1	2	3	4	5
19	Seen something else that was very scary or where s/he thought somebody might get hurt or die? **Specify**:______________						1	2	3	4	5	1	2	3	4	5

20. Which one **bothers your child the MOST** right now: # _______. How long ago did it happen: ________

Caregiver – Baseline Assessment
Connecticut TF-CBT Learning Collaborative

Rev 2-11

Appendix N – Trauma History Screen: Youth Version (Study 2)

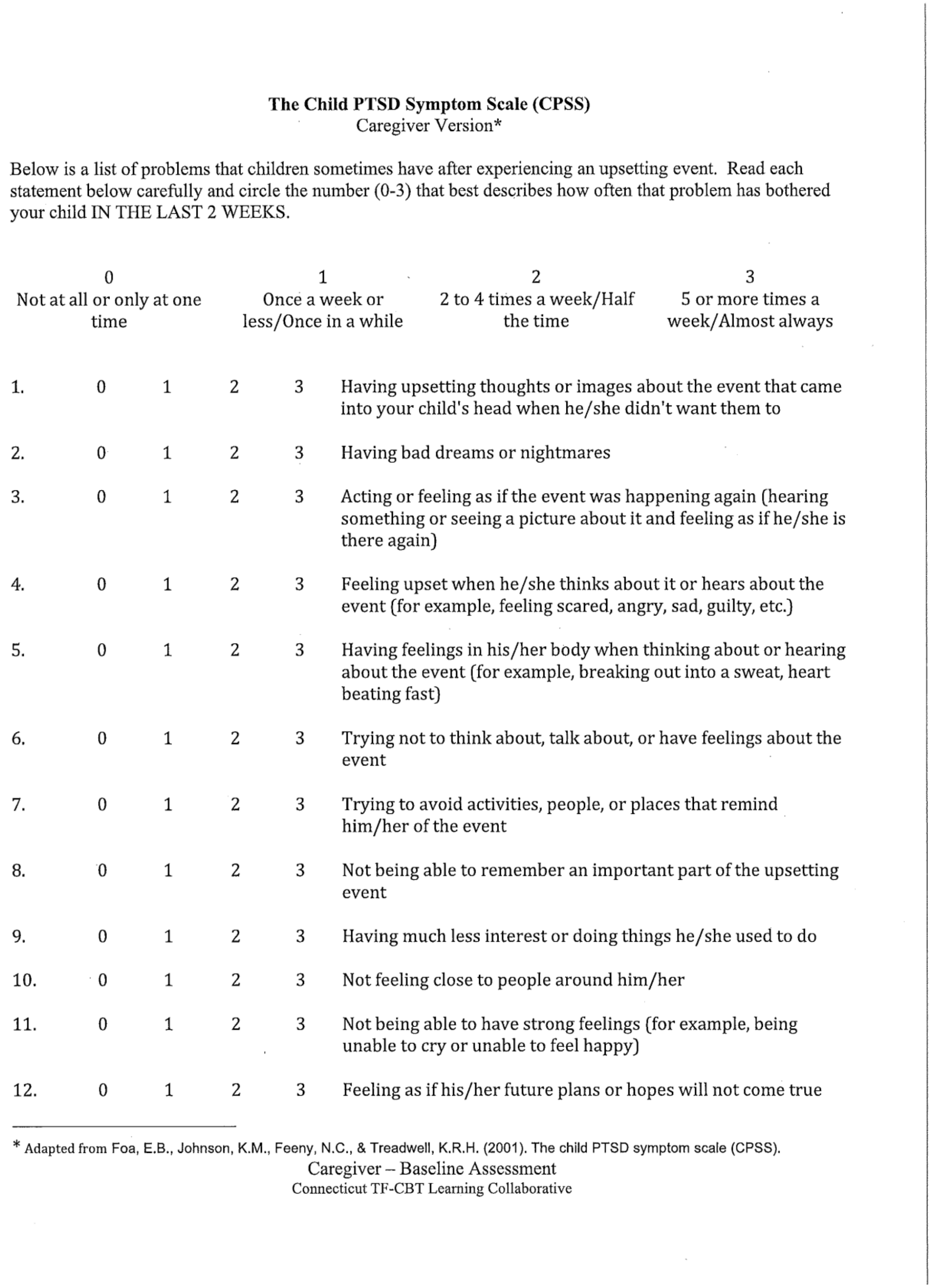


Trauma History Screen (THS)
Youth Version

	Directions: Ask how many times each event happened, and how much it affected the child when it happened and now (the worst time).	How many times has this happened?					The worst time this happened, how much **did it affect you?**					How much **does this still affect you?**				
	"Have you ever….."	Never	Once	2-3 times	4-10 times	10+ times	Not at all	A little bit	Moderately	Quite a bit	Extremely	Not at all	A little bit	Moderately	Quite a bit	Extremely
1	Been in or seen a very bad accident?						1	2	3	4	5	1	2	3	4	5
2	Had someone you know been so badly injured or sick that s/he almost died?						1	2	3	4	5	1	2	3	4	5
3	Known somebody who died?						1	2	3	4	5	1	2	3	4	5
4	Been so sick or hurt that you or the doctor thought you might die?						1	2	3	4	5	1	2	3	4	5
5	Been unexpectedly separated from someone who you depend on for love or security for more than a few days?						1	2	3	4	5	1	2	3	4	5
6	Had somebody close to you tried to kill or hurt themself?						1	2	3	4	5	1	2	3	4	5
7	Been physically hurt or threatened by someone?						1	2	3	4	5	1	2	3	4	5
8	Been robbed or seen someone get robbed?						1	2	3	4	5	1	2	3	4	5
9	Been kidnapped by somebody?						1	2	3	4	5	1	2	3	4	5
10	Been in or seen a hurricane, earthquake, tornado, or bad fire?						1	2	3	4	5	1	2	3	4	5
11	Been attacked by a dog or other animal?						1	2	3	4	5	1	2	3	4	5
12	Seen or heard people physically fighting or threatening to hurt each other?						1	2	3	4	5	1	2	3	4	5
13	Seen or heard somebody shooting a gun, using a knife, or using another weapon?						1	2	3	4	5	1	2	3	4	5
14	Seen a family member arrested or in jail?						1	2	3	4	5	1	2	3	4	5
15	Had a time in your life when you did not have the right care (e.g. food, clothing, a place to live)?						1	2	3	4	5	1	2	3	4	5
16	Been forced to see or do something sexual?						1	2	3	4	5	1	2	3	4	5
17	Seen or heard someone else being forced to do something sexual?						1	2	3	4	5	1	2	3	4	5
18	Watched people using drugs (like smoking, sniffing, or using needles)?						1	2	3	4	5	1	2	3	4	5
19	Seen something else that was very scary or where you thought somebody might get hurt or die? **Specify**:____________________						1	2	3	4	5	1	2	3	4	5

20. Which of the above **bothers you the most right now**: # ________ How long ago did it happen: ________

Appendix O – Child PTSD Symptom Scale: Caregiver Version (Study 2)



The Child PTSD Symptom Scale (CPSS)

Caregiver Version*

Below is a list of problems that children sometimes have after experiencing an upsetting event. Read each statement below carefully and circle the number (0-3) that best describes how often that problem has bothered your child IN THE LAST 2 WEEKS.

