

UNIVERSITY OF CALIFORNIA, SAN DIEGO

SAN DIEGO STATE UNIVERSITY

'Usual Care' Psychotherapy Outcomes Associated with Therapist Use of Case Management in
the Treatment of Youths who have Disruptive Behavior Problems

A dissertation submitted in partial satisfaction of the requirements for the degree

Doctor of Philosophy

in

Clinical Psychology

by

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2011

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DEDICATION

This work is dedicated to my grandmother, Marjorie Alexander, who truly and genuinely believes I can achieve anything I set my mind to accomplish. She has always been my greatest cheerleader.

This dissertation is dedicated to my mother, Sharon Zoffness, who has been unfailingly loving and supportive since the day I planted my feet, clad in saddle shoes, in elementary school.

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ACKNOWLEDGEMENTS

I would like to acknowledge Dr. Ann Garland, the Chair of my Dissertation Committee and advisor, whose dedication helped me complete this final task. Many thanks to my Guidance Committee, who met with me each year to provide supervision, advice, support and direction: Dr. Garland, Dr. Price, and Dr. Yeh. I would also like to acknowledge and thank Dr. Roesch and Bill Ganger for their invaluable assistance with all things statistical, as well as Dr. Brookman-Frazer for being the “gold standard” of tape-coders.

To my friends and family, who have provided unfailing and invaluable support throughout this journey: Ramon, whose motivation and inspiration helped set me along this path; Jay, the best listener I know; Eli, my brother; Amanda, who gives without asking and loves her friends with her whole heart; Helene, Amelia, Sara and Tiffany, my JDP support system; and Katherine, my unofficial mentee, who was, in truth, always a mentor.

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ABSTRACT OF THE DISSERTATION

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Children with disruptive behavior problems (DBPs) represent the majority of youth patients in community-based, usual care (UC) psychotherapy, and are at high risk for maladaptive adolescent and adult outcomes (Copeland et al., 2007; Earls, 1994a). Improved knowledge about effective treatments for this population is essential. Although there is movement towards implementing evidence-based practices (EBPs) into UC, there are numerous barriers. Among these is a lack of knowledge regarding psychotherapeutic processes in usual care. Researchers and practitioners suggest that case management (CM) is a widely-used, essential, and effective component of treatment for this population (Burns et al., 1996; Hoagwood et al., 2001; Garland et al., 2010). CM includes coordinating care with psychiatrists and school professionals, child protective services, and referring families to

community-based resources (Ziguras & Stewart, 2000). The current study examines the association between intensity of therapist use of CM and six outcomes: (1) youth symptom severity, (2 &3) family functioning (parent and youth reports), (4) attendance, and (5 & 6) satisfaction (parent and youth reports). This study also examines potential moderator effects of therapist discipline and therapist experience on the relationship between CM and outcomes.

Analyses were conducted using Hierarchical Linear Modeling (HLM) to account for the nested structure of the data. Results suggest that while there was no first-order effect of CM on outcomes, therapist ($N=77$) variables significantly moderated the relationships between CM and outcomes. For Social Workers and therapists with more experience, higher levels of CM intensity were associated with a greater decrease in youth symptomatology ($N=165$). For Psychologists, more intensive use of CM was associated with greater improved family functioning. This study suggests that CM can positively affect youth outcomes in the context of UC when utilized effectively. This study is a first step towards examining the role of CM in community-based psychotherapy, and its contribution to outcomes for youth with DBPs. Results also have implications for future efforts to implement EBPs in usual care psychotherapy.

INTRODUCTION

A number of major studies of system reform and organization are calling into question the effectiveness of current “usual care” (UC) mental health treatment practices, and have identified the complexities of implementing effective, evidence-based practices into the community (Blanchard, Gurka & Blackman, 2006; NAMHC, 1998; NAMHC, 2000; NAMHC, 2001; PA-00-135, 2000). Unfortunately, there is very little research describing treatment processes or elements of treatment utilized in UC, especially for children. NIMH and prominent investigators have called for more systematic research on the nature and impact of UC clinical practice, and many have emphasized that this work should be conducted in collaboration with practitioners (Burns, Hoagwood & Mrzack, 1999; Kazdin, 2000; NAMHC, 2001; Weisz, Donenberg, Han & Kauneckis, 1995). Such calls reflect serious concern about the current lack of integration between the evidence-base and the practice of child psychotherapy, and recognition that comprehensive knowledge of current care practices is an essential foundation for implementing efforts to improve care through greater integration of evidence-based practice.

This study is linked to a larger study, Practice and Research: Advancing Collaboration (PRAC; P.I.: Garland, NIMH R01MH660770) which examines (1) the techniques and content of UC psychotherapy, (2) the extent to which UC psychotherapy is consistent and inconsistent with common elements of evidence-based practice, and (3) how UC treatment processes are associated with differential outcome trajectories. The PRAC study focuses on outpatient psychotherapy for children ages 4-13 with disruptive behavior problems (DBPs). The majority of youth served in outpatient public mental health service systems are referred for disruptive behavior problems (Garland, Hough, McCabe, Yeh, Wood & Aarons, 2001), problems that are associated with high risk for a variety of maladaptive adolescent and adult outcomes (Copeland, Miller-Johnson, Keeler, Angold & Costello, 2007; Earls, 1994a; Earls, 1994b;

Quinn & Epstein, 1998). DBPs are also challenging and costly for families and for society at large (Earls, 1994a; Kazdin, 1987). Furthermore, it has been suggested that at least half of youth patients treated in UC psychotherapy do not achieve positive outcomes, and little to no treatment effect has been reported for patients in UC compared to controls (Bickman, 1996; Warren, Nelson & Burlingame, 2009; Warren, Nelson, Mondragon, Baldwin & Burlingame, 2010; Weiss, Catron, Harris & Phung, 1999; Weisz, 2004). Improved knowledge about effective treatment for this patient population therefore has great potential for impacting public health.

Numerous challenges for the integration of evidence-based practice in UC settings have been identified (Addis & Krasnow, 2000; Addis, Wade & Hatgis, 1999; Essock, Goldman, VanTosh, Anthony, Appel & Bond, 2003; Kazdin & Wassell, 2000a). One of the challenges often cited by clinicians is the need to provide a great deal of “case management” to patients and their families because they present with multiple, complex needs and broader system-level problems beyond the scope of traditional psychotherapy (Essock et al., 2003; Garland, Plemmons & Koontz, 2006; Zoffness, Garland, Brookman-Frazee & Roesch, 2009). These reports are supported by a recent study by Garland, Brookman-Frazee, et al. (2010) using the PRAC data, which reports that case management (CM) is the most commonly observed therapeutic practice element directed to caregivers in a large sample of usual care treatment (Garland, Brookman-Frazee, et al., 2010). Case management as defined in the available literature is “extra-therapeutic” care that includes coordinating care with psychiatrists, teachers and school staff, and agency representatives (e.g., child protective service workers, probation officers), as well as referring youth and families to other community-based resources, such as after-school programs and substance abuse treatment for caregivers (Garland, Brookman-Frazee, et al., 2010; King, 2006; McPherson, Weissman, Strickland, van Dyck, Blumberg & Newacheck, 2004; Ziguras & Stewart, 2000; Zoffness et

al., 2009). It is possible, given this evidence, that the clinical demand for CM interferes with the delivery of more traditional, evidence-based psychotherapeutic strategies designed to change behaviors. Unfortunately, there is no data available to examine the role of CM in usual care, only its prevalence. Therefore, the primary objective of this research is to gain an understanding of the use and impact of CM in usual care psychotherapy for youths and families. Specifically, this study examines how intensity of therapist use of CM is associated with youth behavioral outcomes, family functioning, attendance, and client satisfaction, and therapist characteristics that potentially moderate these effects.

Treatment research for youth with DBPs has primarily focused on evidence-based practices (EBPs), treatments shown in randomized, controlled trials to be most effective for improving outcomes (Brestan & Eyberg, 1998; Kazdin, 2000; Kazdin & Weisz, 1998; Wadell & Godderis, 2005). Several interventions are reportedly successful for treating DBP youth in research settings, such as Parent-Child Interaction Therapy (PCIT), anger management, and parent training (Chambless et al., 1998; Eyberg et al., 2008; Hoagwood et al., 2001; Garland, Hawley, Brookman-Frazer & Hurlburt, 2008; Weisz, Weiss, Han, Granger, & Morton, 1995). However, treatment efficacy in controlled trials does not necessarily translate to effectiveness in community-based care. Questions have been raised as to the generalizability and sustainability of EBPs in a community setting (Bickman, 2002; Hawley & Weisz, 2002; Weisz, Donenberg, Han & Weiss, 1995). Highly structured psychotherapy interventions may not always emphasize broader contextual issues, such as school placement, educational programming, parental psychopathology, and linking families to community resources (Chorpita et al., 2002; Nelson, Steele & Mize, 2006; Weisz, Jenson & McLeod, 2005). Furthermore, practitioners report that some EBPs may not be as relevant to UC as they could be, perceiving that some EBPs do not typically emphasize issues such as comorbidity,

individualized and flexible treatments, and coordinating “extra-therapeutic” care or CM (Abrahamson, 1999; Garland et al., 2006).

Treatment of Youth with DBPs: The Evidence Base

Studies have shown that numerous EBPs outperform usual care psychotherapy in clinical outcomes for youths with DBPs and their families; in fact, meta-analytic reviews of UC treatment suggest limited effectiveness (Weisz, 2004; Weisz & Jensen, 2001; Weisz, Jensen-Doss & Hawley, 2006; Weisz, Weiss & Donenberg, 1992). A recent meta-analysis of 32 randomized trials that directly compared evidence-based treatments (EBTs) to UC psychotherapy found that UC was not as effective as evidence-based treatments in treating youth with multiple diagnoses (Weisz et al., 2006). In contrast, studies of structured, protocol-guided EBPs typically show medium to large effects for youths diagnosed with DBPs (Eyberg, Nelson & Boggs, 2008; Weisz et al., 2006). Overall, research suggests that EBPs have great potential to improve mental health functioning, but the extent to which these treatments are delivered, or can be delivered in UC contexts is not well known. Weisz, Jensen-Doss and Hawley (2006) suggest that the implementation of EBPs could potentially be improved by conducting intervention research in collaboration with mental health providers to identify effective treatments, adapting EBPs to fit the conditions of usual clinical care, and promoting greater therapist flexibility in using elements of EBPs.

Evidence-based treatments vary in their emphasis on case management, in that some are more flexible and context-oriented than others. For example, Multisystemic Therapy (MST), which has a strong research base, targets not only the child, but his/her environment, including family, peers, school and neighborhood (Henggeler, Schoenwald, Borduin, Rowland & Cunningham, 1998; Henggeler, Schoenwald, Rowland & Cunningham, 2002; Littell, 2005). In MST, care is coordinated across multiple sectors, as case management is considered an

essential component of treatment. In this way, MST differs from other, highly-structured interventions such as Behavioral Therapy and Cognitive Behavioral Therapy (CBT). Additional research has focused specifically on interventions that are integrated into mental health treatments to address multiple systems and “extra-therapeutic” care, such as wraparound services. Wraparound services, commonly used by social workers and other mental health care professionals to supplement treatment, incorporate assessing child and family needs across multiple life domains, including home and school (Burns, Schoenwald, Burchard, Faw & Santos, 2000; VanDenBerg & Grealish, 1996). As a framework for treatment planning, wraparound care includes issues of residence, foster care, family members’ needs, social support networks, psychological needs, education, individualized education plans (IEPs) and medication (Burns et al., 2000; VanDenBerg & Grealish, 1996).

Barriers to Implementing EBPs

Despite the growing research base on efficacious and effective interventions for youths with DBPs, little is known about how often or extensively these interventions are utilized by practitioners in UC (Garland, Hurlburt & Hawley, 2006; Hoagwood, 2003; Kazdin, 2000). UC is difficult to characterize and evaluate for multiple reasons, including its variability, patient comorbidity, and the overall complexity of real-world mental health care (Brookman-Fraze, Haine & Garland, 2006; Garland et al., 2006; Weisz, 2004; Weisz, Chu & Polo, 2004; Yeh et al., 2002). Large-scale studies such as this one that rigorously examine UC psychotherapy for children with DBPs have not yet been conducted, limiting our ability to address or break down existing barriers to dissemination (Kazdin, 2000; Weersing & Weisz, 2002). Furthermore, most of the existing effectiveness studies of UC psychotherapy for youth have not specifically examined therapy processes (Garland et al., 2006; Hoagwood, 2003).

Understanding UC practice is a critical first step towards implementing EBPs in community-based settings and improving usual care.

A primary barrier impeding the implementation of EBPs into community-based settings is the gap between research and practice treatment perspectives (Addis & Krasnow, 2000; Addis et al., 1999; Weisz, Donenberg, Han & Weiss, 1995; Hawley & Weisz, 2002; Weisz & Jensen, 2001; Weisz, Jenson & McLeod, 2005). Some practitioners have expressed skepticism of highly structured, manualized interventions, questioning their applicability, efficacy, flexibility, and feasibility (Abrahamson, 1999; Brookman-Frazee, Garland, Taylor & Zoffness, 2009; Nelson et al., 2006; Weisz, Donenberg, Han & Weiss, 1995). Research suggests that the environments or contexts in which highly structured, manualized EBPs are generated, such as the settings, the providers, and the patients, are not necessarily representative of conventional clinical practice, and that some of these treatments do not take into account the complex, contextual factors that practitioners confront in the real world, such as patient comorbidity, parental psychopathology, and economic difficulties (Addis & Krasnow, 2000; Bickman, 2002; Garland, Kruse & Aarons, 2003; Garland et al., 2006).

The Importance of Examining UC Psychotherapy

A number of major studies of system reform and organization are calling into question the effectiveness of current treatment practices for youth, and identifying the complexities of implementing science-based services into the community (Blanchard et al., 2006). There have been calls for a more comprehensive, interdisciplinary approach to children's mental health, focusing not only on treatment type, but also on familial involvement and environmental influences. This approach emphasizes the importance of maintaining children in their communities, coordinating services across multiple life domains, and involving families in the

delivery and planning of treatment and services (NAMHC, 1998; NAMHC, 2001; Stroul & Friedman, 1996).

The general consensus is that usual care cannot be changed or improved until it is better understood. Researchers have suggested that studies comparing UC to EBTs are not adequate due to the fact that descriptions of UC are so meager that they do not permit adequate characterization (Bickman, 2000; Weisz, Jenson-Doss, and Hawley, 2006). Bickman (2000) refers to usual care treatment as a “black box,” suggesting that so little is known about UC that improvement is hindered by our lack of knowledge. In a meta-analysis of mental health treatment, the studies included provided minimal information regarding components or procedures of UC, the type of therapists providing care, or the characteristics of the youth patients being treated (Weisz et al., 2006). Characterizing UC could help identify the techniques and strategies used in clinical care that show beneficial effects, justifying further testing and potential dissemination. As Bickman (2000) suggests, as long as our knowledge of UC psychotherapy is impoverished, we cannot improve interventions. It is therefore important to characterize usual care, describe how often and extensively specific elements of treatment are used in community-based psychotherapy, and how specific elements of treatment affect outcomes as a first step towards improving UC for youth.

