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The Influence of Parental Factors on Therapist Adherence in Multi-systemic Therapy

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Abstract

Therapist treatment adherence has received a great deal of attention in recent years, in part because of its relation to treatment outcomes. Although certain therapist behaviors have been found to be associated with treatment outcomes, little is known about client factors impacting on therapists' ability to adhere to treatment protocols. In this study, we evaluated effects of parental beliefs, psychopathology, and interaction styles on therapists' adherence to Multi-systemic Therapy (MST) principles. Eighty-two parents participating in a clinical trial of MST completed baseline measures assessing psychopathology, family functioning, and treatment expectations. Analyses indicated that parental perceptions of therapist adherence were established within the first 4 weeks of treatment, and that parental psychopathology, motivation, expectations, and child rearing practices were related to parental ratings of therapist adherence. Results were essentially unchanged when controlling for parental positive response style. Clinical and research implications of the findings are discussed.

Keywords

therapist adherence; multi-systemic therapy; disruptive behavior; parent

As the number of interventions with evidence supporting their efficacy in research settings has increased, the field has begun to focus on the dissemination of these evidence-based interventions into usual-care settings, and to the factors that support or impede successful program implementation (e.g., Silverman, Kurtines, & Hoagwood, 2004). One factor that has been found to be critical for successful dissemination (i.e., dissemination wherein treatment effectiveness is maintained) is treatment fidelity (e.g., Dane & Schneider, 1998; Elliott & Mihalic, 2004). Treatment fidelity generally has been conceptualized as an index of "therapeutic accountability" (Yeaton & Sechrest, 1981) that involves the quality of treatment implementation, the supervision practices underlying the implementation, and in particular, clinician behavior during the therapy session (Hogue, Liddle, & Rowe, 1996; Huppert, Barlow, Gorman, Shear, & Woods, 2006; Perepletchikova, Treat, & Kazdin, 2007). Treatment fidelity rests heavily on a therapist's ability to adhere to an outlined protocol as

well as the level of competence with which the protocol is implemented (Martino, Ball, Nich, Frankforter, & Carroll, 2009; Perepletchikova et al., 2007).

Assessment of therapist adherence vis-à-vis clinician behavior during treatment sessions can take many forms but generally involves an evaluation of the therapist's adherence to a stated intervention model or protocol. It may, as well, involve an evaluation of the level of skill with which the therapist delivered the intervention. Therapist adherence involves the consistent use and implementation of a prescribed intervention's procedures and/or, at a higher level, adherence to the program's intervention principles or philosophy (Huppert et al. 2006; Schoenwald, Halliday-Boykins & Henggeler, 2003; Waltz, Addis, Koerner, & Jacobson, 1993). Therapist skill or competence, on the other hand, reflects the quality of the delivery of the prescribed intervention in a manner that responds to contextual variables such as level of client impairment, the client's life circumstances, as well as factors related to the therapeutic process (Waltz et al., 1993).

One intervention that has accumulated evidence for its efficacy in research settings and that has begun to move towards dissemination with assessment of treatment fidelity is Multi-systemic Therapy (MST; Schoenwald, Letourneau, & Halliday-Boykins, 2005). MST is a family-based intervention service model that addresses severe antisocial behavior in youth, focusing on multiple factors known to cause and maintain antisocial behavior in youth and their families (for a review, see Halliday-Boykins & Henggeler, 2001). MST is guided by nine principles that organize both therapist assessment and treatment practices: (1) *Therapists should conduct assessments designed to understand how the problems identified fit within the larger context of the youth's social ecology;* (2) *Therapeutic contacts should emphasize the positive and use systemic strengths as levers for positive change;* (3) *Interventions should be designed to promote responsible behavior while decreasing irresponsible behavior among family members;* (4) *Interventions should be present-focused and action-oriented, targeting specific and well-defined problems;* (5) *Interventions should target sequences of behavior within and between multiple systems that maintain identified problems;* (6) *Interventions should be developmentally appropriate and fit the developmental needs of the youth;* (7) *Interventions should be designed to require daily/weekly effort by family members;* (8) *Intervention effectiveness should be continuously evaluated from a variety of perspectives;* (9) *Interventions should be designed to promote treatment generalization and long-term maintenance of therapeutic change.*