0	1	2	3
Not at all or only at one time	Once a week or less/Once in a while	2 to 4 times a week/Half the time	5 or more times a week/Almost always

1.	0	1	2	3	Having upsetting thoughts or images about the event that came into your child's head when he/she didn't want them to
2.	0	1	2	3	Having bad dreams or nightmares
3.	0	1	2	3	Acting or feeling as if the event was happening again (hearing something or seeing a picture about it and feeling as if he/she is there again)
4.	0	1	2	3	Feeling upset when he/she thinks about it or hears about the event (for example, feeling scared, angry, sad, guilty, etc.)
5.	0	1	2	3	Having feelings in his/her body when thinking about or hearing about the event (for example, breaking out into a sweat, heart beating fast)
6.	0	1	2	3	Trying not to think about, talk about, or have feelings about the event
7.	0	1	2	3	Trying to avoid activities, people, or places that remind him/her of the event
8.	0	1	2	3	Not being able to remember an important part of the upsetting event
9.	0	1	2	3	Having much less interest or doing things he/she used to do
10.	0	1	2	3	Not feeling close to people around him/her
11.	0	1	2	3	Not being able to have strong feelings (for example, being unable to cry or unable to feel happy)
12.	0	1	2	3	Feeling as if his/her future plans or hopes will not come true

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* Adapted from Foa, E.B., Johnson, K.M., Feeny, N.C., & Treadwell, K.R.H. (2001). The child PTSD symptom scale (CPSS).

Caregiver – Baseline Assessment
Connecticut TF-CBT Learning Collaborative

(for example, not having a job or getting married or having kids)

0	1	2	3
Not at all or only at one time	Once a week or less/Once in a while	2 to 4 times a week/Half the time	5 or more times a week/Almost always

13. 0 1 2 3 Having trouble falling or staying asleep

14. 0 1 2 3 Feeling irritable or having fits of anger

15. 0 1 2 3 Having trouble concentrating (for example, losing track of a story on the television, forgetting what he/she read, not paying attention in class)

16. 0 1 2 3 Being overly careful (for example, checking to see who and what is around him/her)

17. 0 1 2 3 Being jumpy or easily startled (for example, when someone walks up behind him/her)

Appendix P – Child PTSD Symptom Scale: Youth Version (Study 2)

The Child PTSD Symptom Scale (CPSS) – Part I

Below is a list of problems that kids sometimes have after experiencing an upsetting event. Read each one carefully and circle the number (0-3) that best describes how often that problem has bothered you IN THE LAST 2 WEEKS.

Please write down your most distressing event:

Length of time since the event:

0	1	2	3
Not at all or only at one time	Once a week or less/ once in a while	2 to 4 times a week/ half the time	5 or more times a week/almost always

1.	0	1	2	3	Having upsetting thoughts or images about the event that came into your head when you didn't want them to
2.	0	1	2	3	Having bad dreams or nightmares
3.	0	1	2	3	Acting or feeling as if the event was happening again (hearing something or seeing a picture about it and feeling as if I am there again)
4.	0	1	2	3	Feeling upset when you think about it or hear about the event (for example, feeling scared, angry, sad, guilty, etc)
5.	0	1	2	3	Having feelings in your body when you think about or hear about the event (for example, breaking out into a sweat, heart beating fast)
6.	0	1	2	3	Trying not to think about, talk about, or have feelings about the event
7.	0	1	2	3	Trying to avoid activities, people, or places that remind you of the traumatic event
8.	0	1	2	3	Not being able to remember an important part of the upsetting event
9.	0	1	2	3	Having much less interest or doing things you used to do
10.	0	1	2	3	Not feeling close to people around you
11.	0	1	2	3	Not being able to have strong feelings (for example, being unable to cry or unable to feel happy)

12.	0	1	2	3	Feeling as if your future plans or hopes will not come true (for example, you will not have a job or getting married or having kids)

0	1	2	3
Not at all or only at one time	Once a week or less/ once in a while	2 to 4 times a week/ half the time	5 or more times a week/almost always

13.	0	1	2	3	Having trouble falling or staying asleep
14.	0	1	2	3	Feeling irritable or having fits of anger
15.	0	1	2	3	Having trouble concentrating (for example, losing track of a story on the television, forgetting what you read, not paying attention in class)
16.	0	1	2	3	Being overly careful (for example, checking to see who is around you and what is around you)
17.	0	1	2	3	Being jumpy or easily startled (for example, when someone walks up behind you)

The Child PTSD Symptom Scale (CPSS) – Part 2

Indicate below if the problems you rated in Part 1 have gotten in the way with any of the following areas of your life DURING THE PAST 2 WEEKS.

	Yes	No	
18.	Y	N	Doing your prayers
19.	Y	N	Chores and duties at home
20.	Y	N	Relationships with friends
21.	Y	N	Fun and hobby activities
22.	Y	N	Schoolwork
23.	Y	N	Relationships with your family
24.	Y	N	General happiness with your life