This study examines the association between one of the most commonly used strategies in UC for youth with DBPs, therapist use of CM, and youth and family outcomes at six outpatient clinics in San Diego. Potential therapist moderators of CM on outcome, therapist discipline and therapist experience, are also examined to determine the impact of these therapist variables on the relationship between CM and outcomes.

Case Management in UC Psychotherapy for Youth

As described in the introduction, research and anecdotal reports suggest that one of the major components of community-based treatment for youth is clinical case management (Garland, Brookman-Frazee, et al., 2010; King, 2006; McPherson et al., 2004; Ziguras & Stuart, 2000; Zoffness et al., 2009), which includes coordinating care with teachers, psychiatrists, and school psychologists; respite care for caregivers; attending and reviewing individualized education plans (IEPs); contact with Child Protective Services (CPS), and referrals to other home and community-based services (McGrew, Pescolido & Wright, 2003; Rapp, 1998; Zima et al., 2005). In fact, CM-specific treatments have been established as EBPs in both the adult and youth mental health literature, including Assertive Community Treatment (ACT) and Intensive Case Management (ICM) (Allred, Burns & Phillips, 2005; Bond, Drake, Mueser & Latimer, 2001; Burns et al, 1996; Burns et al., 1999; Hoagwood, Burns, Kiser, Ringeisen & Schoenwald, 2001; Holloway & Carson, 2001; Mueser, Bond, Drake & Resnick, 1998; Salayers et al., 2003; Schaedle, McGrew, Bond & Epstein, 2002). Studies have shown that CM is associated with improved functioning, fewer hospital admissions, and fewer days spent in the hospital (Evans, Dollard, Kuppinger, Wood, Armstrong & Huz, 1994; Evans, Huz, McNulty & Banks, 1996), as well as increased coordination with and usage of community-based services and longer participation in services (Burns et al., 1995; Burns, Farmer, Angold, Costello & Behar, 1996). Researchers have suggested that case management is an essential component of mental health treatment for youth patients, as children exist in contexts that prominently feature their parents, schools, and peer influences.

Coordination of “extra-therapeutic” care may be particularly important for youth with DBPs, as research suggests that these children do not participate in social activities outside of school as often as their peers and have lower rates of participation in familial and community activities (Blanchard et al., 2006). Studies have shown that youth with DBPs also tend to miss

school because of suspensions for “bad behavior,” victimization, fear of failure, and low self-esteem (Blanchard et al., 2006). Additionally, children receiving mental health services in the public sector may require more resources and services because they have more severe illnesses, lower socioeconomic status, and more psychosocial stressors than youth in the private sector (Burns et al., 2000; Littell, 2005). It has been suggested that children with behavioral problems are more likely to improve when supportive relationships among the family, school, and community are facilitated and integrated into treatment (Burns et al., 2000). VanDenBerg and Grealish (1996) further suggest that coordinating care for each individual child is essential for quality, effective, community-based care. It follows that therapists may therefore need to coordinate care with other health and social service professionals to varying degrees depending on the patient and family. However, as not all mental health treatments incorporate CM to the same degree, it is important to examine how often and intensively this technique is used in vivo by therapists trained in various disciplines and how it is associated with outcomes.

In meetings with a therapist advisory group (TAG) for the PRAC project, clinicians reported that CM is an important, commonly used component of treatment in UC psychotherapy with youths with DBPs (Garland et al., 2006). These clinicians further suggested that the amount of time and energy they spend coordinating care may hinder their ability to implement elements of evidence-based treatment for this population. Consistent with therapists’ perceptions, the overall consensus on research of youths with DBPs suggests that quality mental health care for this population should include psychosocial treatment, familial involvement, medication referral/monitoring and appropriate linkage to other service sectors, suggesting that CM is indeed an integral component of treatment (Littell, 2005; Zima et al., 2005; Zoffness et al., 2009).

The PRAC data supports therapist's reports that CM is a frequently-utilized strategy in UC psychotherapy for youth with DBPs. Zoffness et al. (2009) found that CM was the primary treatment strategy directed to parents of youth with DBPs by therapists in UC, and was utilized in approximately 72% of sessions in which caregivers were present ($N=260$). In a paper exploring predictors of therapist use of CM, Zoffness et al. (2009) found that both youth and therapist characteristics were significantly associated with therapist use of CM. Specifically, therapists from the social work discipline used CM more intensively than therapists from either a Psychology or MFT background. Youth characteristics associated with more intensive CM use were gender and symptom severity; youth who were male and youth who had high symptom severity received more intensive CM than females or youth with low symptom severity.

In order to examine psychotherapeutic process using both evidence- and practitioner-based input, this study focuses on the association between case management in usual care and outcomes. CM is an under-researched element of UC psychotherapy, and understanding the role it plays in community-based psychotherapy may shed light on potentially effective elements of community-based care.

Youth and Family Outcomes

It is important to examine heterogeneous outcomes and to identify treatment processes that may be associated with individual variation across outcomes. The NIMH "Bridging Science and Service" report (NAMHC, 1998) calls for research that examines how process variations in UC psychotherapy are associated with outcome changes. A related call for research on community-based treatment cites the importance of identifying the contexts and individuals for whom mental health treatment is and is not effective, including how individuals are differently impacted by mental health interventions (Brookman-Frazee et al.,

2006; NAMHC, 2001). To this end, Hoagwood, Jensen, Petti and Burns (1996) propose a multimodal, dynamic conceptualization of youth mental health services in which they identify multiple important outcome domains, including child functioning, family functioning, consumer perspectives (e.g., satisfaction), and service use outcomes. Kazdin and Wassell (2000b) similarly encourage a broader definition and measurement of outcomes, and various researchers have suggested that the impact of child psychotherapy will be underestimated if symptoms are the only outcome measure (Hoagwood et al., 1996; Kazdin & Weisz, 1998). Furthermore, different informants, such as parent and child, do not always perceive therapy the same way, let alone agree on outcome changes across domains (Brookman-Frazer et al., 2006; Hawley & Weisz, 2005). Therefore, in order to obtain a more comprehensive view of how case management affects patients and families, six outcomes are included in this study, two with youth and parent informants: (1) symptom severity, (2 & 3) family functioning (youth and parent report), (4) attendance, and (5 & 6) satisfaction (youth and parent report).

Symptom severity. “Progress” or “improvement” is generally defined as a decrease in symptom severity, an important variable to measure when examining treatment effectiveness (Warren et al., 2009; Warren et al., 2010; Weiss et al., 1999; Weisz, 2004). Studies that have examined functional outcomes of patients in UC psychotherapy suggest small effect sizes (Weiss et al., 1999; Weisz, 2004), while more recent studies suggest that 56% of youth in UC do not show a significant improvement in symptomatology (Warren et al., 2010). However, these studies do not examine the effect of individual elements of treatment on outcomes, and highlight the need to identify treatment components that may be more or less successful at decreasing symptom severity. Furthermore, there have been calls to expand the range of outcome indicators beyond symptom severity (Hoagwood et al., 1996). Examining a broader range of outcome domains is also important given the negligible effects observed for community-based treatments when outcome assessment is restricted solely to symptoms

(Weiss et al., 1999; Weisz, Donenberg, Han & Weiss, 1995; Weisz, Weiss, Han, Granger & Morton, 1995).

Family functioning. It has been suggested that an important indicator of youth progress in treatment is improved family functioning, and that this should also be examined when determining treatment effectiveness (Baker-Erikson & McKewen, 2007; Hoagwood et al., 1996). Parent and family factors are known to have an impact on youth psychotherapy (Baker-Erikson, Jenkins & Brookman-Frazee, 2010; Sales, Greeno, Shear, & Anderson, 2004). Preliminary analyses of parent interview data from studies of UC psychotherapy indicate that almost half of participant families report clinical levels of parent psychopathology, and almost three fourths report clinical levels of stress (Baker-Ericzen & McKeown, 2007). However, the extent to which family functioning might be improved by UC psychotherapy is largely unknown, as there have been few outcome studies of community-based care that include measures of family outcomes. The importance of examining family functioning is further indicated by evidence-based treatment efficacy studies that report improvements in family functioning post-intervention (Kazdin & Wassell, 2000b; Webster-Stratton, Hollinsworth & Kolpacoff, 1989). As outcome studies of EBPs have shown change in family outcomes to be significant post-treatment, studies of usual care should also examine the impact of UC on family functioning to compare and understand possible differences.

Attendance (number of sessions attended). Very little is known about how elements of treatment affect service use outcomes such as attendance, particularly in the context of UC psychotherapy. Multiple researchers have suggested that service use is an important outcome indicator to examine in addition to improved functioning and symptom reduction (Bickman et al., 1995; Hoagwood et al., 1996). A study that did address both functional and service use outcomes in UC psychotherapy, the Fort Bragg study (Bickman et al., 1995; Bickman,

Lambert, Andrade & Penaloza, 2000), suggests that while behavioral and functional outcomes did not change significantly after treatment, service use outcomes did change.

Great variability exists in the amount of treatment patients receive, and there are high rates of premature termination (Warren et al., 2009). As sustained and consistent treatment attendance is thought to be an important component of effective care, there have been calls to examine service use patterns and determinates of service use for youth in public sector treatment settings (Brookman-Fraze, Haine, Gabayan & Garland, 2008; NAMHC, 2001). This is particularly important because attrition and treatment failure are significant issues in mental health treatment in community-based care (Bishop, Bybee, Lambert, Burlingame, Wells & Poppleton, 2005; Weisz, Donenberg, Han & Kauneckis, 1995; Warren et al., 2009). It is therefore important to explore whether certain elements of UC treatment, such as CM, are associated with this outcome.

Satisfaction: Perceived effectiveness. It has been suggested that examining the association between specific elements of treatment, such as case management, and various outcomes - including both functional and service use outcomes - is essential if we are to improve the quality of community-based services (Bickman, 2000; Garland, Saltzman & Aarons, 2000). Satisfaction with mental health services is commonly used as an indicator of service quality. While there is a fair amount of research on other correlates of satisfaction, very little has been done to examine practice processes (Garland, Haine & Lewczyk-Boxmeyer, 2007). In fact, less than 10% of studies of youth psychotherapy outcome research include some measurement of satisfaction (Weisz, Doss & Hawley, 2005). To further support the idea that satisfaction is an important outcome variable, UC therapists report that clients' self-reported satisfaction with treatment is a valuable outcome measure for assessing treatment effectiveness (Garland et al., 2003). Interestingly, a study by Garland et al. (2007) examining various child, parent and therapist predictors of satisfaction did not find many significant

effects. However, the association between UC psychotherapy and satisfaction has not been comprehensively examined. This study examines the relationship between CM and satisfaction reported by both youths and parents. Specifically, this study examines families' perceived effectiveness of treatment, and also examines therapist characteristics that may moderate this relationship.

In sum, this study combines research from conceptual models of youth outcomes and multiple informant research. Specifically, conceptual models identify multiple outcome measures that are important to assess in child services (Hoagwood et al., 1996). Research further emphasizes the importance of gathering outcome data from more than one source, as reports of change in outcomes may not be consistent across informants (Brookman-Frazer et al., 2006; Kazdin, 2000). As such, the present study examines the relationship between CM and six different outcomes: symptom severity, youth report of family functioning, parent report of family functioning, attendance, youth satisfaction, and parent satisfaction.

Outcome measurement at 4 months. Various studies of outcome trajectories in UC psychotherapy suggest that youth patient change has a curvilinear trajectory, such that the rate of change is most rapid at the beginning of treatment and tapers off over time (Warren et al., 2010). As the most change in outcome is generally observable in the first months of treatment, outcomes were assessed at the 4 month time-point to optimize the chances of identifying variables associated with the most change, as well as maximizing the amount of data available for analysis (Bickman et al., 2000; Lambert, Salzer & Bickman, 1998; Warren et al., 2009; Warren et al., 2010).

Therapist Variables

Research suggests that therapist variables have a significant effect on patient outcomes for both adult and youth patients (Crits-Christoph et al., 1991; Karver, Shirk,

Handlesman, Fields, Crisp & Gudmundsen, 2008; Kim, Wampold & Bolt, 2006; Lutz, Leon, Martinovich, Lyons & Stiles, 2007; Mattson, Del Boca, Carroll, Cooney, DiClemente & Donovan, 1998). Research suggests, in fact, that a significant amount of outcome variance in patient outcomes is due to differences between therapists (Crits-Christoph et al., 1991). It has been shown that both therapist discipline and therapist experience, examined as potential moderators in this study, affect strategies used in practice, influence therapists' attitudes towards treatment, and have meaningful effects on various outcomes (Beutler, Malik, Alimohamed, Harwood, Talebi & Noble, 2004; Huppert, Bufka, Barlow, Gorman, Shear & Woods, 2001). For example, therapist discipline has specifically been shown to be associated with attendance in UC psychotherapy (Brookman-Frazee et al., 2008). Therapist discipline has also been shown to be associated with intensity of CM use in community-based settings; specifically, social workers were observed delivering more intensive CM than psychologists or MFT providers (Zoffness et al, 2009).

Therapist experience, defined here as number of months practiced, may also moderate the relationship between CM and outcomes. Previous studies have shown that therapist experience affects attitudes towards psychotherapy, EBPs, and outcome measurement (Aarons, 2004; Beutler et al., 2004; Huppert et al., 2001; Garland et al., 2003). Regarding therapist perspectives on EBPs, research suggests that therapists in usual care who have less experience have more positive attitudes towards EBPs than therapists who have been in the mental health field for longer periods of time (Aarons, 2004; Brookman-Frazee et al., 2009; Garland, Brookman-Frazee, et al., 2010). Therapist experience has also been linked to attitudes regarding the utility of standardized outcome assessment measures, in that interns and post-doctoral students viewed them more favorably than therapists with more experience (Garland et al., 2003). Therapist experience has also been linked to outcomes (Crits-Christoph et al., 1991; Garland et al, 2007). When comparing the size of therapist effects on outcomes,

Crits-Christoph et al. (1991) found that more inexperienced therapists were associated with larger therapist effects than more experienced therapists. Garland et al., (2007) found that therapist experience was associated with client satisfaction. As these therapist variables may influence the treatment process as well as youth and family outcomes, therapist discipline (Psychologist [PSY], Social Worker [SW], Marriage and Family Therapist [MFT]) and therapist experience (measured in months practiced) are examined in this study as potential moderators of the relationship between CM intensity and outcomes.

Aims and Hypotheses

Aim 1. To examine how therapists' in-session use of CM (CM intensity score) with parents of youths ages 4-14 with DBPs in psychotherapy sessions is associated with youth symptom severity, family functioning, attendance, and satisfaction outcomes.

Hypothesis 1. Previous research suggests that therapists primarily direct CM strategies towards parents, as interventions for youth with DBPs are complex and often require parental involvement (e.g., reviewing an IEP, discussing medication management; Garland, Brookman-Frazee, et al., 2010; Zoffness et al., 2009). Therapists who use more intensive CM in session may link their clients to more community-based services and make more referrals than therapists who use CM less intensively, which may be associated with greater attendance and higher satisfaction. Because CM is a strategy that involves linking youth and families to other services outside of traditional psychotherapy, families may attend more sessions and report higher satisfaction with treatment because it may be perceived as more comprehensive, and they may feel like therapy addresses larger systemic issues beyond symptomatology, including familial and economic issues, thus meeting more of their needs. More intensive use of CM directed at parents may also be associated with improved family functioning, as case management targets issues beyond individual clients, extending to family, economic, and

school issues. However, more intensive use of CM may not be associated with a significant decrease in youth symptom severity. Youths with more severe problems across multiple domains may require more interdisciplinary care, compelling therapists to spend less time on directive, evidence-based elements of treatment that target symptomatology and more time coordinating extra-therapeutic care for youths and their families.