To address the multidetermined risk factors known to perpetuate adolescent antisocial behavior, MST is delivered in an intensive, individualized manner to meet each family's unique needs as they relate to child psychopathology, peer relational problems, academic performance, neighborhood characteristics, family functioning, and support available to the family system (Schoenwald, Sheidow, Letourneau, & Liao, 2003). MST is home-based and is generally provided over the course of 3–5 months, primarily utilizing parents / caregivers as the direct agents of change. Thus, within the context of MST, the therapist's development and maintenance of a therapeutic alliance with parents / caregivers is crucial to treatment success.

Research has demonstrated that both therapist adherence and therapist competence predict MST treatment outcomes in research and clinic settings (e.g., Henggeler, Melton, Brondino, Scherer, & Hanley, 1997; Timmons-Mitchell, Bender, Kishna, & Mitchell, 2006). Associations between therapist adherence and post-treatment declines in youth arrests, incarceration rates, affiliation with delinquent peers, and youth symptomatology have been reported when MST has been evaluated in usual-care settings (Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998; Huey, Henggeler, Brondino, & Pickrel, 2000; Schoenwald, Sheidow et al., 2003; Timmons-Mitchell et al., 2006). Therapist adherence to

MST principles has also been associated with improved family relations and successful treatment completion (Huey et al., 2000; Schoenwald, Sheidow et al., 2003).

Although MST dissemination research has generated information regarding the importance of treatment fidelity, most of the attention in this area has been focused on the effects of clinician behavior on child and parent behavior, without explicitly considering the effects of the family's behavior on the clinician. The lack of exploration of the potential influence of familial contributions on therapeutic adherence may stem, in part, from a philosophical stance taken within MST that maintains that ultimate responsibility for positive treatment outcomes lies primarily with the therapist, that whatever the situation presented to the therapist by the family, the therapist should be able to help the family move in a positive direction. In a review of MST research, only one study has been conducted that included an exploration of the potential impact of family interactions on therapist behavior (i.e., Foster et al., 2009). Foster et al. (2009) randomly selected and coded one mid-treatment session tape and found that the level of caregiver engagement during that session increased the odds of therapists' use of reinforcement during the session.

Nonetheless, even if therapists have the ultimate responsibility for treatment success, it is likely that client factors affect therapist adherence to MST principles. Research has highlighted that complex client behavior patterns may negatively impact therapist adherence to treatment protocols and might, in fact, require therapists to use more flexibility in their approach and interventions (Abramowitz, Franklin, & Cahill, 2003; Huppert & Baker-Morissette, 2003; Huppert et al., 2006). In the case of family-based interventions, parent/caregiver factors also affect therapists' ability to adhere to intervention principles and protocols. For example, MST researchers have found that factors such as therapist-caregiver ethnic similarity and therapist-caregiver gender match predict parental ratings of therapist adherence to MST principles regardless of client ethnicity and gender (Halliday-Boykins, Schoenwald, & Letourneau, 2005; Schoenwald, Halliday-Boykins et al., 2003; Schoenwald et al., 2005).

Therapist adherence has also been reported to increase when therapists work with educationally and economically disadvantaged families (Schoenwald, Halliday-Boykins et al., 2003). Moreover, higher adherence is found with families with youth exhibiting healthy pre-treatment psychosocial functioning (Schoenwald et al., 2005) as well as with youth referred for substance abuse or status offenses (Schoenwald, Halliday-Boykins, et al. 2003), but adherence decreases for families with youth exhibiting particularly severe antisocial behavior (Schoenwald, Halliday-Boykins, et al. 2003).