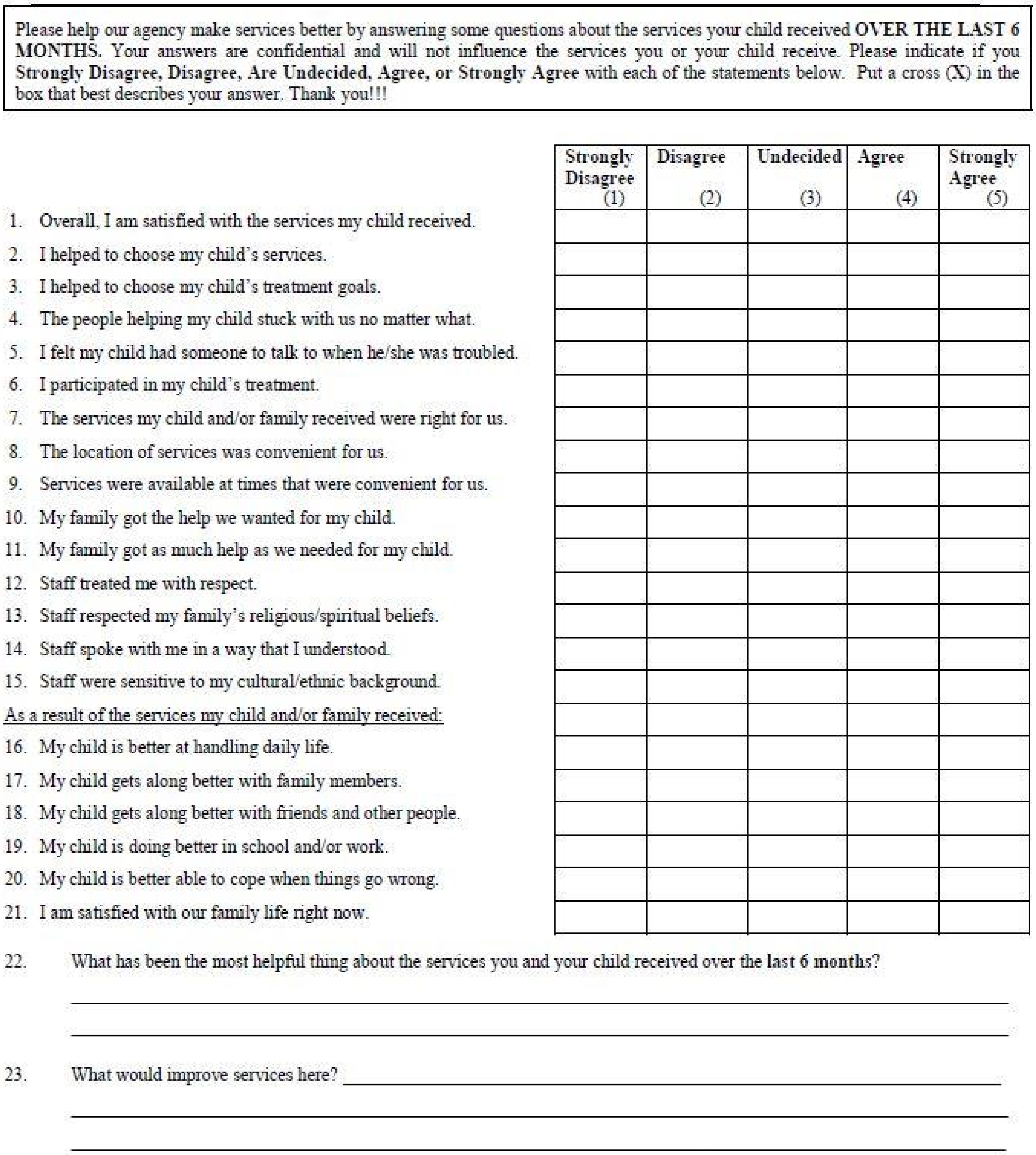
Appendix Q – Child Satisfaction Survey (Study 2)

Read each item and circle one.
1. I liked going to the clinic.
Very True Sort of True Sort of False Very False

2. Going to the clinic helped me with my problems
Very True Sort of True Sort of False Very False

3. If I were ever having problems again, I would want to come back to this clinic.
Very True Sort of True Sort of False Very False

Appendix R – Youth Services Survey for Families (Study 2)



Please help our agency make services better by answering some questions about the services your child received **OVER THE LAST 6 MONTHS.** Your answers are confidential and will not influence the services you or your child receive. Please indicate if you **Strongly Disagree, Disagree, Are Undecided, Agree, or Strongly Agree** with each of the statements below. Put a cross (X) in the box that best describes your answer. Thank you!!!

	Strongly Disagree (1)	Disagree (2)	Undecided (3)	Agree (4)	Strongly Agree (5)
1. Overall, I am satisfied with the services my child received.					
2. I helped to choose my child's services.					
3. I helped to choose my child's treatment goals.					
4. The people helping my child stuck with us no matter what.					
5. I felt my child had someone to talk to when he/she was troubled.					
6. I participated in my child's treatment.					
7. The services my child and/or family received were right for us.					
8. The location of services was convenient for us.					
9. Services were available at times that were convenient for us.					
10. My family got the help we wanted for my child.					
11. My family got as much help as we needed for my child.					
12. Staff treated me with respect.					
13. Staff respected my family's religious/spiritual beliefs.					
14. Staff spoke with me in a way that I understood.					
15. Staff were sensitive to my cultural/ethnic background.					
As a result of the services my child and/or family received:					
16. My child is better at handling daily life.					
17. My child gets along better with family members.					
18. My child gets along better with friends and other people.					
19. My child is doing better in school and/or work.					
20. My child is better able to cope when things go wrong.					
21. I am satisfied with our family life right now.					

22. What has been the most helpful thing about the services you and your child received over the **last 6 months**?

23. What would improve services here?

Please answer the following questions to let us know how your child is doing.

24. How long did your child receive services from this Center?

☐ a. Less than 1 month
☐ b. 1 – 2 months
☐ c. 3 – 5 months
☐ d. 6 months to 1 year
☐ e. More than 1 year

25. Is your child still getting services from this Center? ☐Yes ☐No

26. Is your child currently living with you? ☐Yes ☐No

27. Has your child lived in any of the following places **in the last 6 months**? (CHECK ALL THAT APPLY)

☐ a. With one or both parents
☐ b. With another family member
☐ c. Foster home
☐ d. Therapeutic foster home
☐ e. Crisis shelter
☐ f. Homeless shelter
☐ g. Group home
☐ h. Residential treatment center
☐ i. Hospital
☐ j. Local jail or detention facility
☐ k. State correctional facility
☐ l. Runaway/homeless/on the streets
☐ m. Other (describe):________________

28. **In the last year,** did your child see a medical doctor (or nurse) for a health check up or because he/she was sick? (Check one)

☐Yes, in a clinic or office ☐Yes, but only in a hospital emergency room ☐No ☐Do not remember

29. Is your child on medication for emotional/behavioral problems? ☐Yes ☐No

29a. If yes, did the doctor or nurse tell you and/or your child what side effects to watch for? ☐Yes ☐No

30. In the last month, did your child get arrested by the police? ☐Yes ☐No

31. In the last month, did your child go to court for something he/she did? ☐Yes ☐No

32. How often was your child absent from school during the last month?

☐ 1 day or less
☐ 2 days
☐ 3 to 5 days
☐ 6 to 10 days
☐ More than 10 days
☐ Not applicable/ not in school
☐ Do not remember

Please answer the following questions to let us know a little about your child.