Aim 2. To identify whether therapist discipline and experience moderate the relationship between therapist use of CM and outcomes, and how these variables affect the CM – outcome relationship.

Hypothesis 2. Therapist discipline and experience will significantly moderate the relationship between CM intensity and outcomes. The relationship between CM and outcomes may depend on the discipline of the mental health provider, as some therapists may have more training and experience using CM and thus use it more effectively. For example, the relationship between CM intensity and family functioning may differ depending on therapist discipline. Specifically, for Social Workers, higher levels of CM intensity may be associated with higher family functioning at 4 months. This is hypothesized based on the fact that Social Workers are trained to integrate CM into treatment, maybe more aware of available community resources to help families, and may be more comfortable using this intervention than therapists of other disciplines. This hypothesis is further supported by findings that Social Workers utilize CM directed at parents with significantly more intensity in the UC setting than MFTs or Psychologists (Zoffness et al., 2009). Similarly, the relationship between CM and service use outcomes may depend on therapist experience. Therapists who have more experience may have been exposed to more complex, community level issues than therapists with little experience; they may therefore not only have more experience with UC psychotherapy, but with CM. More experience using this technique may be linked to greater comfort using it, as well as increased knowledge about community-based resources. Families

who receive more intensive extra-therapeutic care by therapists who have greater experience may be encouraged to return to treatment and feel more satisfied with treatment, as many needs are addressed by CM. For therapists with more experience, greater CM intensity may therefore be associated with higher attendance and perceived effectiveness.

The aims of this study are illustrated graphically in Figure 1. Although the first- order effect between therapist variables and outcomes was statistically evaluated as part of the analytic process, it is not included in the aims and is beyond the scope of this study. This is indicated by the dotted line from level 2 variables to level 1 outcomes and the parentheses around this effect in the heuristic provided.

METHOD

Sample

This study uses data extracted from a larger study, "Practice and Research: Advancing Collaboration" (PRAC; P.I.: Garland, NIMH R01MH660770) which examines treatment process and outcomes of community-based psychotherapy. This sub-study focuses specifically on therapist use of CM in psychotherapy sessions in order to examine outcomes associated with CM, as well as therapist characteristics that may moderate the relationships between CM and outcomes. This project, including all consent documents, was reviewed and approved by the UCSD School of Medicine IRB, the Rady Children's Hospital of San Diego IRB, the San Diego State University IRB, and the San Diego County Mental Health Services Research Committee.

Participating Clinics. The six participating clinics were selected because they represent the largest contractors for publicly funded, clinic-based, outpatient care for children in San Diego County. Their geographic dispersion maximizes the representativeness of urban, suburban and semi-rural areas, as well as racial and ethnic diversity. The six clinics have the same funding source and serve youth and families with a wide range of diagnoses and presenting problems.

Participating Clinicians. Therapists reported their therapeutic discipline, primary theoretical orientation, months of experience, age, gender, and highest degree achieved via self-report at baseline. The two primary therapist variables of interest in this study are therapist discipline and months of experience. The sample includes 77 clinicians practicing in six community-based clinics in San Diego County. Eighty-five percent ($N = 66$) of this sample is female, and 66% were Caucasian, although other ethnicities were also represented in this sample. Therapists had a mean of 2.6 years of psychotherapy experience (range = 0-25 years),

and just over half the sample were MFTs and had a Masters Degree. Clinicians were provided with an honorarium (\$100) for agreeing to participate in the study, regardless of the number of families who entered the study. Characteristics of participating therapists are presented in Table 1.

Participating Youth and Families

Inclusion Criteria. Inclusion criteria for youth participants were (a) presenting problems for treatment included a disruptive behavior problem (including aggression, defiance, delinquency, oppositional behavior), (b) youth age at baseline was between 4-13 years, (c) primary language for youth and parent was English or Spanish, and (d) youth was entering a new episode of psychotherapy (defined as no therapy for previous three months) in publicly-funded care with a therapist who had agreed to be in the study.

Exclusion Criteria. Exclusion criteria for youth participants were (a) Youth without disruptive or conduct related problems, e.g., youth with mood or anxiety disorders only, and specific disorders such as thought, eating, elimination disorders, (b) youth with documented mental retardation ($IQ < 65$), (c) youth with significant organic brain damage, (d) youth with medical problems that significantly impact their ability to participate in psychotherapy. For this sub-study, participants were excluded if they did not have videotaped therapy sessions, if a parent was not present in at least one recorded therapy session, and if there was no baseline and 4 month outcome data for the family.

Recruitment, consent and retention. Potential study participants were identified by staff within the clinic at which the youth was seeking treatment according to HIPAA regulations. Recruitment of new patient participants occurred between January 2004 and December 2006. Clinic staff described the research study and explained that participation in the study would have no effect on the families' treatment at the clinic. If parents consented to

be contacted, a member of the research team called to recruit them and schedule an interview. Families who required a Spanish-speaking interviewer were accommodated. Prior to the baseline interview, informed written consent was provided by the parent and assent was provided by youths ages 8-13. Families were given incentives to participate in the PRAC study, including financial compensation at the baseline interview (\$40 to the caregiver and \$10 to the youth). A maximum of 8 families were admitted into the study per clinician. Participating therapists were compensated with a \$100 honorarium at the start of their participation in the project and another \$100 when subject recruitment was completed. Subject retention was facilitated by consistently updating “tracking” information (e.g., names and numbers of three family or friends always knowing whereabouts), and by providing a card with study contact information to all families at the baseline interview. As per HIPAA regulations, no data was collected on non-participants, so there is no information about whether non-participants differed from participants.

Although the primary variable of interest is CM directed to parents, youth patients were present in 97% of the coded tapes. Because both child and parent, or the parent only, may have been present in these sessions, the sample is characterized as “families.” The sample in this study includes six clinics, 77 therapists, 165 families, and 432 tapes. The average age of youths in this study was approximate 9 years old, and 66% of the sample was male. Half of the youths in the study were Caucasian, although multiple ethnicities were represented. The majority of the youth participants had primary diagnoses of ADHD and ODD/CD. Approximately 94% of the parent participants were female, and about half were Caucasian; about half reported that they were self-referred. Characteristics of therapist, youth and parent participants are presented in Tables 1-3.

Sources of Data

The sources of data for this study include: (1) Baseline in-person interviews with parents and youths (over age 9), (2) 4-month follow-up phone interviews with parents and youths, (3) randomly selected videotaped therapy sessions for youths and their parent(s); (4) administrative data records, and (5) therapist self-reports. All data were used exclusively for research purposes.

Psychotherapy process data collection. All psychotherapy sessions were videotaped. Up to four tapes were randomly selected within the first 4 months of treatment. Observational data were coded by 17 trained coders; three coders were fluent in Spanish and coded all of the Spanish tapes (see Coder training on PRAC TPOCS, below). Preliminary reliability data indicates that reliability is adequate, and is equivalent for both Spanish- and English-speaking coders (Garland, Hurlburt, et al., 2010). None of the coders were involved in direct or indirect therapy with any of the PRAC participants. Coders entered data while viewing the session on the computer using a customized software program developed by one of the co-investigators using Microsoft Access.

Treatment process measures. An adapted version of the Therapy Process Observational Coding System for Child Psychotherapy (TPOCS; McLeod, 2001; McLeod & Weisz, 2005) was used to characterize treatment strategies. Only the TPOCS-Strategies section (TPOCS-S) is reported on in this study. It is designed to assess a wide variety of intervention strategies that are theoretically (e.g., cognitive-behavioral, behavioral, psychodynamic, family, client-centered) and non-theoretically, or cross-theoretically, driven (e.g., assessing problems). The original TPOCS-S content is primarily based on the Therapy Procedures Checklist (TPC; Weersing, Weisz & Donenberg, 2002) and the format is based on the Therapist Behavior Rating Scale (TBRS; Hogue, Liddle & Rowe, 1996) treatment adherence measure.

The TPOCS-S was adapted for this study in collaboration with the PRAC project's Therapist Advisory Group (TAG; see Garland et al., 2006 for full description), comprised of one therapist representative from each of the six participating clinics. The TAG reviewed all original TPOCS therapeutic strategy codes and worked with the research team to refine the measure to assess for therapeutic strategies used most commonly in their community settings. TAG members reported that they spend significant time in sessions with youths diagnosed with DBP and their families using case management strategies and coordinating "extra-therapeutic" care. This element of treatment was therefore added to the PRAC TPOCS to identify all in-session instances of therapist use of CM. The final revised PRAC TPOCS includes a total of 27 therapeutic strategies.

Identifying therapist use of case management. Therapist use of case management was measured by trained coders who watched and coded psychotherapy sessions. The PRAC TPOCS enabled coders to assess not only how frequently therapists use CM within and across sessions, but how intensively therapists use CM. CM, as defined here, included discussions in psychotherapy sessions with caregivers relating to coordinating care with school staff, case managers, or consultation with other professionals such as physicians/psychiatrists, social workers, probation officers, etc. CM also included discussions with caregivers about medication, community resources, and disposition planning, such as arranging referrals to other treatment settings and providers. Discussions about structured extra-curricular or community-based activities were also coded as part of CM (e.g., boys and girls clubs, after-school/mentor programs, and other youth groups).

Intensity. Intensity reflects both the time spent on case management and the thoroughness with which it was pursued. Intensity was rated at the end of each session on a Likert scale of 0 to 6 (0 = not used, 1-2 = low intensity, 3-4 = medium intensity, 5-6 = high intensity). A high intensity score was assigned if the coder observed the therapist spending

considerable time discussing or inquiring about care coordination, the families' needs and expectations for other services, pragmatic obstacles to receiving necessary services, identifying community-based programs with the parent, or other examples of CM described above. More time spent on these issues warranted a higher intensity score; following up on CM issues in a thorough manner also warranted a higher intensity score.

Coder training on the PRAC TPOCS. Coders were trained by three members of the PRAC research team: the principle investigator of the PRAC study (Ann Garland, Ph.D.), a post-doctoral fellow (Lauren Brookman-Frazer, Ph.D.), and an advanced graduate student (the author). Training consisted of four group sessions, six individual training sessions and ongoing "booster" sessions. Group training sessions included an overview of coding procedures, a review of each of the 27 individual codes (including intensity), learning how to use the computer coding program, and coding sample sessions. Coders were trained to specifically identify and capture when therapists were using CM, and were given hypothetical examples of "high" and "low" CM intensity use. Subsequent individual sessions required coders to code six practice tapes on their own using the PRAC TPOCS. After independently coding each tape, coders met individually with the coder trainers to assess reliability and discuss discrepancies. Coders were considered "trained" when they reached 80% agreement with "gold standard" codes on at least three consecutive practice sessions.

Reliability for training was calculated by dividing the number of agreements (within one point on the intensiveness scale) by the number of agreements and disagreements (27) multiplied by 100. Inter-rater reliability for each PRAC TPOCS code and target combination was assessed approximately every 6 months to identify problematic codes ($\kappa/ICC < .4$). If/when these codes were identified, a coding clarification newsletter was sent out to all coders, and a booster session was scheduled to clarify and address coding questions. The PRAC TPOCS Manual was then updated to include clarifications and redistributed to coders.

Overall inter-rater reliability for the PRAC TPOCS-S intensity scale across all codes at the session level was adequate (ICC = .78; Garland, Hurlburt, et al., 2010).

Baseline and outcome data collection: Youth and parent data. The baseline interview was scheduled as part of the PRAC study only after obtaining parental verbal consent to participate. This interview included in-person interviews with youths and parents, and occurred within 2 weeks of the first psychotherapy appointment to ensure that reports reflected the child's symptom severity at the start of therapy. Written informed parental consent and youth assent was obtained prior to beginning the interview. The baseline assessment took approximately 60 minutes for the parent and 30 minutes for youths over age 8. No data was collected directly from youths younger than age 9, but was instead collected from the parent. Data on symptom severity and family functioning was collected from participants in person during the baseline interview, and a 4 month assessment was conducted over the phone to measure symptom severity, family functioning, and perceived effectiveness of treatment (satisfaction). Information on family functioning and satisfaction was obtained from both youths and parents at baseline and at the 4 month time-point to gather outcome data from both participants.

Outcome Measures

Symptom severity: Eyberg Child Behavior Problems Checklist (ECBI). The ECBI is a parent report measure consisting of 36-items designed to assess youth behavior problems (Eyberg & Pincus, 1999; Eyberg & Ross, 1978). It has been used in numerous treatment outcome studies for children with behavior problems (Robinson, Eyberg & Ross, 1980; Webster-Stratton, 1982). This measure has two components: the Intensity score, which examines the frequency of behaviors on a 7-point Likert scale ranging from 0 ("never") to 7 ("always"), and the Problem score, which indicates whether or not a behavior is a problem on

a 2-point “yes” or “no” scale. An adult familiar with the youth must complete this measure. The psychometric characteristics of the EBCI are strong. Three week test-retest reliability coefficients were .86 and .88 for the Intensity and Problem scales, respectively (Robinson et al., 1980). Internal consistency is high for the Intensity scale ($\alpha = .98$) and the Problem scale (KR-20 = .98) (Eyberg & Robinson, 1983; Robinson et al., 1980). Convergent validity for the ECBI Problem and Intensity scores has been demonstrated with significant correlations (.67 and .75, respectively) with the Child Behavior Checklist Externalizing problem score among clinic-referred children (Boggs, Eyberg & Reynolds, 1990). The Intensity and Problem scales of the ECBI allow for sensitive measurement of therapeutic change in the treatment of DBPs (Schumann, Foote, Eyberg, Boggs & Algina, 1998). The Cronbach’s alpha for the ECBI is .92 in this sample. Because the two ECBI scales – parent intensity and total problem – were highly correlated ($r=.738, p < .001$), only one was used for this analysis. The intensity score was selected based on the fact that it captures the essential data, which is caregiver perception of how severe the child’s symptoms are at baseline and at 4 months. For this measure, lower scores represent higher functioning.

Family functioning: Family Relationship Index (FRI P and FRI Y). The Family Relationship Index subscale of the Family Environment Scale was used to assess the quality of family relationships based on both parent (FRI P) and youth (FRI Y) reports (Holahan & Moos, 1983). The FRI has demonstrated good construct validity (Hoge, Andrews, Faulkner & Robinson, 1989), and reliability estimates for parent and youth reports of the FRI were .79 and .73, respectively. In this sample, the Cronbach’s alpha for the three subscales that comprise the FRI were .68, .46, and .71. For this measure, higher scores represent better relationships.