These findings suggest that client and family factors influence therapist adherence in important ways. Yet research focusing on the fidelity of child interventions in real-world settings has traditionally evaluated clinician behavior (Foster et al., 2009; Waltz et al., 1993), ignoring the influence of parent/caregiver factors such as parents' psychopathology, readiness to engage in therapy, and expectations about the therapeutic process. The purpose of the present study was to assess a variety of caregiver factors potentially influencing therapist adherence to MST treatment principles. Given the priority that MST places on working intensely with parents / caregivers (Halliday-Boykins et al., 2005), we hypothesized that parental / caregiver contextual factors (i.e., psychopathology, stage of change, locus of control, family functioning, parental expectations about therapy) would influence the ability of therapists to adhere to the MST model of treatment intervention. Because parent ratings of therapist adherence have been found to be the most valid and most strongly related to outcome, as with previous evaluations of MST adherence (e.g., Schoenwald, Halliday-Boykins et al., 2003; Schoenwald, Sheidow et al., 2003; Schoenwald et al., 2005) we utilized parent ratings to evaluate therapist adherence.

Methods

Participants

Selection of participants—In the present study, participants were selected from self-contained, *Moderate Intervention Program* (MIP) classrooms within the public schools. Students are generally placed into these classrooms because of conduct problems of such intensity that they are judged to be unable to be educated in the general education system and/or because their behavior is so disruptive that it significantly interferes with the education of other students. All students in a junior or senior high school MIP classroom were eligible for participation in the project. The initial exclusion criterion included lack of parent or guardian to provide consent (i.e., children in state custody were ineligible to participate). Our experience with the first cohort, however, indicated that parents of adolescents older than the age of 16 were less inclined to participate in the treatment. Therefore, an additional exclusion criterion was added that adolescents must be no older than 16 at the time of enrollment. Approval for the study was granted by the sponsoring university's Institutional Review Board.

Participant characteristics—Of the 233 families of students in MIP classrooms who were within the age range and who had a parent or legal guardian to provide consent, 23% declined to participate. Of the 169 who agreed to participation in the project, 5 voluntarily withdrew (2 control, 3 treatment) and 1 family never began treatment. Since the present study focuses on treatment adherence, the sample was restricted to the 82 participants in the treatment group. Table 1 reports the demographic characteristics of participants at the beginning of their project involvement.

Enrollment and assignment to experimental condition—School personnel were paid by the research project to contact families of all adolescents in participating schools with MIP classrooms. The personnel explained the study to families, and for parents who provided initial consent for contact, the family's name and contact information were provided to the research project team. Members of the research project team then contacted interested families, provided more information regarding the project, and scheduled initial home interviews. During initial interviews, parental and adolescent consent were obtained, and the first assessment was conducted. After the assessment was completed, a research assistant opened an envelope that contained each family's random assignment to the treatment or control condition.

Therapist characteristics—The primary clinical team consisted of (a) three therapists, (b) an on-site MST supervisor, who had a MSW and LCSW, with 15 years of clinical experience, and (c) an off-site MST consultant situated at the FSRC at MUSC. Over the 4 years of the clinical implementation portion of the project, eight different therapists were employed. Although this rate of turnover is high compared to outcome studies in general (e.g., in an outcome study in the same geographical area, we had no turnover among three primary clinicians, and one replacement among three part-time clinical assistants over 2 ½ years; Author Citation, 2003), it is not high relative to other studies of MST (e.g., therapists in Borduin et al. [1995] participated on average for 16 months, whereas in the current study the average was about 16 ½ months); this probably reflects, in part, the demanding nature of being an MST therapist. One therapist had a B.A. (in psychology) and the others had masters degrees (three in social work, one each in psychiatric nursing, family therapy, divinity, and rehabilitation counseling). Their duration with the project ranged from 4 months to 2 ¾ years.

Treatment and supervision—The MST treatment provided to families followed standard MST guidelines and was closely supervised by the developers of the MST program via a consulting arrangement with the Family Services Research Center (FSRC) at the Medical University of South Carolina (MUSC). Following MST recommendations, therapist caseloads were maintained at 4 to 5 families. Across the project, the number of families assigned to each therapist ranged from 1 to 23 (one therapist assigned a single family became ill shortly after joining the project, and had to resign) with a mean of 10.5 families per therapist and a standard deviation of 7.2, reflecting the fact that therapists who were with the project longer worked with more families.