Child's Race: (Check two if needed)

___ American Indian/Alaskan Native ___ White (Caucasian) ___ Black (African American)

___ Asian/Pacific Islander ___ Other: Describe__________________________

Are either of the child's parents Spanish/Hispanic/Latino? ___ Yes ___ No

Child's Birth Date: ___________ **Today's Date:** ___________________

Child's Gender: ___Male ___Female

Does your child have Medicaid insurance? ___ Yes ___ No

Thank you for taking the time to answer these questions!

Appendix S – ME-CTP Study Zero-Order Correlations Table

	Youth Age	Youth Gender	Caregiver Age	Caregiver Gender	Family Income	Total # of Dependents	Caregiver PRs	Youth PRs	CBCL Pre-Tx Internalizing	CBCL Pre-Tx Externalizing	CBCL Pre-Tx Total	YSR Pre-Tx Internalizing	YSR Pre-Tx Externalizing	YSR Pre-Tx Total	CBCL Post-Tx Internalizing	CBCL Post-Tx Externalizing	CBCL Post-Tx Total	YSR Post-Tx Internalizing	YSR Post-Tx Externalizing	YSR Post-Tx Total	Youth Tx Satisfaction	Caregiver Tx Satisfaction	Youth Therapeutic Alliance	Caregiver Therapeutic Alliance	Rate of Session Attendance
Youth Age	1	-0.057	0.122	0.019	0.108	-0.074	0.096	0.079	-0.042	-0.099	-0.086	-0.073	0.141	0.003	0.034	-0.060	-0.007	0.125	.198*	0.142	-0.054	-0.141	-0.125	-.331**	0.027
Youth Gender	-0.057	1	-0.103	-0.029	-0.064	0.038	0.084	-0.025	0.043	0.100	0.093	0.144	.167*	0.104	0.057	0.098	0.068	0.095	0.032	0.050	-.355**	-0.120	-.197*	0.010	-0.071
Caregiver Age	0.122	-0.103	1	0.047	0.109	-0.068	.249**	.213*	-0.166	-0.160	-.203*	-.185*	-0.077	-.172*	0.039	0.062	0.042	-0.028	0.048	-0.015	0.107	0.163	-0.039	0.133	0.104
Caregiver Gender	0.019	-0.029	0.047	1	0.167	.170*	0.148	0.134	-0.134	0.087	0.003	-0.115	-0.051	-0.055	-0.179	-0.093	-0.163	-0.169	-0.098	-0.131	-0.071	0.032	-0.031	0.101	.217**
Family Income	0.108	-0.064	0.109	0.167	1	0.143	0.073	0.018	0.052	0.015	0.051	-0.125	0.021	-0.074	-0.100	0.069	0.034	-0.050	0.084	0.008	-0.061	-0.164	-0.173	-0.073	0.137
Total # of Dependents	-0.074	0.038	-0.068	.170*	0.143	1	-0.008	0.024	-0.151	0.077	-0.055	-0.007	-0.036	-0.052	0.008	0.081	0.019	0.054	0.013	0.034	0.038	-0.097	0.032	-0.089	-0.029
Caregiver PRs	0.096	0.084	.249**	0.148	0.073	-0.008	1	.851**	-0.042	0.019	0.021	-0.073	-0.049	-0.101	-0.078	-0.005	0.026	-0.136	-0.172	-0.171	0.052	0.159	-0.052	0.110	0.149
Youth PRs	0.079	-0.025	.213*	0.134	0.018	0.024	.851**	1	-0.051	0.023	0.039	-0.108	-0.092	-0.109	-0.066	0.008	0.042	-0.175	-0.172	-0.178	0.190	0.160	0.107	0.100	0.137
CBCL Pre-Tx Internalizing	-0.042	0.043	-0.166	-0.134	0.052	-0.151	-0.042	-0.051	1	.303**	.678**	.212*	0.049	0.119	.582**	.275**	.472**	0.146	-0.005	0.083	0.033	-0.115	-0.180	-0.140	-0.066
CBCL Pre-Tx Externalizing	-0.099	0.100	-0.160	0.087	0.015	0.077	0.019	0.023	.303**	1	.833**	.169*	.353**	.267**	0.065	.582**	.383**	.187*	.309**	.244**	-0.058	-0.054	-.242*	0.064	-0.070