Client satisfaction: The Multidimensional Adolescent Satisfaction Scale, Perceived Effectiveness Subscale (MASS [PE]). The MASS (Garland, Aarons, et al. 2000; Garland, Saltzman, et al., 2000) is a 21-item (Likert response style) self-report measure of adolescents’

perceptions of outpatient services. The psychometric characteristics were tested with a sample of 180 adolescents ages 13-18 who had been treated in outpatient clinics. Test-retest reliability ($r = .88$) and internal consistency ($\alpha = .91$) were strong. Principal factor axes factoring revealed four factors, including one factor assessing perceived effectiveness (PE) of services. There are four items in this subscale, and they assess the consumers' overall perception of effectiveness of services, instrumental effectiveness in improving problems, and effectiveness in "feeling better." The test-retest reliability ($r = .83$) and internal consistency ($\alpha = .85$) of this subscale were strong (Garland, Aarons, et al. 2000; Garland, Saltzman, et al., 2000). Given that other validated measures of perceived effectiveness of treatment for parents or younger children have not been identified, these four items assessing perceived effectiveness from the MASS were adapted for use with younger children (MASS Y, perceived effectiveness, age 9 and older) and parents (MASS P, perceived effectiveness) to assess satisfaction with psychotherapy at the 4-month assessment point. In this sample, the Cronbach's alpha for the MASS P was .90, and the Cronbach's alpha for the MASS Y was .83. Higher scores on this self-report measure reflect higher satisfaction.

Attendance: Number of sessions attended. The number of outpatient visits for the 4-month time-frame of this study was retrieved from the county billing data. The cumulative number of treatment sessions each family attended between zero and 4 months was tallied.

Overview of Analyses

The overall aims were to (1) examine the relationships between intensity of therapist use of CM and youth outcomes, and (2) determine if, and how, therapist discipline and therapist experience moderate the relationship between CM intensity and outcomes. Hierarchical linear modeling (HLM 6.06; Raudenbush, Bryk & Congdon, 2004) was used to statistically analyze a data structure where youths (level 1) were nested within therapists (level

2). Of specific interest, as stated in Aim 1, was the relation between CM intensity score (level 1 predictor) and six level 1 outcomes: ECBI, FRI P, FRI Y, MASS P, MASS Y, and attendance (number of visits). Also of interest, as stated in Aim 2, was determining if the relationships between CM and outcomes depends on potential level 2 moderators (therapist experience and therapist discipline).

Model testing proceeded in three phases: intercept-only model (to generate intraclass correlation coefficients [ICCs]), random-regression coefficients model (to address Aim 1), and the intercepts- and slopes-as-outcomes model (to address Aim 2). Number of tapes per family (tape count) was included in these analyses as a level 1 control variable. There was some variability in number of coded sessions within the time interval (0– 4 months) by family. Because there is more validity with more observations (e.g., 4 sessions compared to 1 session), tape count was included as a methodological control variable. In models that had both baseline (BL) and 4 month scores, baseline scores were also included as controls (e.g., baseline ECBI). Several preliminary steps were required prior to examining these aims, and these are described below. All variables included in this study are listed in Table 4.

Step 1: Creating the CM intensity score. Because all six outcome variables are at the youth level (level 1), the predictor variable (CM intensity) was aggregated across sessions to get a mean intensity score for each participant using SPSS, thus making this a level 1 variable. This variable represents the mean intensity of CM “received” by the parent of each youth across observed sessions. For the 165 participants in this study, the average CM intensity score was 1.91 ($SD = 1.44$, range = 0-6).

Step 2: Examining bivariate associations between predictors, moderators, and outcome variables. Correlations and multilevel linear regressions were conducted to examine the bivariate relationships among level 1 and level 2 variables, including control variables. Variables categorized as “youth level” were youth symptom severity (ECBI score) at baseline

and at 4 months, family functioning (FRI P and FRI Y) at baseline and at 4 months, satisfaction (MASS P & MASS Y), and number of sessions attended. Because the two ECBI scales – parent intensity and total problem – were highly correlated ($r = .738, p < .001$), only one was used for this analysis. The parent intensity score was selected based on the fact that it captures the essential data, which is caregiver perception of how severe the child’s symptoms are at baseline and at 4 months. Predictors categorized as “therapist characteristics” were therapist discipline (Social Worker [SW], Marriage and Family Therapist [MFT], Psychologist [PSY]), and experience (number of months practicing psychotherapy). Control variables were tape count, and the baseline scores for outcome variables that were measured at both the baseline and 4 month time-points (ECBI, FRI P, and FRI Y). Descriptive statistics for the predictor variable, control variables, and outcome variables are presented in Table 5.

Step 3: The Null Model – Calculating ICCs. In order to determine the amount of variance for each outcome at level 2 of the nested data, intraclass correlation coefficients (ICC) were calculated. ICCs identify the amount of variation at each level of the data structure: level 1 (child level) and level 2 (therapist level). Variance existed at both levels of the data structure. For example, for number of visits, the level 2 ICC was .266, suggesting that 26.6% of the variance in this outcome was at the therapist level, while 73.4% of the variance was at the youth level. Because there was variance at both levels of the data structure predictors were individually added at each level. To fully examine the hypothesized relationships, all multivariate models accounted for the nested data structure. ICCs are summarized in Table 6.

RESULTS

Preliminary Analyses

Correlations and bivariate regressions. Results of correlations among all level 1 variables are presented in Table 7. There were no significant correlations between CM intensity score and any 4 month outcomes. Bivariate regressions were run in HLM to account for the nested structure of the data. The results of the multilevel bivariate linear regressions are presented in Table 8. Results indicated that when youth (level 1) were nested within therapists (level 2), therapist discipline (MFT compared to SW) was positively and significantly associated with MASS Y score at 4 months ($b = .40, p = .03, SE = .18$). Youth patients reported higher satisfaction with services when their therapist was a Social Worker compared to a Marriage and Family Therapist. FRI Y score at 4 months was positively and significantly associated with therapist experience ($b = .35, p = .02, SE = .15$). Youth patients reported greater improvement in family functioning when working with therapists who had more experience compared to patients working with therapists who had less experience. Number of visits was negatively and significantly associated with therapist experience ($b = -.33, p = .01, SE = .12$). Families attended more sessions with therapists who had less experience practicing psychotherapy than therapists who had more experience.

Multilevel Model Testing

In order to examine the hypothesized relationships among youth- and therapist- level variables in this study, variables were tested in multilevel models. All variables, except for level 1 outcomes and therapist discipline, were grand mean centered. The results presented are the final estimation of unstandardized multilevel regression coefficients (b). As therapist experience was positively skewed, the square root of this variable was used (Tabachnik &

Fidell, 2006). For descriptive purposes, high, medium, and low values for therapist experience were obtained using HLM to graph therapist experience: 25% (low), 50% (average), and 75% (high) in the presence of statistically significant interactions.

Aim 1: Results

To examine the first-order effects between therapists' in-session use of CM (CM intensity score) with parents of youth patients and all outcomes, multilevel models were run. The Random Coefficients Regression Model was used to test the first-order effects between CM intensity score (predictor) and each level 1 outcome. Fixed effects (regression coefficients) are presented below and in Table 9. Random effects (variance components) are presented in Table 10.

Fixed effects: None of the fixed effects relating CM intensity score to outcomes was statistically significant (all $ps > .05$). However, baseline (BL) control variables were significantly associated with their respective outcomes, which was expected given that BL scores are usually strongly correlated with follow-up scores. For example, baseline ECBI score was positively and significantly associated with 4 month ECBI score ($b = .76, p < .01, SE = .06$). Additional significant control – outcome relationships are reported in Table 9.

Random effects: There was statistically significant variance found for ECBI score, youth satisfaction (MASS Y), and number of visits(see Table 10). These significant random effects suggest that there is additional variance to be explained at the therapist level.

Aim 2: Results

To determine whether therapist discipline and therapist experience moderated the relationship between CM intensity score and outcomes, the intercepts- and slopes-as-outcomes model was tested with all predictors entered in the model simultaneously. Therapist discipline

was dummy-coded to obtain all three comparisons: Marriage and Family Therapists (MFT) compared to Psychologists (PSY), MFTs compared to Social Workers (SW), and SW compared to Psychologists. MFT served as the comparison group for the first set of dummy codes, as this is the most common discipline represented. The first set of dummy codes compared MFT to PSY (dummy code 1, or D1) and MFT to SW (dummy code 2, or D2). Social Workers were the comparison group for the second set of dummy codes to obtain the final comparison of SW to Psychologists (dummy code 3, or D3).

The intercepts- and slopes-as-outcomes model was tested with all predictors entered in the model simultaneously to test for cross-level interactions. If the interaction between the level 2 moderator and the CM – outcome relationship was significant, the effects of this moderator on the relationship were examined by graphing the interaction in HLM to obtain simple slopes. Significant interactions were found for level 2 moderators and the following outcomes: ECBI, FRI P, and number of visits. There was significant variance (random effects) found at level 2 for ECBI, number of visits, MASS P, and MASS Y. No significant fixed or random effects were found for FRI Y. Results for each outcome are listed below, and numbered for clarity. The results of these analyses can also be found in Table 10 (random effects), Table 11 (first-order effects) and Table 12 (interactions). Graphs of the significant interactions can be found in Graphs 1-6.

1. Symptom Severity (ECBI)

Fixed effects: The regression coefficient relating 4 month ECBI score to CM intensity score was not significant, nor were the regression coefficients relating 4 month ECBI score to therapist variables. However, the cross-level interaction between CM intensity score and therapist discipline (MFT – SW) was statistically significant when Marriage and Family Therapists were compared to Social Workers ($b = -6.28$, $p < .01$, $SE = 2.27$). For Social

Workers, higher CM intensity score directed to parents was associated with a decrease in patient symptomatology at 4 months, while higher CM intensity scores were associated with an increase in symptom severity in patients treated by MFTs. These results are presented in Graph 1. The cross-level interaction between CM intensity score and therapist discipline (SW – PSY) was statistically significant when SW were compared to Psychologists ($b = 8.73, p = .03, SE = 4.09$). Patients' ECBI scores decreased over 4 months of treatment with more intensive CM utilized by SW, while patients working with Psychologists showed an increase in ECBI scores with more intensive use of CM over time. These results are presented in Graph 2. The cross-level interaction between CM intensity score and therapist experience was also statistically significant ($b = -.86, p = .03, SE = .41$). For therapists with the most experience, more intensive CM directed to parents was associated with a greater decrease in symptom severity than patients of therapists with medium or high experience. Patients of therapists with an average amount of experience had a slight increase in 4 month ECBI score associated with more intensive CM use. For therapists with the least amount of experience, higher CM intensity scores were associated with a greater increase in symptom severity than patients of therapists with average or high experience. These results are presented in Graph 3.

Random effects: The variance component for the intercept was significant ($\chi^2 = 51.68, p = .02, SD = 6.52$), suggesting that there is a relationship between CM intensity score and 4 month ECBI score that varies across therapists. This suggests that there is still variance to be accounted for at level 2.

2. Family Functioning, Parent Report (FRI P)

Fixed effects: The regression coefficient relating FRI P to CM intensity score was not significant, nor were the regression coefficients relating FRI P to level 2 variables. However, the cross-level interaction between CM intensity score and therapist discipline (SW – PSY)

was statistically significant when SW were compared to Psychologists ($b = .97, p = .02, SE = .39$). For Psychologists, higher CM intensity directed to parents was associated with an increase in family functioning, while more intensive CM use by Social Workers was associated with a slight decrease in family functioning. These results are presented in Graph 4.

Random effects: The random effects for this outcome were not significant.

3. Number of Visits (Attendance)

Fixed effects: The regression coefficient relating therapist experience to number of visits was negative and statistically significant ($b = -.33, p < .01, SE = .11$). The more experience therapists had, the fewer psychotherapy sessions patients attended. The cross-level interaction between CM intensity score and therapist discipline (MFT – SW) was statistically significant when MFTs were compared to Social Workers ($b = -1.00, p = .03, SE = .46$). For MFTs, higher CM intensity scores were associated with an increase in patient attendance compared to Social Workers, whose patients showed decreased attendance over 4 months associated with higher CM intensity. These results are presented in Graph 5. The cross-level interaction between CM intensity score and therapist discipline (SW – PSY) was statistically significant when SW were compared to Psychologists ($b = .99, p = .05, SE = .52$). For Psychologists, more intensive use of CM was associated with increased attendance over 4 months of treatment compared to patients being treated by SW, whose patients showed a decrease in attendance associated with greater CM intensity score. These results are presented in Graph 6.

Random effects: The intercept variance component for patient attendance was significant ($\chi^2 = 62.94, p < .01, SD = 2.26$), suggesting that significant differences exist among therapists' means for number of visits per patient. There is still variance to be explained at the therapist level for this outcome.

4. Satisfaction: Perceived Effectiveness, Parent Report (MASS P)

Fixed effects: The regression coefficients relating CM intensity to the MASS P perceived effectiveness subscale was not significant, nor were the regression coefficients relating therapist variables to the MASS P perceived effectiveness subscale. No significant interactions were found.

Random effects: The variance component for the intercept was significant ($\chi^2 = 48.22$, $p = .03$, $SD = .34$), suggesting that there is a relationship between CM and MASS P that varies across therapists. This suggests that there is additional variance to be accounted for at level 2.

5. Satisfaction: Perceived Effectiveness, Youth Report (MASS Y)

Fixed effects: The regression coefficients relating CM intensity to the MASS P perceived effectiveness subscale was not significant, nor were the regression coefficients relating therapist variables to the MASS P perceived effectiveness subscale. No significant interactions were found.

Random effects: The random effects for the intercept and slope relating CM intensity score to the MASS Y perceived effectiveness score were statistically significant ($\chi^2 = 25.12$, $p < .01$, $SD = .38$; $\chi^2 = 46.02$, $p < .01$, $SD = .43$, respectively). The significant intercept variance component suggests that the estimated variance among the means for MASS Y scores for each therapist is significant. The significant slope variance component suggests that there is significant variance of each therapist slope for the MASS Y – CM relationship around the mean slope for all therapists.

Taken together, the significant random effects suggest that there is still variance to be explained at level 2 even when all the variables presented are included in the model.

DISCUSSION

Summary of Findings

This study examined therapist use of case management in usual care psychotherapy, the relationship between CM and outcomes, and the moderating effects of therapist variables on each CM – outcome relationship. While no first-order effects were found between CM and outcomes, therapist discipline and therapist experience did moderate the relationship between CM and various outcomes. This study also supported the finding that elements of treatment in UC appear to be used with low intensity (Garland, Brookman-Frazer, et al., 2010). On an intensity scale of 0-6, therapists on average utilized CM with low intensity, such that the average CM intensity score was 1.91 (range = 0-6). This is consistent with findings that, while UC psychotherapy reflects great breadth in therapeutic approaches, the majority of strategies and techniques are not used with great depth. This may be an example of a “floor effect,” as CM scores are skewed to the low end of the scale.

Aim 1 Results and Implications

The results of this study suggest that the relationships between therapist use of CM and outcomes are complex. Contrary to the first hypothesis, no first-order effects were found between CM intensity and selected outcomes. There are a number of possible explanations for the lack of significant findings for the first aim. For example, CM was used, on average, at a low intensity by therapists. It is possible that therapist use of CM with high intensity (5-6 on the Likert scale) is significantly associated with outcomes, but that this effect was obscured by creating and using an average intensity score. It has also been hypothesized that therapist use of CM potentially interferes with therapists’ ability to implement outcome-oriented strategies for youth with DBPs, such as parent training and affect management, and that CM does not in

fact have a direct, positive effect on outcomes. Another possible explanation for the lack of first-order effects between CM and outcomes is that other variables account for these relationships, such as moderators. If this is the case, first-order effects may not be found to be significant, as the relationship may be explained by other variables.