FSRC provided the initial training to therapists in person, as well as on-site quarterly booster or as-needed trainings. Further, an FSRC consultant provided weekly consultative supervision by phone with the project therapists, with detailed treatment implementation plans for each case faxed to the FSRC consultant prior to the supervision session. In addition, the project therapists were supervised weekly by an on-site supervisor. The overriding purpose of supervision was to maintain treatment fidelity, with clinical supervision and assurance of treatment fidelity highly integrated.

Assessment

Treatment fidelity data—Following the schedule described below in the **Procedures** section, parents completed the Therapy Adherence Measure (TAM; Henggeler & Borduin, 1992), a 26-item questionnaire that measures family and therapist behaviors related to MST principles. Because most research with the TAM has involved the parent-report version (e.g., Schoenwald, Henggeler, Brondino, & Rowland, 2000; Schoenwald, Sheidow, et al., 2003), and because the parent-report TAM best predicts outcome (e.g., Henggeler et al., 1997; Huey et al., 2000), in the present study we also focused on the parent-report TAM.

There have been several factor analyses of the TAM. The original factor analysis for the TAM (Henggeler et. al, 1997) produced a six factor solution. Since that time, there have been several other factor analyses (e.g., Henggeler, Schoenwald, Liao, Letourneau, & Edwards, 2002). Currently, the most widely used is a one factor solution, with the single factor named *Family-Therapist Working Relationship* (Letourneau, Sheidow & Schoenwald, 2003; Schoenwald, Halliday-Boykins et al., 2003). There are, however, several limitations with this solution and the analyses upon which it was based. First, this factor solution included less than 60% of the TAM items (15 of 26; Letourneau et al., 2003), and thus much information regarding adherence likely is not included in this factor solution. Second, non-factor analytic procedures were used to reduce the number of items (i.e., pairs of items with high correlations had one item dropped, with the decision of which item to drop based on expert consensus; an item with a relatively low test-retest correlation was dropped), which may have influenced results in unknown ways. Third, a confirmatory factor analysis was used on the remaining items to determine if a one factor solution fit the data, but the basis for theorizing a single factor was not clear. Finally, the actual fit for this model was marginal; e.g., the ratio of the chi-square to its degrees of freedom was equal to 7.9 (χ^2 (90) = 714.93), far exceeding the recommended 3.0 (Kline, 2004).

Together, these issues suggested that a second factor might underlie TAM data. Therefore, we conducted an exploratory factor analysis on our TAM data. Maximum likelihood extraction with the squared multiple correlations on the diagonal was used; a scree plot indicated two factors. A promax rotation was used on these factors (see Table 2), which were correlated $-.52$. To generate labels for the factors, we reviewed themes of the items that loaded on these two factors. There appeared to be three themes for items loading on the first factor: (a) the therapist encouraged family members to change their situation, and the family accepted that this was part of the therapist's role; (e.g., #5, *The therapist*

recommended that the family members do specific things to solve their problems; #23, *The family accepted that part of the therapist's job is to help change certain things about the family*); (b) the family had positive expectations for success about the treatment (e.g., #11, *The therapist's recommendations should help the children to mature*; #25, *The therapist's recommendations should help family members to become more responsible*); and (c) the therapist and family had a collaborative understanding of each other and the situation, and functioned together collaboratively (e.g., #3, *The family and therapist worked together effectively*; #7, *The family and therapist had similar ideas about ways to solve problems*). Together, these themes appear to reflect the successful establishment of a positive working relationship between the family and therapist. Thus, similar to the name for the factor in the one factor TAM solution (*Family-Therapist Working Relationship*; Letourneau et al., 2003), we named this factor *Establishment of a Family-Therapist Working Relationship*. We included “*Establishment*” in the label to emphasize the fact that this factor reflects the efforts and behavior of the therapist. The alpha for this factor was .95.

In addition to content, the second factor differed from the first in that it included both negative items as well as positive items (with negative loadings). Overall, the items seemed to reflect a lack of parent / family engagement in the therapy process. The highest loading for this factor was on item #19, *The therapy session was boring*; other factors loading on the second factor included the item *The session was lively and energetic* (item #1, with a negative loading), *The therapy session included a lot of irrelevant small talk* (#15), and *Not much was accomplished during the therapy session* (#16). Because overall the items seemed to primarily reflect a lack of engagement on the part of the parent, this second factor was labeled “*Failure to Engage Client in Treatment*.” The alpha for this factor was .69.