CBCL Pre-Tx Total	-0.086	0.093	-.203*	0.003	0.051	-0.055	0.021	0.039	.678**	.833**	1	.204*	.265**	.247**	.308**	.551**	.543**	.207*	.243**	.252**	-0.017	-0.106	-.230*	-0.024	-0.082
YSR Pre-Tx Internalizing	-0.073	0.144	-.185*	-0.115	-0.125	-0.007	-0.073	-0.108	.212*	.169*	.204*	1	.609**	.873**	.189*	.186*	.188*	.478**	.359**	.465**	-0.117	0.042	-0.100	-0.006	0.031
YSR Pre-Tx Externalizing	0.141	.167*	-0.077	-0.051	0.021	-0.036	-0.049	-0.092	0.049	.353**	.265**	.609**	1	.847**	0.043	.331**	.232*	.450**	.637**	.602**	-.208*	-0.067	-.339**	-0.048	0.011
YSR Pre-Tx Total	0.003	0.104	-.172*	-0.055	-0.074	-0.052	-0.101	-0.109	0.119	.267**	.247**	.873**	.847**	1	0.088	.235*	.185*	.487**	.533**	.600**	-0.158	-0.007	-0.179	-0.048	0.018
CBCL Post-Tx Internalizing	0.034	0.057	0.039	-0.179	-0.100	0.008	-0.078	-0.066	.582**	0.065	.308**	.189*	0.043	0.088	1	.506**	.789**	.321**	0.044	0.160	0.070	-0.131	-0.127	-0.072	-0.032
CBCL Post-Tx Externalizing	-0.060	0.098	0.062	-0.093	0.069	0.081	-0.005	0.008	.275**	.582**	.551**	.186*	.331**	.235*	.506**	1	.867**	.328**	.290**	.297**	0.087	-0.182	-0.152	0.014	0.112
CBCL Post-Tx Total	-0.007	0.068	0.042	-0.163	0.034	0.019	0.026	0.042	.472**	.383**	.543**	.188*	.232*	.185*	.789**	.867**	1	.360**	.198*	.278**	0.090	-.188*	-0.162	-0.025	0.065
YSR Post-Tx Internalizing	0.125	0.095	-0.028	-0.169	-0.050	0.054	-0.136	-0.175	0.146	.187*	.207*	.478**	.450**	.487**	.321**	.328**	.360**	1	.693**	.883**	-0.065	-0.030	-0.101	-0.038	-0.029
YSR Post-Tx Externalizing	.198*	0.032	0.048	-0.098	0.084	0.013	-0.172	-0.172	-0.005	.309**	.243**	.359**	.637**	.533**	0.044	.290**	.198*	.693**	1	.900**	-0.091	-0.094	-0.167	-0.081	-0.014
YSR Post-Tx Total	0.142	0.050	-0.015	-0.131	0.008	0.034	-0.171	-0.178	0.083	.244**	.252**	.465**	.602**	.600**	0.160	.297**	.278**	.883**	.900**	1	-0.052	-0.055	-0.104	-0.043	-0.010
Youth Tx Satisfaction	-0.054	-.355**	0.107	-0.071	-0.061	0.038	0.052	0.190	0.033	-0.058	-0.017	-0.117	-.208*	-0.158	0.070	0.087	0.090	-0.065	-0.091	-0.052	1	.436**	.660**	.313**	-0.141
Caregiver Tx Satisfaction	-0.141	-0.120	0.163	0.032	-0.164	-0.097	0.159	0.160	-0.115	-0.054	-0.106	0.042	-0.067	-0.007	-0.131	-0.182	-.188*	-0.030	-0.094	-0.055	.436**	1	.223*	.646**	.291**
Youth Therapeutic Alliance	-0.125	-.197*	-0.039	-0.031	-0.173	0.032	-0.052	0.107	-0.180	-.242*	-.230*	-0.100	-.339**	-0.179	-0.127	-0.152	-0.162	-0.101	-0.167	-0.104	.660**	.223*	1	.266**	-0.040
Caregiver Therapeutic Alliance	-.331**	0.010	0.133	0.101	-0.073	-0.089	0.110	0.100	-0.140	0.064	-0.024	-0.006	-0.048	-0.048	-0.072	0.014	-0.025	-0.038	-0.081	-0.043	.313**	.646**	.266**	1	.257**
Rate of Session Attendance	0.027	-0.071	0.104	.217**	0.137	-0.029	0.149	0.137	-0.066	-0.070	-0.082	0.031	0.011	0.018	-0.032	0.112	0.065	-0.029	-0.014	-0.010	-0.141	.291**	-0.040	.257**	1