Aim 2 Results and Implications

Therapist discipline. Therapist discipline significantly moderated the relationships between CM and symptom severity, attendance, and family functioning (parent report). Specifically, it was hypothesized that Social Workers, having more training and skill using CM, would have a stronger association with the CM – outcome relationship than therapists of other disciplines, such that patients would attend more sessions, report higher satisfaction with services, and report improved family functioning. Interestingly, Social Workers did not significantly moderate CM – outcome relationships, but not as predicted. Social Workers significantly moderated the CM – symptom severity (ECBI) relationship, as well as the CM – attendance relationship. Specifically, for Social Workers, higher levels of CM intensity were associated with improved symptomatology at 4 months when compared to MFTs or Psychologists. Findings suggest that Social Workers utilized CM more effectively than MFTs or Psychologists, resulting in decreased symptom severity for patients they treated compared to patients of therapists from other disciplines. Patients of Social Workers who utilized more intensive CM also had fewer treatment visits than patients of MFTs and Psychologists. It was hypothesized that being a SW and using more intensive CM would be associated with greater attendance. However, it may be that patients of Social Workers did not need to attend as many sessions as patients of MFTs or Psychologists, as these youth showed an improvement in symptomatology associated with more intensive use of CM. If parents

believed that their children had significantly improved, they may have determined that continued psychotherapy was unnecessary, resulting in fewer sessions.

It should be noted that attending more treatment sessions is not necessarily an indicator of improvement, nor is it necessarily a sign of greater satisfaction with services (Andrade, Lambert & Bickman, 2000). Although attendance and treatment compliance are significant issues in UC psychotherapy (Warren et al., 2009), Bickman et al. (2000) report that children receiving substantial amounts of treatment showed no better mental health outcomes than those receiving negligible amounts of treatment, suggesting that there was no statistically significant dose effect. Indeed, there are patients who are non-responders to treatment who continue to use mental health resources and attend sessions despite lack of improvement in symptomatology or functionality (Bickman et al., 2000; Salzer, Bickman & Lambert, 1999). Therefore, the finding that patients of Social Workers attend fewer sessions associated with more intensive CM use is not necessarily negative; on the contrary, it may be that youth who show improvement over 4 months do not need to attend as many sessions as youth patients who show less improvement in symptomatology.

Findings also suggest that Psychologists, not Social Workers, significantly moderated the relationship between CM and family functioning according to parent report (FRI P). Specifically, parents working with Psychologists reported improved family functioning associated with more intensive use of CM compared to families treated by Social Workers. This may be due to the fact that therapists from different disciplines utilize their time in session with families differently. Previous studies have shown that Social Workers spend more time focusing on extra-therapeutic care in UC sessions than Psychologists, which may detract from the time they are able to spend on techniques that more directly target familial issues, such as improved parent-child communication (Garland, Brookman-Frazee, et al., 2010; Zoffness et al., 2009). It is possible that Psychologists may spend less time in session

coordinating extra-therapeutic care, but when they do implement CM, they may use CM strategies that specifically address family issues, such as referring parents to family therapy.

Therapist experience. Therapist experience also significantly moderated the relationship between CM and symptom severity. Specifically, more intensive use of CM by therapists with high experience was associated with a decrease in symptom severity, while patients of therapists with low and average experience showed an increase in symptomatology associated with greater CM intensity use. It is possible that therapists who have been working in UC psychotherapy for longer periods of time may be more aware of the complex needs of this population, have had more time to adapt to the needs of their clients, and are better informed about community-based resources than therapists with less experience. Therapists with little experience may not have the benefits of knowing the extra-therapeutic demands of this population, nor have they necessarily had time to become accustomed to utilizing CM in the same way as therapists with more experience in the field. Therefore, therapists who have had more experience may utilize CM in a more effective way than therapists with less experience.

Satisfaction: No significant effects. Interestingly, there were no significant first- order effects between CM intensity and satisfaction (perceived effectiveness – MASS P and MASS Y), nor were significant interactions found between parent or youth satisfaction and therapist-level moderators. It was hypothesized that higher CM intensity score would be associated with higher perceived effectiveness, and that therapist discipline and experience would significantly moderate the CM – satisfaction relationship. This lack of significance may be due to a variety of factors. First of all, it may be that there is no direct relationship between therapist use of CM and satisfaction. Secondly, it may be that there is a CM – satisfaction relationship, but it may be moderated by level 2 variables that were not included in this study (e.g. primary therapeutic orientation). There may also be a ceiling effect on the MASS PE, as both parent

and youth scores were clustered at the high end of the range: the mean score for the MASS P was 2.9 (range = 1-4), and the mean score for MASS Y was 3.2 (range = 1-4). It may also be due to the specificity of the satisfaction measure used in this study. While parents and youth were asked about perceived effectiveness of therapy, they were not specifically asked about their satisfaction with the extra-therapeutic care they received. The MASS PE subscale does not address CM issues, such as the degree to which therapists linked families to additional services, the amount of time therapists spent coordinating care with teachers or psychiatrists, or whether these services affected families' overall satisfaction with treatment. This may be an opportunity for future research.

It is important to note that the sample size for both youth self-report outcomes, MASS Y and FRI Y, was small ($ns = 76$ and 78 , respectively), as data were collected only from youths ages 9 and older. This may also have contributed to the fact that no significant effects were found for these outcomes.

Implications of Study and Future Directions

Overall, findings from this study suggest that therapist discipline and experience play a significant role in how clinicians approach therapy and how they utilize specific elements of treatment (e.g., CM). The finding that Social Workers and therapists with more experience utilize CM in a way that is associated with decreased symptom severity suggests that these therapists are using CM in a different way than MFTs, Psychologists, and therapists with less experience. Some Social Workers may have training in evidence-based models of treatment, such as ACT and ICM, which rely on effective use of case management to obtain positive outcomes with patients. The fact that these treatments have been identified as EBPs (Ziguras & Stewart, 2000) suggests that there is something about CM, when used effectively by trained professionals, that can significantly improve outcomes in psychotherapy. CM may therefore

be an effective strategy in UC psychotherapy with youth, but it depends on who uses it and how they use it.

Researchers have identified critical ingredients of ACT and ICM that might make CM more effective, and these may be applicable to CM used in usual care psychotherapy. Rapp (1998) reports that the active ingredients of effective CM include: 1) continuity of care; 2) availability of care providers; 3) creative service planning; 4) efficient use of time; 5) high quality supervision of case managers; 6) consultation with experts; 7) access to medical personnel; 8) outreach to patients to increase engagement; 9) interdisciplinary care; 10) referrals to community-based resources, and 11) addressing patients' needs across various sectors of care, including social, vocational, recreational, and educational domains. McGrew, Pescolido and Wright (2003) report that medication management was rated as the most beneficial clinical activity by case managers implementing ACT. Bond et al. (2001) and Schaedle et al., (2002) suggest that critical ingredients of ACT and ICM include: 1) utilizing a team of providers from various disciplines (i.e., psychiatry, social work, mental health providers); 2) coordinated and integrated services to address medication management, symptom control, physical health, employment, social relationships, housing issues, mental health, social services, and family services; 3) community-based treatment referrals; 4) assertive outreach to patients; 5) knowledge of and access to community resources, and 6) individualized services based on the patient's needs. Furthermore, it has been shown that the more closely case managers follow the principles outlined by these structured interventions, the better the outcomes (Latimer, 1999; McGrew, Bond, Dietzen & Salayers, 1994; McHugo, Drake, Teague & Xie, 1999). There is overlap among these critical ingredients, suggesting agreement among researchers regarding the most important elements of these CM-based EBPs. Importantly, these ingredients may be applicable to UC psychotherapy.

If some Social Workers in usual care psychotherapy have been trained in ICM and/or ACT, they may currently be implementing some of the critical components of CM. This could partially explain the decrease in symptom severity associated with more intensive use of CM by Social Workers. However, because CM was not divided into its specific components, and the degree to which Social Workers in this study were trained in these EBPs was not assessed, it is hard to know if Social Workers are using these “critical ingredients” in session. Nevertheless, research suggests that using these components of CM is a successful method of generating positive patient outcomes. Perhaps breaking down CM into its separate components, identifying and clarifying the critical components that are most effective in community-based contexts, and disseminating this information into training programs and clinics would be one way to facilitate more effective CM use by all clinicians.

This study has also implications for facilitating change in current UC psychotherapy, including implications for dissemination and implementation of effective, evidence-based elements of treatment into UC psychotherapy. Results suggest that therapists across disciplines believe that CM is an important component of treatment, and that they are already using case management in UC psychotherapy. It has been shown that training mental health clinicians is most effective when training interventions are tailored to address the existing service context (Casper, 2007). Because therapists are more likely to implement strategies with which they have some familiarity, teaching therapists how to utilize CM most effectively to improve outcomes, such as focusing on critical components of CM, may be feasible. In fact, this study suggests that therapists are already using at least some of the critical components of CM identified in the literature, including coordination of care with treatment providers across multiple domains (e.g., teachers, psychiatrists, etc.). Therefore, training therapists how to use this strategy more effectively should not feel invasive or foreign to most providers of community-based psychotherapy.

Additionally, therapists' attitudes and values are important factors when considering any change in UC; this includes attempting to successfully implement EBPs into the community context (Aarons, 2004; Weisz et al., 2004). Given that therapists use CM in usual care psychotherapy and believe it to be an important element of treatment for this population (Zoffness et al., 2009), therapists may adopt more positive attitudes towards EBPs – and, subsequently, may be more likely to utilize them – if this technique were incorporated into evidence-based treatments. It is important to note that therapists' attitudes and values may partially develop while they are trainees (Aarons, 2004), and that efforts to improve usual care may need to start at the training level. As the majority of providers of community-based mental health services are therapists who have been trained at the Master's Degree-level (58.4% in this sample), it may be important to incorporate evidence-based training into graduate programs that prepare therapists before they begin work at UC clinics. Also, as CM has been shown to be positively associated with youth and family outcomes, it may be beneficial to teach therapists-in-training how to implement CM most effectively. This includes teaching therapists about available community-based resources, critical components of CM, and the need for CM in UC psychotherapy.

The idea of implementing effective elements of treatment such as CM into UC psychotherapy in addition to EBPs is supported by prominent researchers in the field of youth mental health. Researchers have suggested that, in addition to attempting to implement EBPs into community clinics, researchers should focus on elements of treatment that can improve youth outcomes, such as CM, whether or not they are elements of EBPs (Hoagwood et al., 2001; Kazdin, 2008). It has been suggested that focusing on elements of treatment that are positively associated with outcomes may be more beneficial than attempting to implement entire EBPs into an environment that may not be ready for them (Chorpita, Daleiden & Weisz, 2005). Case management, shown here to be an effective element of treatment that has

potential implications for improving usual care psychotherapy, certainly fits into this category. Furthermore, research has shown that some treatment is better than no treatment at all (Kazdin, Bass, Ayers & Rodgers, 1990; Weisz, Weiss, Alicke & Klotz, 1987; Weisz, Weiss, et al., 1995), and Kazdin (2008) points out that the majority of youths with DBPs and other mental health problems do not receive any treatment at all. It therefore seems worth examining elements of treatment that may be effective even if they are not strictly EBPs. Hoagwood et al. (2001) and Kazdin (2008) specifically propose that effective elements of treatment, such as CM, should not be dismissed simply because they are not part of established, evidence-based practices. This is a strong argument for continued research into CM, an effective element of treatment that has potential implications for improving usual care psychotherapy for youth.

There are potential benefits of working toward incremental changes to improve practice rather than trying to change everything at once, and case management may be a “foot in the door” to introducing therapists to other elements of treatment that have proven effective with this population, such as parent training, anger management, and PCIT (Garland et al., 2008). That is, if elements of EBPs are gradually combined with elements of treatment that are already comfortably used in UC psychotherapy, such as CM, dissemination efforts may prove more successful. Other researchers have advocated for altering UC incrementally as well; specifically, Chorpita, Daleiden and Weisz (2005) recommend a modular approach to treatment change, proposing that, rather than implementing an entire EBP in place of treatment as usual, a modular, or incremental, approach be taken instead. This involves breaking complex activities into simpler parts, allowing therapists to utilize effective components of specific treatments independently. In this way, CM may provide a window of opportunity for implementing and disseminating elements of elements of EBPs into UC psychotherapy.

Strengths. This is the first known study to examine the relationship between CM and outcomes in UC psychotherapy, and potential therapist moderators of these relationships. In fact, there is very little literature on the use or effectiveness of case management in community-based treatment with youth and families. As one of the most commonly used techniques in UC psychotherapy, CM is an underexplored variable which may have important implications for describing treatment as usual, as well as improving youth and family outcomes. In order to identify components of care that are effective for youths with DBPs in the context of usual care, we need to know what elements of treatment are most predictive of outcomes. Historically speaking, UC psychotherapy has not been shown to be associated with positive outcomes (Bickman, 1996; Warren et al., 2009; Weiss et al., 1999; Weisz, 2004; Weisz, Donenberg, Han, & Kauneckis, 1995). This study demonstrates that CM, when utilized by specific practitioners, is significantly associated with symptomatology, attendance, and family functioning. This suggests that further studies are warranted in order to more fully examine the way CM is utilized in UC psychotherapy, by whom and for whom it is effective, and the outcomes that may be associated with its use.

Importantly, it was the PRAC therapists working in community-based clinics who suggested that researchers further explore case management. In fact, CM was added to the observational coding system as a result of the input provided by the PRAC clinician partners, who suggested that community-based clinicians frequently utilized CM to address salient issues presented by families in UC psychotherapy such as homelessness and school failure. This input from clinicians working on the front lines in UC psychotherapy was invaluable. Not only was CM found to be the most prevalent strategy utilized in UC psychotherapy directed to parents of youth with DBPs, but it is has now also been shown to be significantly associated with outcomes (e.g., decreased symptom severity). This is further evidence of the importance of working with clinicians in order to bridge the gap between research and

practice, and suggests that conducting research using input from UC clinicians is both practical and important. Collaborating with a Therapist Advisory Group gives this study the distinct advantage of being informed directly by both researchers and practitioners. Thus, the aims of this study are consistent with recent NIMH calls for research that addresses community stakeholders' priorities (Garland et al., 2006; NAMHC, 2006). If our goal is to open the "black box" of UC psychotherapy (Bickman, 2000), examine its contents, and ultimately improve what we find, we need to take into account the perspectives of both the researchers investigating effective treatments as well as the therapists implementing them.

Another strength of this study is the fact that methodological challenges were both identified and addressed. As other researchers have pointed out, there are a number of methodological challenges inherent in studies using observational data (Garland, Hurlburt, et al., 2010). Issues such as reliability, accurately defining and measuring CM, and defining "intensity" are all important to address. In this study, reliability estimates were generated to ensure inter-rater reliability. For the CM code, inter-rater reliability for coding CM directed to caregivers was adequate (ICC = .80).