The first factor from this analysis and the factor from the one factor solution from Letourneau et al. (2003) have substantial item overlap (see Table 2). To formally assess the extent of their overlap, we computed the coefficient of congruence (Gorsuch, 1983) between our first factor and the factor from the one factor solution of Letourneau et al. (2003). The coefficient of congruence was .93 which suggests that these two factors are measuring essentially the same construct. Therefore, the primary difference between our solution and that of Letourneau et al. (2003) is our second factor. Hence, to best capture the adherence information in the TAM, we used the results from our factor analysis. This allows our results to be compared to previous studies involving the TAM (via the first factor) while at the same time more fully capturing adherence (via the second factor).

Children's Report of Parental Behavior Inventory - Parent report—Parents completed the Children's Report of Parental Behavior Inventory (CRPBI; Schludermann & Schludermann, 1970), a 30-item questionnaire assessing parental discipline and parent-child interactions. Parents rate each item describing a discrete sample of parent behavior as “a lot like,” “somewhat like” or “not like” themselves as a parent. The CRPBI yields three parenting dimensions: (a) *Acceptance vs. Rejection* (in current study $\alpha=.86$), (b) *Psychological Control vs. Psychological Autonomy* ($\alpha=.81$), and (c) *Lax Discipline vs. Firm Control* ($\alpha=.64$). *Acceptance* reflects involvement and a supportive interest in the child and his / her life and experiences; *Psychological Control* reflects parental attempts to control the child in psychologically harmful ways (e.g., by trying to make the child feel excessively guilty); *Lax Discipline* reflects a parental emphasis on autonomy in a way that is suggestive of a lack of engagement. *Firm Control*, on the other hand, reflects the use and belief in the importance of the use of consistent and firm discipline to control children's behavior. Reliability as well as convergent and discriminant validity have been established for the CRPBI (Schludermann & Schludermann, 1970; Schwartz, Barton-Henry, & Pruzinsky, 1985).

Family functioning—Parents completed the Family Adaptability and Cohesion Evaluation Scales-III (FACES-III; Olson, Portner, & Lavee, 1985), which measures family functioning in regards to instrumental and affective relations. The FACES-III is comprised of 20 items that produce two subscales, *Cohesion* and *Adaptability*. The *Cohesion* subscale assesses parental perceptions of familial closeness, emotional support, and bonding. The *Adaptability* subscale evaluates parental perceptions of the family's ability to adjust to developmental and environmental stresses through the renegotiation of the power structure, familial rules, and relationship roles. Items are rated on a 5-point Likert scale ranging from 1 (almost never) to 5 (almost always) with low scores reflecting negative perceptions of familial adaptability and/or cohesion, and high scores reflecting positive functioning. Moderate internal consistency estimates of .62 and .77 for the Adaptability and Cohesion subscales, respectively, have been demonstrated (Olson et al., 1985), and a variety of studies have demonstrated its validity (e.g., Green, Harris, Forte, & Robinson, 1991). In the present study, alphas for the Adaptability and Cohesion subscales were .74 and .86 (respectively).

Behavior Intervention Rating Scale—Parents' pre-treatment expectations about treatment were assessed using the Behavior Intervention Rating Scale (BIRS; Elliott & Treuting, 1991), modified for use in the present study to be specific to MST. The measure contains 30 items, and produces four subscales, including (a) *Effectiveness*, parental expectations regarding treatment outcomes (in the present study $\alpha=.81$); (b) *Parental Concern* about the problems that have brought the family to treatment ($\alpha=.79$), (c) *Parental Involvement*, their expectations and beliefs about the necessity of parental involvement in the treatment ($\alpha=.73$); (d) *Parent Efficacy*, which assesses parents' beliefs that they have the ability to improve the situation with their child ($\alpha=.82$). The BIRS has established validity (Elliott & Treuting, 1991; Finn & Sladeczek, 2001).