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix T – CT-CTP Study Zero-Order Correlations Table

	Youth Age	Youth Sex	Caregiver Age	Caregiver Sex	Total # of Dependents	Family Income	Study Condition	Youth PRs	Caregiver PRs	CBCL Pre-Tx Internalizing	CBCL Pre-Tx Externalizing	CBCL Pre-Tx Total	CBCL Post-Tx Internalizing	CBCL Post-Tx Externalizing	CBCL Post-Tx Total	YSR Pre-Tx Internalizing	YSR Pre-Tx Externalizing	YSR Pre-Tx Total	YSR Post-Tx Internalizing	YSR Post-Tx Externalizing	YSR Post-Tx Total	Caregiver Therapeutic Alliance	Youth Therapeutic Alliance	Caregiver Tx Satisfaction	Youth Tx Satisfaction
Youth Age	1	.273**	.369**	0.112	0.025	-0.012	0.066	-0.070	-0.156	0.160	-.183*	-0.066	0.121	-0.119	-0.021	-0.099	-0.077	-0.118	0.116	0.161	0.119	-0.119	0.025	-0.062	-.301**
Youth Sex	.273**	1	0.159	-0.157	-0.005	-.202*	0.035	-0.007	-0.150	0.059	-.345**	-.288**	-0.015	-.234**	-.211*	0.009	-0.156	-0.104	0.056	-0.027	0.032	0.118	0.180	0.140	-0.092
Caregiver Age	.369**	0.159	1	.176*	0.055	0.120	0.095	-0.143	-0.149	0.001	-.203*	-0.163	0.024	-0.058	-0.038	0.012	-0.105	-0.056	-0.127	-0.080	-0.149	-0.066	0.123	0.005	-0.052
Caregiver Sex	0.112	-0.157	.176*	1	-0.055	.355**	0.050	-0.003	-0.017	0.154	0.030	0.075	.181*	0.017	0.083	0.076	0.004	0.004	-0.033	-0.068	-0.076	0.095	-0.167	-0.008	-0.021
Total # of Dependents	0.025	-0.005	0.055	-0.055	1	-.201*	-0.005	0.145	0.089	-.185*	0.115	-0.019	-0.124	0.088	0.020	-0.138	0.107	-0.059	0.035	.206*	0.128	0.129	-0.025	-0.052	-0.077
Family Income	-0.012	-.202*	0.120	.355**	-.201*	1	-0.007	-0.172	-0.140	.183*	0.011	0.101	.213*	0.108	0.137	0.093	-0.023	-0.019	-0.069	-0.120	-0.127	-0.052	-0.147	-0.127	0.009
Study Condition	0.066	0.035	0.095	0.050	-0.005	-0.007	1	0.013	-0.048	-0.080	-0.025	-0.068	-0.074	0.082	-0.002	-0.067	-0.096	-0.056	0.006	-0.020	-0.014	-0.154	0.056	-0.072	-0.085
Youth PRs	-0.070	-0.007	-0.143	-0.003	0.145	-0.172	0.013	1	.730**	-.226**	-0.108	-.209*	-0.096	-0.049	-0.069	-0.007	0.048	0.046	0.124	0.175	0.177	-.279**	0.058	-0.093	0.078
Caregiver PRs	-0.156	-0.150	-0.149	-0.017	0.089	-0.140	-0.048	.730**	1	-0.080	0.073	-0.003	0.087	.185*	0.144	0.052	0.112	0.102	.187*	.207*	.216*	-.280**	0.005	-.231*	0.074
CBCL Pre-Tx Internalizing	0.160	0.059	0.001	0.154	-.185*	.183*	-0.080	-.226**	-0.080	1	0.115	.631**	.575**	0.096	.299**	.261**	-0.103	0.136	.202*	-0.131	0.059	0.123	0.040	-0.041	-0.064
CBCL Pre-Tx Externalizing	-.183*	-.345**	-.203*	0.030	0.115	0.011	-0.025	-0.108	0.073	0.115	1	.754**	.278**	.770**	.610**	0.076	.466**	.238**	0.169	.393**	.299**	-0.061	-.218*	-0.163	-0.170
CBCL Pre-Tx Total	-0.066	-.288**	-0.163	0.075	-0.019	0.101	-0.068	-.209*	-0.003	.631**	.754**	1	.502**	.580**	.643**	.191*	.265**	.267**	0.177	0.180	.230*	-0.033	-0.063	-0.175	-0.118
CBCL Post-Tx Internalizing	0.121	-0.015	0.024	.181*	-0.124	.213*	-0.074	-0.096	0.087	.575**	.278**	.502**	1	.564**	.801**	.250**	0.149	.212*	.424**	.216*	.351**	-0.038	-0.140	-.220*	-.241*
CBCL Post-Tx Externalizing	-0.119	-.234**	-0.058	0.017	0.088	0.108	0.082	-0.049	.185*	0.096	.770**	.580**	.564**	1	.887**	0.133	.463**	.261**	.328**	.470**	.411**	-0.116	-.229*	-.263**	-.198*
CBCL Post-Tx Total	-0.021	-.211*	-0.038	0.083	0.020	0.137	-0.002	-0.069	0.144	.299**	.610**	.643**	.801**	.887**	1	0.164	.361**	.255**	.362**	.417**	.431**	-0.109	-0.182	-.270**	-.205*
YSR Pre-Tx Internalizing	-0.099	0.009	0.012	0.076	-0.138	0.093	-0.067	-0.007	0.052	.261**	0.076	.191*	.250**	0.133	0.164	1	.461**	.871**	.498**	.198*	.400**	0.067	0.085	0.089	0.064
YSR Pre-Tx Externalizing	-0.077	-0.156	-0.105	0.004	0.107	-0.023	-0.096	0.048	0.112	-0.103	.466**	.265**	0.149	.463**	.361**	.461**	1	.765**	.271**	.529**	.437**	-0.076	0.052	-0.037	-0.066
YSR Pre-Tx Total	-0.118	-0.104	-0.056	0.004	-0.059	-0.019	-0.056	0.046	0.102	0.136	.238**	.267**	.212*	.261**	.255**	.871**	.765**	1	.454**	.370**	.489**	-0.022	0.102	0.061	0.052
YSR Post-Tx Internalizing	0.116	0.056	-0.127	-0.033	0.035	-0.069	0.006	0.124	.187*	.202*	0.169	0.177	.424**	.328**	.362**	.498**	.271**	.454**	1	.588**	.883**	-0.150	-0.173	-0.184	-0.148
YSR Post-Tx Externalizing	0.161	-0.027	-0.080	-0.068	.206*	-0.120	-0.020	0.175	.207*	-0.131	.393**	0.180	.216*	.470**	.417**	.198*	.529**	.370**	.588**	1	.847**	-0.188	-0.120	-0.122	-0.129
YSR Post-Tx Total	0.119	0.032	-0.149	-0.076	0.128	-0.127	-0.014	0.177	.216*	0.059	.299**	.230*	.351**	.411**	.431**	.400**	.437**	.489**	.883**	.847**	1	-0.197	-0.114	-0.168	-0.146
Caregiver Therapeutic Alliance	-0.119	0.118	-0.066	0.095	0.129	-0.052	-0.154	-.279**	-.280**	0.123	-0.061	-0.033	-0.038	-0.116	-0.109	0.067	-0.076	-0.022	-0.150	-0.188	-0.197	1	0.195	.578**	.293**
Youth Therapeutic Alliance	0.025	0.180	0.123	-0.167	-0.025	-0.147	0.056	0.058	0.005	0.040	-.218*	-0.063	-0.140	-.229*	-0.182	0.085	0.052	0.102	-0.173	-0.120	-0.114	0.195	1	.346**	.673**
Caregiver Tx Satisfaction	-0.062	0.140	0.005	-0.008	-0.052	-0.127	-0.072	-0.093	-.231*	-0.041	-0.163	-0.175	-.220*	-.263**	-.270**	0.089	-0.037	0.061	-0.184	-0.122	-0.168	.578**	.346**	1	.330**
Youth Tx Satisfaction	-.301**	-0.092	-0.052	-0.021	-0.077	0.009	-0.085	0.078	0.074	-0.064	-0.170	-0.118	-.241*	-.198*	-.205*	0.064	-0.066	0.052	-0.148	-0.129	-0.146	.293**	.673**	.330**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix U – ME-CTP Study, MATCH Study Condition, Zero-Order Correlations Table