To address the issue of operationalizing CM such that all coders were using the same definition, very specific behaviors and strategies were identified in this study and operationally defined as "therapist use of CM." All of the behaviors and strategies identified were supported by the available literature as being components of CM (Bond et al., 2001; McGrew et al., 2003; Rapp, 1998; Ziguras & Stewart, 2000); these interventions were also identified as CM activities by collaborating UC psychotherapists (Garland et al., 2006). Coders were trained using examples of therapists using CM at "low," "medium," and "high" intensity as anchors to use for reference. As described in the Measures Section, the PRAC TPOCS was used in this study to measure the frequency and intensity of therapist use of CM. Advantages for using the TPOCS over other available measures include the ability to gather

data on frequency and extensiveness of intervention strategies, the ability to analyze both breadth and depth of interventions observed, and a collaborative approach to operationalizing elements of treatment in UC psychotherapy (Garland, Hurlburt, et al., 2010).

An additional strength is that all families included in this study were drawn from the larger PRAC sample, which has a representative youth sample compared to other studies of youth in UC psychotherapy on gender (Eyberg et al., 2008; Zima et al., 2005), ethnicity (Foster, Kelsch, Kamradt, Sosna & Yang, 2001; Zima et al., 2005), and primary diagnosis (Foster et al., 2001; Rosenblatt & Rosenblatt, 2000), which is critical for generalizability. This therapist sample is also representative compared to other UC therapists in the United States. The PRAC sample of therapists was comparable by education level, gender, and race-ethnicity to a recent national sample of 1,200 providers in children's mental health care (Glisson et al., 2008). In this study, as in the PRAC study, trainees held a slight majority over staff therapists in this study, and were thus slightly overrepresented; however, other studies of UC similarly report a high proportion of trainees (Hawley & Weisz, 2005). The MFT discipline was overrepresented in this study; however, the number of MFTs is currently over-represented in California, which is where this study was conducted. Furthermore, it has been reported that the number of MFTs is growing across the United States (Northey, 2002).

Limitations. Results suggest that the relationships among CM and outcomes are complex, and may be mediated and/or moderated by other variables, including parent/child, therapist or clinic that were not included in this study. This is supported by the finding of significant random effects in the final models, suggesting that there is significant variance that was unaccounted for at the therapist level even when all variables were included in the model. Available research was used to identify the therapist and outcome variables used in this study; however, so little research has been done on CM in community-based psychotherapy, how it is

used, by whom, for whom, and its effectiveness, that it is not known what additional variables may explain the relationship between CM and outcomes.

For example, while this study examined the associations among variables at two levels of the data set (youth and therapist), it is possible that variables at other levels of the nested data, or unmeasured variables at the youth/parent or therapist level, may significantly affect the relationships between CM and outcomes. This relationship may differ depending on therapists' theoretical orientation, a variable that was not included. There may also be structural differences by clinic that may be associated with therapist use of CM. These organizational factors may include having a case manager on staff, the availability of psychiatrists, etc. Each of the six different clinics may even have different policies or procedures regarding the use of case management. Furthermore, the cultures of the different clinics in this study may differentially affect therapist attitudes about CM, particularly if extra-therapeutic care is a focus of team meetings. Future research would benefit from examining these relationships at the clinic level, as well as examining other potential therapist-level moderators.

At level 1 of the data set, outcome variables were restricted primarily to youth patients. Parent outcomes were not measured in this study, even though CM is directed more to parents than to youth patients (Zoffness et al., 2009). This may be because certain aspects of CM require caregiver input, such as attending an IEP to better meet a child's educational needs, or obtaining permission to speak with the child's psychiatrist. This type of CM use directed at the parents is certainly intended to directly affect youth patients. However, it is also possible that parents themselves presented with significant practical, social, and mental health needs, requiring therapists to utilize elements of CM from which parents may themselves benefit. That is, in jointly attending treatment sessions with youths, parents may have received some benefits from therapy, as CM directed to parents may positive affect both youth and

parents. For example, CM targeting familial stress and housing issues would likely have a positive effect on parent outcomes, which would, in turn, benefit their children. As high caregiver strain has been shown to have a negative impact on children's behavior problems and overall mental health (Sales et al., 2004), it is possible that the CM – outcome effect is mediated by parental well-being. That is, if parents are healthier, perhaps their children will be as well. Thus, unmeasured parent variables may influence the relationship between CM use and youth outcomes.

It is also possible that findings were limited because CM may have been associated with other non-measured outcomes beyond the six outcomes that were examined. While symptom severity, family functioning, satisfaction, and attendance were hypothesized to have a relationship with therapist use of case management, other unidentified outcomes may also be affected by this treatment strategy. For example, future research could benefit from examining changes in academic and behavioral performance in school as well as social functioning via youth, parent, and teacher reports.

Aggregating CM intensity across sessions to create a mean intensity score for each participant may have obscured certain effects; for example, it may be that outcomes for youth are different for families who received the highest CM intensity compared to those who received the lowest. Analyses comparing families who received highest CM intensity to families who received the lowest CM intensity could be an area for future research. Additionally, youth patients who presented with more severe symptoms as baseline may have received more intensive CM throughout the course of treatment, but this variable was not measured. It is also possible that the videotaping process affected practice itself, although the impact of this was potentially minimized by using small, unobtrusive cameras.

Therapist perceptions of their own use of CM as well as their assessments of youth and family change were not measured in this study. Clinicians report utilizing observation and

intuition as much as they do youth and parent reports to evaluate outcomes (Garland et al., 2003). As such, therapists rating of their own use of CM would be a useful addition, as therapists may rate their own use of CM differently than coders observing the sessions. A recent study found that coders and therapists differed on how extensively particular elements of treatment were pursued in session; specifically, therapists reported pursuing more strategies with substantially greater intensity per session than what was observed and recorded by coders (Hurlburt, Garland, Nguyen & Brookman-Frazee, 2010). This discrepancy has potentially significant clinical and service implications. Future studies could be made stronger by using therapist self-reports to determine how intensively therapists believed they used CM in each session and what percentage of time they used CM in session, as well as obtaining a rating of how important therapists believe CM to be for different patients in UC psychotherapy. Incorporating therapist reports would add to the information on CM use in UC psychotherapy, as observer reports might be incomplete on their own.

Because therapists report utilizing a great deal of CM outside of the office and/or after sessions (e.g., making school visits to consult with teachers, coordinating care with psychiatrists over the phone, etc.) it is possible that the CM variable used in this study may be an underestimate of the total amount of case management used in UC psychotherapy. That is, it is possible that this study does not capture the full range of therapist use of CM or its extensiveness. Future research could examine how frequently and intensively therapists use this strategy outside of session. Relatedly, this study did not measure the amount of time therapists spent using CM in session. That is, frequency and intensity of use were measured, but the actual amount of time therapists spent on CM across sessions was not calculated. Despite the fact that therapists utilized CM with low intensity, this study does not indicate how much time therapists spend using CM with youth and caregivers in UC. However, therapists report that they are spending a great deal of time with parents on case management

(Garland, Brookman-Frazee, et al., 2010; Zoffness et al., 2009). Time spent on coordination of care is time that therapists could/would potentially spend learning more about evidence-based techniques, receiving training in administering evidence-based treatments, and moving in the direction of research-based practice. As a future step, it would be useful to examine the amount of time therapists spend on CM compared the time they spend implementing elements of EBPs in session. It may be that the demand for CM in UC psychotherapy for this population does indeed impede therapists' ability to implement EBPs due to the amount of time they spend utilizing this strategy. However, a better understanding of CM, its use in treatment, and its impact on various outcomes are needed before any definitive conclusions can be drawn about the effectiveness of this strategy and whether it impedes therapists in their work towards improving youth psychopathology.

Conclusions. It has been widely reported that youth receiving UC psychotherapy show little to no improvement on average post-treatment (Bickman, 1996; Warren et al., 2009; Weiss et al., 1999; Weisz, 2004; Weisz, Donenberg, Han, & Weiss, 1995). It is therefore critical to identify elements of treatment that may be beneficial to the community-based population. This study has identified an effective component of UC psychotherapy, case management, which is associated with improved outcomes, including decreased symptom severity and improved family functioning for youths and families treated by certain therapist providers. These findings suggest that exploring additional variables that may affect the relationship between CM and outcomes is warranted. Identifying the most effective components of CM in the UC context is also warranted (e.g., discussing medication management with psychiatrists).

School, family, and financial issues appear to be common in community-based care for youth, and helping families meet these needs may be required of UC psychotherapists. While it is possible that using CM may interfere with therapists' time and ability to implement

elements of EBPs, this study suggests that this intervention is, in itself, effective when utilized by certain providers. This has implications for how we perceive the current state of UC as well as implications for implementation and dissemination of other important elements of treatment. This study is a first step towards examining the role of case management in UC psychotherapy and identifying how it is associated with various outcomes.

Finally, this study suggests, in line with the suggestions of Hoagwood et al. (2001) and Kazdin (2008), that identifying effective elements of treatment may be a useful way to better understand UC psychotherapy, to meet the current, complex needs of this population, and to provide these families with some form of treatment that is effective, even if it is not a fully integrated EBP. This study brings us one step closer to bridging the gap between research and practice.

APPENDIX

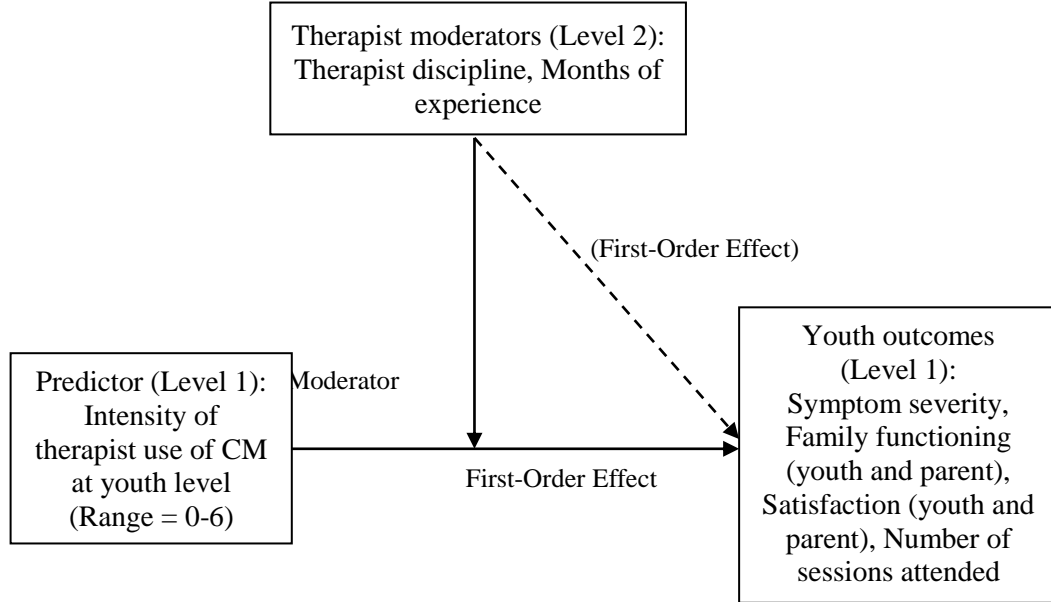


Figure 1. *Heuristic of Hypothesized Relationships Among Variables.*

Table 1. *Characteristics of Participating Therapists (n = 77)*

Therapist Characteristics	n	M (SD) or %	Range
Gender: Female	66	85.0	
Age		31.7 (8.7)	23-56
Months practiced		31.1 (41.6)	0-300
Race/Ethnicity			
Caucasian	51	66.2	
Multiracial/Other	16	20.8	
Hispanic/ Latino	7	9.1	
African American	3	3.0	
Mental Health Discipline			
Marriage & Family Therapy (MFT)	45	58.4	
Social Work (SW)	17	22.1	
Psychology (PSY)	15	19.5	
Highest Degree Obtained			
Masters	45	58.4	
Bachelors	30	39.0	
Doctoral	2	2.6	
Primary Theoretical Orientation			
Family Systems	30	39.0	
Cognitive Behavioral	20	26.0	
Eclectic/Other	20	26.0	
Nondirective	7	9.1	
Level of Training			
Trainee (vs. Staff)	45	58.4	

Table 2. *Characteristics of Participating Youth (n = 165)*

Youth Characteristic	<i>n</i>	M (<i>SD</i>) or %	Range
Youth age at baseline	165	8.9 (2.7)	4-14
Youth male gender	110	66.7	
Youth Race/Ethnicity			
Caucasian	83	50.3	
Latino/ Hispanic	46	27.9	
Multiracial	17	10.3	
African American	14	8.5	
Native American	4	2.4	
Asian American/ Pacific Islander	1	0.6	
Child's Primary Diagnosis (assigned by clinician)			
Attention Deficit/Hyperactivity	69	41.8	
Mood disorder	38	23.0	
Oppositional Defiant Disorder/ Conduct Disorder	32	19.4	
Anxiety Disorder	16	9.7	
Autism Spectrum Disorder	7	4.2	
Other	3	1.8	

Table 3. *Characteristics of Participating Parents (n = 165)*

Parent Characteristic	<i>n</i>	M (<i>SD</i>) or %	Range
Age at Baseline	164	40.3 (10.4)	22-69
Female Gender	155	93.9	
Race/Ethnicity			
Caucasian	92	55.8	
Latino/Hispanic	47	28.5	
African American	15	9.1	
Multiracial	7	4.2	
Asian American/ Pacific Islander	2	1.2	
Native American	2	1.2	
Mean Annual Family Income		\$35902 (30342.2)	60-250000
Primary Referral Source			
Parent	86	52.1	
School staff	36	21.8	
Other community professionals	25	15.2	
Family/friends/child/other	11	6.7	

Table 4. All Variables at Both Levels of the Data Structure

LEVEL 1 (Youth)	
Primary Predictor	Case management (CM) intensity score
Outcome Variables (4 mo.)	
ECBI	Youth symptom severity score
FRI P	Family functioning, Parent report
FRI Y	Family functioning, Youth report
MASS P	Parent satisfaction, perceived effectiveness
MASS Y	Youth satisfaction, perceived effectiveness
Number of visits	Total number of visits (attendance)
Control Variables	
ECBI BL	Baseline youth symptom severity score
FRI P BL	Baseline family functioning, parent report
FRI Y BL	Baseline family functioning, youth report
Tape Count	Total number of tapes per family
LEVEL 2 (Therapist)	
Potential Moderators	
Therapist Discipline	Social Worker (SW), Psychologist (PSY), or Marriage and Family Therapist (MFT)
Therapist Experience	Number of months practicing psychotherapy

Notes:

P = Parent

Y = Youth

BL = Baseline

Table 5. *Descriptives for Predictor, Control, and Outcome Variables*

Variable	<i>n</i>	Mean (<i>SD</i>)	Range
CM Intensity Score	165	1.91 (1.44)	0-6
ECBI BL	165	146.7 (36.6)	59-237
ECBI 4 months	147	130.0 (36.3)	52-233
FRI Parent BL	165	9.1 (4.6)	-5 – 17
FRI Parent 4 months	148	9.7 (4.2)	-2 – 17
FRI Y BL	91	7.3 (4.2)	-3 – 17
FRI Y 4 months	78	8.4 (3.8)	-1 – 16
MASS Parent	144	2.9 (.87)	1-4
MASS Youth	76	3.2 (.81)	1-4
Number of visits 4 months	165	9.9 (4.5)	1-21
Tape Count	432	2.62 (1.17)	1-4