	Youth Age	Youth Gender	Caregiver Age	Caregiver Gender	Family Income	Total # of Dependents	Caregiver PRs	Youth PRs	CBCL Pre-Tx Internalizing	CBCL Pre-Tx Externalizing	CBCL Pre-Tx Total	YSR Pre-Tx Internalizing	YSR Pre-Tx Externalizing	YSR Pre-Tx Total	CBCL Post-Tx Internalizing	CBCL Post-Tx Externalizing	CBCL Post-Tx Total	YSR Post-Tx Internalizing	YSR Post-Tx Externalizing	YSR Post-Tx Total	Youth Therapeutic Alliance	Caregiver Therapeutic Alliance	Youth Tx Satisfaction	Caregiver Tx Satisfaction	Rate of Session Attendance
Youth Age	1	-0.044	0.149	-0.083	-0.070	-0.134	0.085	0.161	0.006	-0.068	-0.063	-0.090	0.160	-0.029	0.081	-0.085	0.017	0.101	0.218	0.137	-0.142	-.396**	-0.065	-0.110	0.009
Youth Gender	-0.044	1	-0.098	-0.143	0.023	-0.132	0.204	0.070	0.200	0.204	0.197	0.214	0.137	0.094	0.196	0.171	0.208	0.172	-0.022	0.062	-.318*	0.144	-.386**	-0.104	-0.154
Caregiver Age	0.149	-0.098	1	-0.040	0.053	0.184	.268*	.254*	-.346**	-0.119	-.273*	-0.232	-0.093	-0.213	-0.025	0.100	-0.009	-0.015	0.081	0.001	0.071	0.094	0.152	0.090	0.012
Caregiver Gender	-0.083	-0.143	-0.040	1	0.109	0.024	0.135	0.162	-.238*	0.073	-0.036	-0.194	-0.155	-0.126	-0.230	-0.006	-0.143	-.266*	-0.172	-0.244	-0.056	0.208	0.016	0.166	.349**
Family Income	-0.070	0.023	0.053	0.109	1	0.196	0.016	0.028	0.047	-0.029	0.055	-0.079	0.065	-0.031	-0.061	0.181	0.126	-0.118	0.108	-0.041	-0.212	0.007	-0.051	-0.186	0.217
Total # of Dependents	-0.134	-0.132	0.184	0.024	0.196	1	0.061	0.083	-.253*	0.009	-0.135	-0.015	0.012	-0.081	-0.029	0.154	0.060	0.023	0.016	-0.024	0.019	0.012	0.165	0.100	0.055
Caregiver PRs	0.085	0.204	.268*	0.135	0.016	0.061	1	.895**	-0.130	-0.008	-0.002	-0.066	-0.114	-0.163	-0.068	0.101	0.110	-0.067	-0.125	-0.104	0.041	0.195	-0.056	0.020	0.135
Youth PRs	0.161	0.070	.254*	0.162	0.028	0.083	.895**	1	-0.137	-0.024	0.006	-0.105	-0.140	-0.189	0.007	0.088	0.121	-0.065	-0.088	-0.094	0.182	0.191	0.062	0.038	0.122
CBCL Pre-Tx Internalizing	0.006	0.200	-.346**	-.238*	0.047	-.253*	-0.130	-0.137	1	.331**	.650**	.256*	0.078	0.191	.657**	.289*	.546**	0.194	-0.011	0.103	-0.212	-0.120	-0.065	-0.154	-0.004
CBCL Pre-Tx Externalizing	-0.068	0.204	-0.119	0.073	-0.029	0.009	-0.008	-0.024	.331**	1	.863**	0.062	.321**	0.182	0.100	.564**	.379**	0.142	.280*	0.178	-.323*	0.117	-0.119	0.106	0.020
CBCL Pre-Tx Total	-0.063	0.197	-.273*	-0.036	0.055	-0.135	-0.002	0.006	.650**	.863**	1	0.142	.252*	0.221	.320*	.540**	.542**	0.182	0.224	0.203	-.339*	-0.041	-0.151	-0.083	0.046
YSR Pre-Tx Internalizing	-0.090	0.214	-0.232	-0.194	-0.079	-0.015	-0.066	-0.105	.256*	0.062	0.142	1	.495**	.821**	0.177	0.113	0.135	.354**	.271*	.378**	0.102	-0.024	0.082	0.133	0.009
YSR Pre-Tx Externalizing	0.160	0.137	-0.093	-0.155	0.065	0.012	-0.114	-0.140	0.078	.321**	.252*	.495**	1	.808**	0.023	.307*	0.206	.348**	.631**	.547**	-0.251	0.062	-0.106	0.006	-0.099
YSR Pre-Tx Total	-0.029	0.094	-0.213	-0.126	-0.031	-0.081	-0.163	-0.189	0.191	0.182	0.221	.821**	.808**	1	0.062	0.165	0.133	.342**	.474**	.518**	-0.002	0.003	0.047	0.107	-0.045
CBCL Post-Tx Internalizing	0.081	0.196	-0.025	-0.230	-0.061	-0.029	-0.068	0.007	.657**	0.100	.320*	0.177	0.023	0.062	1	.486**	.797**	.329*	-0.030	0.130	-0.033	-0.045	0.080	-0.145	-0.102
CBCL Post-Tx Externalizing	-0.085	0.171	0.100	-0.006	0.181	0.154	0.101	0.088	.289*	.564**	.540**	0.113	.307*	0.165	.486**	1	.859**	.307*	0.244	0.251	-0.084	0.017	0.093	-0.181	0.165
CBCL Post-Tx Total	0.017	0.208	-0.009	-0.143	0.126	0.060	0.110	0.121	.546**	.379**	.542**	0.135	0.206	0.133	.797**	.859**	1	.348**	0.134	0.234	-0.120	-0.029	0.068	-0.248	0.071
YSR Post-Tx Internalizing	0.101	0.172	-0.015	-.266*	-0.118	0.023	-0.067	-0.065	0.194	0.142	0.182	.354**	.348**	.342**	.329*	.307*	.348**	1	.629**	.873**	-0.029	-0.110	0.001	-0.001	-0.132
YSR Post-Tx Externalizing	0.218	-0.022	0.081	-0.172	0.108	0.016	-0.125	-0.088	-0.011	.280*	0.224	.271*	.631**	.474**	-0.030	0.244	0.134	.629**	1	.881**	-0.094	-0.080	-0.029	0.038	0.066
YSR Post-Tx Total	0.137	0.062	0.001	-0.244	-0.041	-0.024	-0.104	-0.094	0.103	0.178	0.203	.378**	.547**	.518**	0.130	0.251	0.234	.873**	.881**	1	-0.034	-0.089	0.015	-0.004	-0.048
Youth Therapeutic Alliance	-0.142	-.318*	0.071	-0.056	-0.212	0.019	0.041	0.182	-0.212	-.323*	-.339*	0.102	-0.251	-0.002	-0.033	-0.084	-0.120	-0.029	-0.094	-0.034	1	0.093	.627**	0.059	-0.064
Caregiver Therapeutic Alliance	-.396**	0.144	0.094	0.208	0.007	0.012	0.195	0.191	-0.120	0.117	-0.041	-0.024	0.062	0.003	-0.045	0.017	-0.029	-0.110	-0.080	-0.089	0.093	1	0.209	.543**	0.172
Youth Tx Satisfaction	-0.065	-.386**	0.152	0.016	-0.051	0.165	-0.056	0.062	-0.065	-0.119	-0.151	0.082	-0.106	0.047	0.080	0.093	0.068	0.001	-0.029	0.015	.627**	0.209	1	.325*	-0.163
Caregiver Tx Satisfaction	-0.110	-0.104	0.090	0.166	-0.186	0.100	0.020	0.038	-0.154	0.106	-0.083	0.133	0.006	0.107	-0.145	-0.181	-0.248	-0.001	0.038	-0.004	0.059	.543**	.325*	1	0.238
Rate of Session Attendance	0.009	-0.154	0.012	.349**	0.217	0.055	0.135	0.122	-0.004	0.020	0.046	0.009	-0.099	-0.045	-0.102	0.165	0.071	-0.132	0.066	-0.048	-0.064	0.172	-0.163	0.238	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix V – CT-CTP Study, MS Study Condition, Zero-Order Correlations Table