Note: BL = Baseline measure

Table 6. *Intraclass Correlations (Youth Nested Within Therapist)
for Each Outcome Variable*

	Level 1	Level 2
<i>n</i>	Outcome Variable	ICC
Level 1=147 Level 2=73	ECBI	.099
Level 1=148 Level 2=74	FRI Parent	.077
Level 1=78 Level 2=51	FRI Youth	.139
Level 1=165 Level 2=77	Number of visits	.266
Level 1=144 Level 2=52	MASS Parent	.053
Level 1=76 Level 2=52	MASS Youth	.012

Notes: Level 1 = Youth (CM intensity score)
Level 2 = Therapist

Table 7. Correlation Coefficients for Predictor, Controls, and Outcomes

	1	2	3	4	5	6	7	8	9	10	11
1. CM Intensity Score	1.000										
2. ECBI Baseline.....	.139+	1.000									
3. ECBI 4 Months.....	.110	.705**	1.000								
4. FRI P Baseline.....	-.008	-.164*	-.204**	1.000							
5. FRI P 4 Months.....	.010	-.218**	-.416**	.624**	1.000						
6. FRI Y Baseline	-.147	-.207*	-.264**	.293**	.341**	1.000					
7. FRI Y 4 Months	-.039	-.226*	-.284**	.312**	.236*	.637**	1.000				
8. MASS P.....	.015	-.244**	-.337**	.202**	.186*	.257*	.222*	1.000			
9. MASS Y.....	.034	.055	.100	.108	-.112	-.041	.199	.175+	1.000		
10. Number of visits.....	-.077	-.078	-.046	.093	.027	-.039	-.042	.236**	.110	1.000	
11. Tape Count.....	.105	.020	.025	.160*	.065	.126	.230*	.148	.032	.297**	1.000

Notes:

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

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

+ Correlation approaches significance at the 0.10 level (2-tailed)

Table 8. *Multilevel Bivariate Regressions*

	ECBI (<i>n</i> = 147)			Number of Visits (<i>n</i> = 165)			FRI P (<i>n</i> = 148)			FRI Y (<i>n</i> = 78)			MASS P (<i>n</i> = 144)			MASS Y (<i>n</i> = 76)		
	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>
Predictor CM	2.77	1.81	.13	-.24	.23	.32	.01	.21	.96	-.17	.38	.65	.01	.05	.91	.02	.08	.82
Therapist Variables																		
Therapist Experience	-.22	.99	.83	-.33	.12	.01**	.02	.12	.88	.35	.15	.02*	-.01	.03	.62	.01	.02	.92
D1	6.44	7.66	.40	-1.09	.93	.25	.21	1.11	.85	-2.03	1.09	.07+	-.06	.21	.75	-.10	.33	.76
D2	9.87	8.52	.22	-1.57	1.16	.18	-1.12	.78	.15	-1.84	1.21	.13	-.29	.21	.17	.40	.18	.03*
D3	-3.90	10.47	.71	.48	1.28	.71	1.32	1.16	.26	-.43	1.37	.75	.23	.28	.41	-.50	.33	.13
Controls																		
Tape Count	.96	2.09	.65	1.12	.31	.00**	-.14	.24	.56	.61	.26	.03*	.10	.05	.07+	.02	.08	.77
BL Measures	.75	.06	.00**				.52	.07	.00**	.57	.09	.00**						

Notes:

1. D1: Marriage and Family Therapists compared to Psychologists (MFT – SW)
2. D2: Marriage and Family Therapists compared to Social Workers (MFT – PSY)
3. D3: Social Workers compared to Psychologists (SW – PSY)
4. Unstandardized regression coefficients with robust standard errors are presented.
5. Therapist experience and CM intensity are grand-mean centered.
6. * Regression coefficient is significant at the 0.05 level (2-tailed).
7. ** Regression coefficient is significant at the 0.01 level (2-tailed).
8. + Regression coefficient approaches significance at the 0.10 level (2-tailed).

Table 9. *Random Coefficients Regression Model, First-Order Effects*

	OUTCOMES																	
	ECBI (<i>n</i> = 147)			Number of Visits (<i>n</i> = 165)			FRI P (<i>n</i> = 148)			FRI Y (<i>n</i> = 78)			MASS P (<i>n</i> = 144)			MASS Y (<i>n</i> = 76)		
	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>
Primary Predictor																		
CM Intensity Score	.26	1.35	.85	-.29	.23	.20	-.02	.22	.92	-.18	.20	.38	.01	.05	.96	.04	.08	.59
Control Variables																		
Tape Count	.59	1.37	.66	1.23	.31	.00**	-.15	.24	.53	.64	.26	.02*	.10	.06	.07+	.01	.07	.94
BL Measures	.76	.06	.00**				.53	.07	.00**	.54	.09	.00**						

Notes:

1. Unstandardized regression coefficients with robust standard errors are reported.
2. CM intensity score, control variables, and therapist experience and are grand-mean centered.
3. * Regression coefficient is significant at the 0.05 level (2-tailed).
4. ** Regression coefficient is significant at the 0.01 level (2-tailed).

Table 10. *Random Effects for all Models: Variance Terms*

		Multilevel Models	
		Random Coefficients Regression	Intercepts & Slopes As Outcomes
		Chi-square	
Outcome Variables	<i>n</i>		
ECBI	147		
Intercept		52.59*	51.68*
Slope		54.52*	43.19
FRI P	148		
Intercept		31.18	32.27
Slope		43.71	38.99
FRI Y	78		
Intercept		16.65	17.16+
Slope		11.94	12.09
MASS P	144		
Intercept		46.38+	48.22*
Slope		36.39	34.00
MASS Y	76		
Intercept		15.29	25.12**
Slope		28.01*	46.02**
Number of Visits	165		
Intercept		60.74*	62.94**
Slope		32.38	31.63

Notes:

1. Final estimations of variance components are reported.
2. * Chi-square is significant at the 0.05 level (2-tailed).
3. **Chi-square is significant at the 0.01 level (2-tailed).
4. + Chi-square approaches significance at the 0.10 level (2-tailed).

Table 11. *Intercepts and Slopes Model, First-Order Effects*

	ECBI (<i>n</i> = 147)			Number of Visits (<i>n</i> = 165)			FRI P (<i>n</i> = 148)			FRI Y (<i>n</i> = 78)			MASS P (<i>n</i> = 144)			MASS Y (<i>n</i> = 76)		
	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>
First- Order Effects:																		
CM	1.47	1.51	.33	.09	.28	.73	-.04	.39	.92	.01	.27	.99	.08	.07	.24	-.01	.12	.97
Therapist Discipline: D1	-5.68	5.05	.26	-.34	.94	.71	-.45	.88	.61	-1.58	.99	.11	-.11	.21	.56	-.10	.33	.75
D2	1.74	5.03	.73	-.03	1.18	.98	-.06	.52	.90	-.64	1.06	.54	-.26	.21	.23	.25	.17	.18
D3	-7.43	5.87	.21	-.32	1.27	.80	-.39	.86	.65	-.94	1.33	.48	.14	.27	.78	-.35	.31	.27
Therapist Experience	.09	.72	.90	-.33	.11	.00**	-.04	.09	.67	.09	.12	.46	-.02	.03	.53	-.02	.03	.48
Tape Count	-.52	1.63	.75	1.38	.34	.00**	.09	.25	.71	.36	.28	.20	.08	.07	.21	.09	.07	.18
BL Measures	.77	.09	.00**				.51	.08	.00**	.47	.13	.00**						

Notes.

1. D1: Marriage and Family Therapists compared to Psychologists (MFT – PSY)
2. D2: Marriage and Family Therapists compared to Social Workers (MFT – SW)
3. D3: Social Workers compared to Psychologists (SW – PSY)
4. BL: Baseline
5. Unstandardized regression coefficients with robust standard errors are presented.
6. Therapist experience and CM intensity are grand-mean centered.
7. * Regression coefficient is significant at the 0.05 level (2-tailed).
8. ** Regression coefficient is significant at the 0.01 level (2-tailed).
9. + Regression coefficient approaches significance at the 0.10 level (2-tailed).

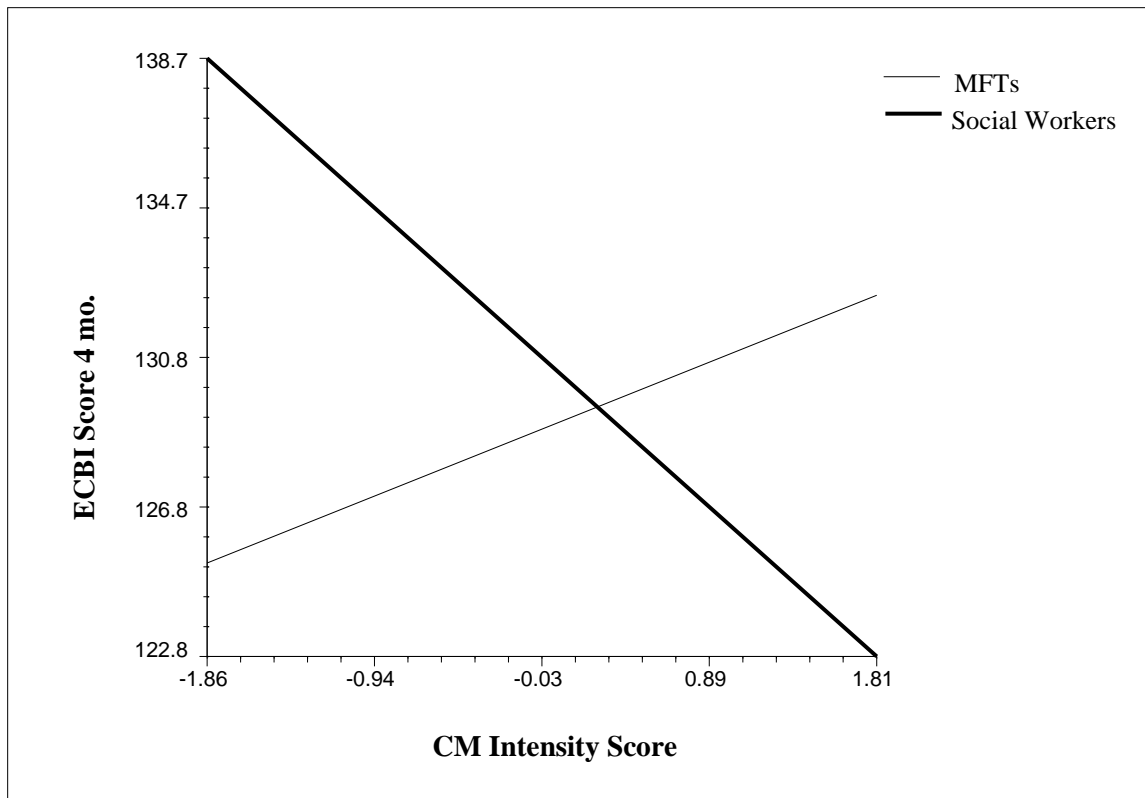
Table 12. *Intercepts and Slopes Model, Interactions*

	ECBI (<i>n</i> = 147)			Number of Visits (<i>n</i> = 165)			FRI P (<i>n</i> = 148)			FRI Y (<i>n</i> = 78)			MASS P (<i>n</i> = 144)			MASS Y (<i>n</i> = 76)		
	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>
CM x D1	2.46	3.80	.52	-.01	.45	.98	.86	.54	.11	.61	1.02	.55	-.08	.13	.56	-.09	.27	.72
CM x D2	-6.28	2.27	.00**	-1.00	.46	.03*	-.11	2.27	.82	-.75	.45	.10	-.18	.11	.11	.09	.15	.55
CM x D3	8.73	4.09	.03*	.99	.52	.05*	.97	.39	.02*	1.09	1.09	.22	.09	.14	.48	-.18	.26	.49
CM x TE	-.86	.41	.03*	.11	.07	.14	.12	.09	.21	-.07	.08	.42	-.01	.02	.55	-.03	.03	.27
Tape Count x D1	6.34	5.01	.21	-1.94	.62	.00**	-.78	.54	.15	.59	.76	.44	.04	.17	.98	-.52	.22	.02*
Tape Count x D2	4.61	3.08	.14	.45	.91	.62	-.86	.48	.08+	1.57	1.17	.19	-.04	.20	.86	.09	.15	.56
Tape Count x D3	1.72	5.38	.74	-2.39	1.01	.02*	.08	.67	.90	-.97	1.36	.47	.09	.14	.48	-.18	.26	.49
Tape Count x TE	.31	.46	.49	.13	.09	.13	.08	.08	.29	.01	.07	.89	-.03	.02	.09+	-.03	.02	.28
BL x D1	.21	.20	.31				.19	.09	.34	-.16	.24	.51						
BL x D2	.04	.15	.77				.09	.14	.53	.02	.30	.93						
BL x D3	.17	.19	.40				.09	.19	.62	-.18	.36	.58						
BL x TE	.00	.02	.99				-.00	.02	.99	-.05	.03	.15						

Notes.

1. D1: Marriage and Family Therapists compared to Psychologists (MFT – SW)
2. D2: Marriage and Family Therapists compared to Social Workers (MFT – PSY)
3. D3: Social Workers compared to Psychologists (SW – PSY)
4. TE: Therapist Experience
5. BL: Baseline
6. Unstandardized regression coefficients with robust standard errors are presented.
7. Therapist experience and CM intensity are grand-mean centered.
8. * Regression coefficient is significant at the 0.05 level (2-tailed).
9. ** Regression coefficient is significant at the 0.01 level (2-tailed).
10. + Regression coefficient approaches significance at the 0.10 level (2-tailed).

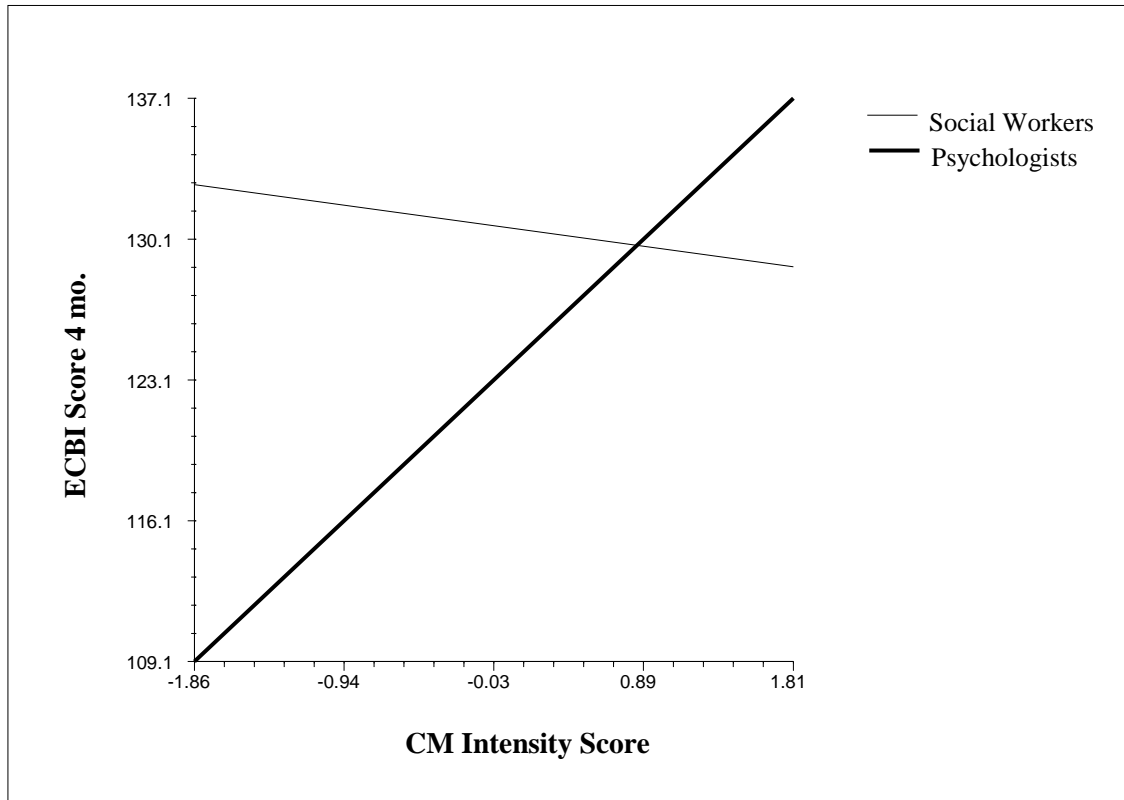
Graph 1. *Simple Slopes for Symptom Severity and CM Intensity Score by Therapist Discipline (MFT-SW)*



Notes:

1. CM intensity score is Grand Mean Centered.
2. Comparison is between Marriage and Family Therapists (MFT; reference group) and Social Workers (SW).

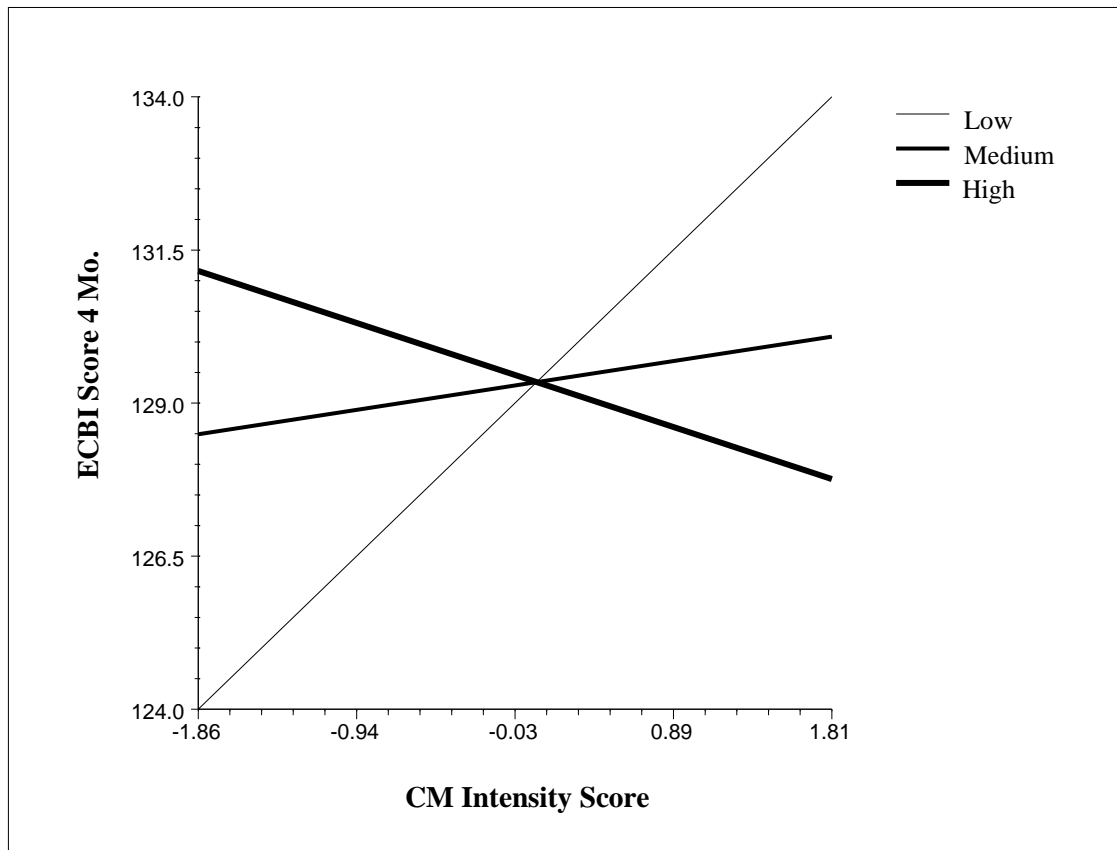
Graph 2. Simple Slopes for Symptom Severity and CM Intensity Score by Therapist Discipline (SW-PSY)



Notes:

1. CM intensity score is Grand Mean Centered.
2. Comparison is between Social Workers (SW; reference group) and Psychologists (PSY)

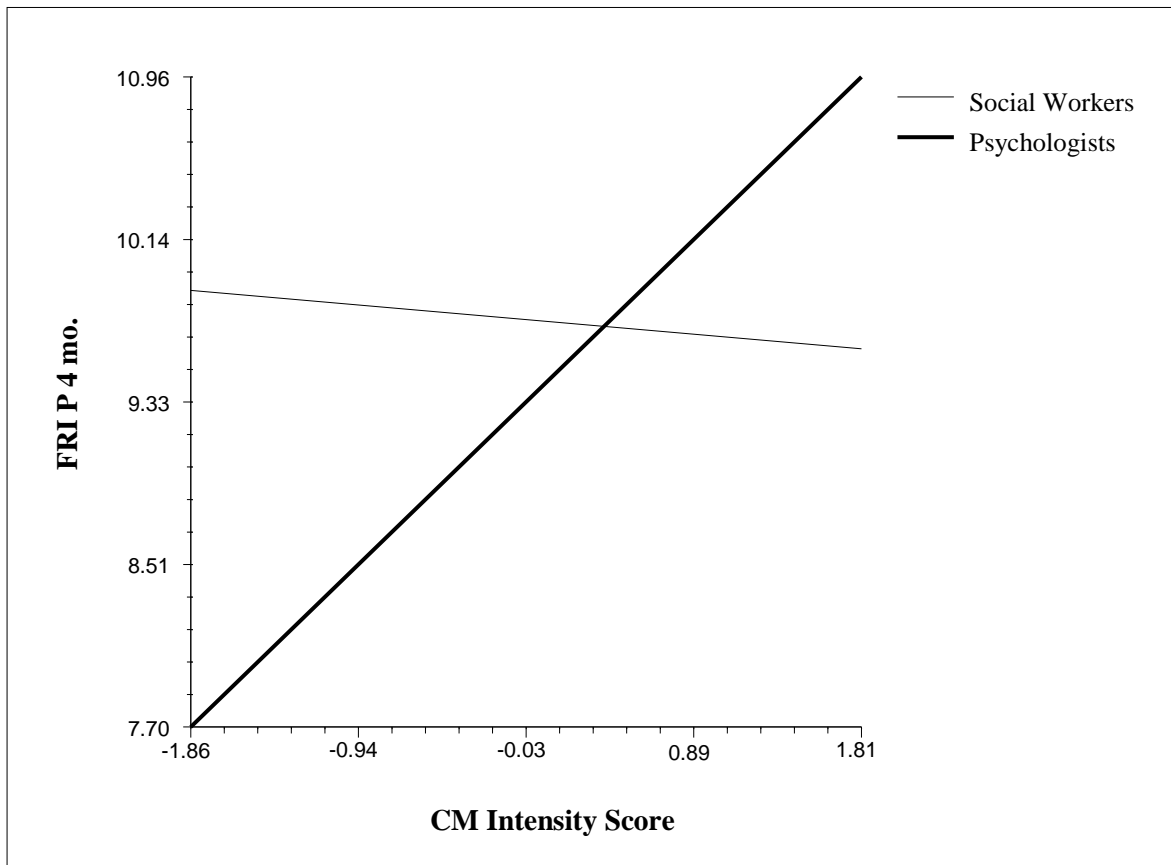
Graph 3. *Simple Slopes for Symptom Severity and CM Intensity Score by Therapist Experience*



Notes:

1. CM intensity score and Therapist Experience are Grand Mean Centered.
2. Therapist Experience is measured in months.
3. Low experience = 25%
4. Medium experience = 50% (average)
5. High experience = 75%

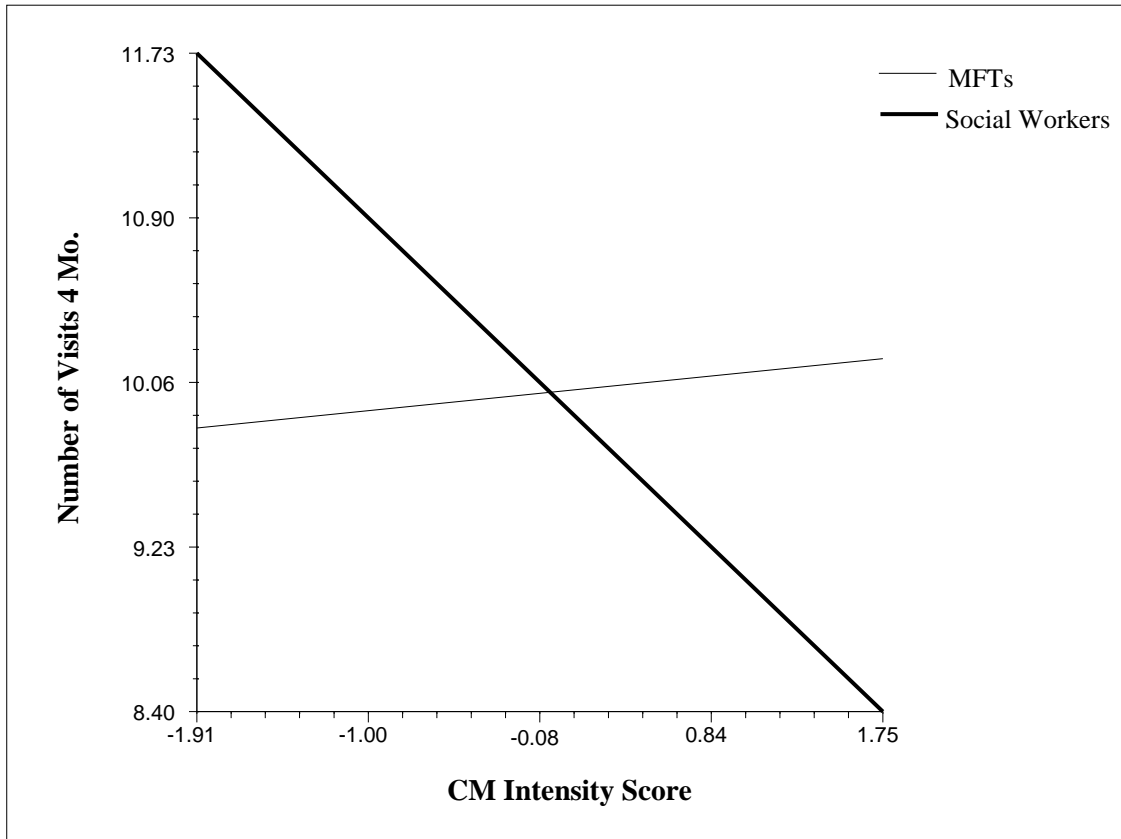
Graph 4. Simple Slopes for Family Functioning and CM Intensity Score by Therapist Discipline (SW-PSY)



Notes:

1. CM intensity score is Grand Mean Centered.
2. Comparison is between Social Workers (SW; reference group) and Psychologists (PSY).
3. FRI P: Family functioning, parent report

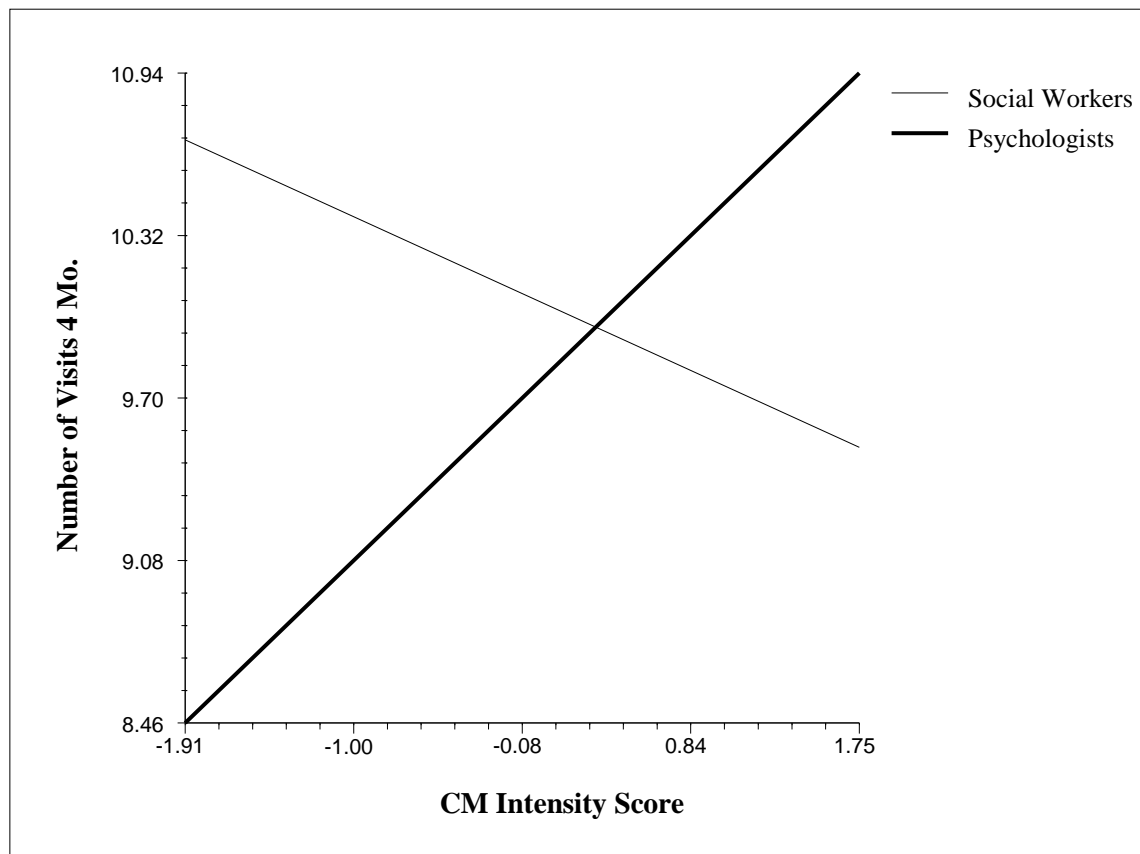
Graph 5. Simple Slopes for Number of Visits and CM Intensity Score by Therapist Discipline (MFT-SW)



Notes:

1. CM intensity score is Grand Mean Centered.
2. Comparison is between Marriage and Family Therapists (MFT; reference group) and Social Workers (SW).

Graph 6. *Simple Slopes for Number of Visits and CM Intensity Score by Therapist Discipline (SW-PSY)*



Notes:

1. CM intensity score is Grand Mean Centered.
2. Comparison is between Social Workers (SW; reference group) and Psychologists (PSY).

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