	Youth Age	Youth Gender	Caregiver Age	Caregiver Gender	Family Income	Total # of Dependents	Caregiver PRs	Youth PRs	Pre-Tx CBCL Internalizing	Pre-Tx CBCL Externalizing	Pre-Tx CBCL Total	Post-Tx CBCL Internalizing	Post-Tx CBCL Externalizing	Post-Tx CBCL Total	Pre-Tx YSR Internalizing	Pre-Tx YSR Externalizing	Pre-Tx YSR Total	Post-Tx YSR Internalizing	Post-Tx YSR Externalizing	Post-Tx YSR Total	Youth Therapeutic Alliance	Caregiver Therapeutic Alliance	Youth Tx Satisfaction	Caregiver Tx Satisfaction
Youth Age	1	.372**	.355**	-0.012	-0.021	-0.030	0.050	0.060	0.100	-0.180	-0.113	0.171	-0.033	0.057	-0.181	-0.064	-0.187	0.080	0.190	0.089	-0.219	-0.135	-.453**	-0.135
Youth Gender	.372**	1	0.110	-.261*	-0.251	-0.066	-0.041	0.066	0.160	-.304*	-0.128	0.128	-0.143	-0.064	0.017	-0.191	-0.113	0.099	0.137	0.159	0.236	0.206	-0.141	0.198
Caregiver Age	.355**	0.110	1	0.055	0.103	0.069	0.016	-0.027	-0.109	-.269*	-.295*	0.057	-0.090	-0.051	-0.025	-0.020	-0.028	-0.182	-0.083	-0.176	0.059	0.045	-0.115	0.004
Caregiver Gender	-0.012	-.261*	0.055	1	.393**	-0.056	-0.046	0.026	0.178	0.052	0.088	0.116	-0.043	0.004	0.227	0.189	0.207	-0.056	-0.148	-0.159	-0.309	0.162	-0.050	0.007
Family Income	-0.021	-0.251	0.103	.393**	1	-0.189	-0.061	-0.239	.273*	-0.059	0.130	.275*	0.085	0.161	0.056	-0.109	-0.040	-0.093	-0.150	-0.156	-0.239	-0.183	0.028	-0.159
Total # of Dependents	-0.030	-0.066	0.069	-0.056	-0.189	1	.325*	.282*	-.327*	0.194	-0.077	-0.102	0.163	0.037	-0.198	0.157	-0.075	0.098	.296*	0.200	-0.248	0.145	-0.198	-0.061
Caregiver PRs	0.050	-0.041	0.016	-0.046	-0.061	.325*	1	.622**	-0.158	0.022	-0.098	0.030	0.009	0.002	0.055	0.226	0.144	0.082	0.148	0.125	-0.224	-.337*	-0.272	-0.071
Youth PRs	0.060	0.066	-0.027	0.026	-0.239	.282*	.622**	1	-.272*	-0.070	-0.205	-0.231	-0.197	-0.208	0.096	0.218	0.187	0.038	0.090	0.107	-0.089	-0.303	-0.151	-0.037
Pre-Tx CBCL Internalizing	0.100	0.160	-0.109	0.178	.273*	-.327*	-0.158	-.272*	1	0.037	.616**	.636**	0.107	.324*	.351**	-0.119	0.138	.391**	-0.111	0.175	0.015	0.088	-0.174	0.067
Pre-Tx CBCL Externalizing	-0.180	-.304*	-.269*	0.052	-0.059	0.194	0.022	-0.070	0.037	1	.735**	0.208	.783**	.635**	0.018	.423**	0.206	0.219	.405**	.369**	-0.300	-0.147	-0.138	-0.151
Pre-Tx CBCL Total	-0.113	-0.128	-.295*	0.088	0.130	-0.077	-0.098	-0.205	.616**	.735**	1	.470**	.615**	.675**	0.242	0.226	.261*	.320*	0.179	.333*	-0.144	-0.149	-0.147	-0.104
Post-Tx CBCL Internalizing	0.171	0.128	0.057	0.116	.275*	-0.102	0.030	-0.231	.636**	0.208	.470**	1	.524**	.744**	.311*	0.211	0.248	.456**	0.183	.353**	-.353*	-0.122	-.557**	-0.060
Post-Tx CBCL Externalizing	-0.033	-0.143	-0.090	-0.043	0.085	0.163	0.009	-0.197	0.107	.783**	.615**	.524**	1	.911**	0.093	.450**	0.241	.286*	.481**	.423**	-.492**	-0.197	-.397**	-0.222
Post-Tx CBCL Total	0.057	-0.064	-0.051	0.004	0.161	0.037	0.002	-0.208	.324*	.635**	.675**	.744**	.911**	1	0.161	.402**	.269*	.333*	.380**	.419**	-.469**	-0.239	-.500**	-0.193
Pre-Tx YSR Internalizing	-0.181	0.017	-0.025	0.227	0.056	-0.198	0.055	0.096	.351**	0.018	0.242	.311*	0.093	0.161	1	.523**	.893**	.489**	0.130	.349*	0.126	0.204	0.086	0.240
Pre-Tx YSR Externalizing	-0.064	-0.191	-0.020	0.189	-0.109	0.157	0.226	0.218	-0.119	.423**	0.226	0.211	.450**	.402**	.523**	1	.798**	.283*	.503**	.440**	-0.165	-0.130	-.300*	-0.019
Pre-Tx YSR Total	-0.187	-0.113	-0.028	0.207	-0.040	-0.075	0.144	0.187	0.138	0.206	.261*	0.248	0.241	.269*	.893**	.798**	1	.432**	.296*	.433**	0.002	0.037	-0.046	0.187
Post-Tx YSR Internalizing	0.080	0.099	-0.182	-0.056	-0.093	0.098	0.082	0.038	.391**	0.219	.320*	.456**	.286*	.333*	.489**	.283*	.432**	1	.564**	.874**	-0.085	-0.085	-0.180	0.013
Post-Tx YSR Externalizing	0.190	0.137	-0.083	-0.148	-0.150	.296*	0.148	0.090	-0.111	.405**	0.179	0.183	.481**	.380**	0.130	.503**	.296*	.564**	1	.841**	-0.263	-0.218	-.293*	-0.097
Post-Tx YSR Total	0.089	0.159	-0.176	-0.159	-0.156	0.200	0.125	0.107	0.175	.369**	.333*	.353**	.423**	.419**	.349*	.440**	.433**	.874**	.841**	1	-0.102	-0.205	-0.240	-0.036
Youth Therapeutic Alliance	-0.219	0.236	0.059	-0.309	-0.239	-0.248	-0.224	-0.089	0.015	-0.300	-0.144	-.353*	-.492**	-.469**	0.126	-0.165	0.002	-0.085	-0.263	-0.102	1	0.276	.587**	0.267
Caregiver Therapeutic Alliance	-0.135	0.206	0.045	0.162	-0.183	0.145	-.337*	-0.303	0.088	-0.147	-0.149	-0.122	-0.197	-0.239	0.204	-0.130	0.037	-0.085	-0.218	-0.205	0.276	1	.405*	.662**
Youth Tx Satisfaction	-.453**	-0.141	-0.115	-0.050	0.028	-0.198	-0.272	-0.151	-0.174	-0.138	-0.147	-.557**	-.397**	-.500**	0.086	-.300*	-0.046	-0.180	-.293*	-0.240	.587**	.405*	1	0.268
Caregiver Tx Satisfaction	-0.135	0.198	0.004	0.007	-0.159	-0.061	-0.071	-0.037	0.067	-0.151	-0.104	-0.060	-0.222	-0.193	0.240	-0.019	0.187	0.013	-0.097	-0.036	0.267	.662**	0.268	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).