Personality Assessment Inventory—Parents completed the Personality Assessment Inventory (PAI; Morey, 1991), a self-report inventory of adult personality and psychopathology. The Anxiety, Depression, Aggression, Borderline Features, Antisocial Features, Paranoid, Drug Abuse, and Alcohol Abuse subscales of the PAI were administered as these specifically related to constructs of interest for the research project. In order to reduce the number of subscales analyzed and identify higher-order constructs, we conducted an exploratory factor analysis on our PAI data, using unweighted least squares extraction with squared multiple correlations as communality estimates on the diagonal, and a promax rotation. Two factors were produced, which were labeled (1) "Interpersonal Conflict" which had the (a) *Aggression*, (b) *Borderline Features*, (c) *Antisocial Features*, and (d) *Paranoid* subscales loading on it ($\alpha=.82$); and (2) "Internalizing Problems" with the (a) *Anxiety* and (b) *Depression* subscales loading on it ($\alpha=.87$).

Participants also were administered the PAI Positive Impression Management subscale (PIM), which was designed to assess positive response sets (Morey, 1991), and has a variety of evidence supporting its validity (e.g., Baity, Siefert, Chambers & Blais, 2007; Cashel, Rogers, Sewell & Martin-Cannici, 1995). In the present study, it was used to statistically control for potential positive response style sets ($\alpha=.65$).

University of Rhode Island Change Assessment—Parents' motivation for change was assessed at pre-treatment using the University of Rhode Island Change Assessment (URICA; DiClemente & Hughes, 1990). The URICA is comprised of 32 items rated on a 5-point Likert scale, and produces four subscales representing four of the five stages of change in the transtheoretical model of behavior change (DiClemente & Prochaska, 1998). These four stages include: (a) the Precontemplation stage (wherein the person does not believe that he or she has a problem, and hence has no need to change); (b) the Contemplation stage

(wherein the person believes that he or she may have a problem but is not willing to make a commitment to change); (c) the Action stage (wherein the person believes that he or she has a problem, and is actively engaged in trying to resolve the problem); and (d) the Maintenance stage (wherein the person is working to consolidate gains and prevent relapse / return of the problem); in the present study, alphas were .84, .81, .88, .81 respectively. Parents were instructed to respond to items based on their children's or family's problems. High internal consistency alphas are reported for the subscales, ranging from .88 to .89, and the URICA's construct validity has been supported by a variety of research (e.g., Carbonari & DiClemente, 2000; DiClemente & Hughes, 1990).

Procedure

The majority of parent assessments took place in the family's home, with arrangements occasionally being made at the request of the parent / guardian to meet at other locations (e.g., school, community center). For safety reasons, all home assessments involved two research assistants. The research assistant read each measure to the parent, who followed along and selected an answer on his/her copy of the measure. TAM data were collected at 1, 2, 3, 4, 5, and 6 months after the start of treatment, predictors of adherence were collected at baseline (before treatment began, i.e., 1 month before the first TAM assessment).

Results

Overview of analyses

A mixed models approach to analyzing hierarchical linear models was used (Raudenbush & Bryk, 2002). Time was a random within-subjects coefficient representing the subject-specific linear change across time in the TAM; the random within-subjects intercept for the TAM was also included in the model, representing subject-specific baseline intercepts. Because different therapists may be differentially effective, inclusion of Therapist as a random effect in statistical models is generally recommended for intervention studies (Siemer & Joormann, 2003; Wampold & Serlin, 2000). Consequently, we included Therapist as a random effect within which subjects clustered. However, the estimate for this effect was zero. As inferred by Wampold and Serlin (2000), when the therapist effect is zero it can be ignored because no bias is introduced in significance testing (Crits-Christoph, Tu, & Gallop, 2003). Therefore, the random therapist term was dropped from our models because little or no outcome variance was explained by differences between therapists (Crits-Christoph & Mintz, 1991). Predictors were included as fixed effects assessed at baseline. In these models, the main effect of the predictor represented the relation between the predictor and the intercept for the TAM; the interaction between the predictor and Time represented the relation between the predictor and the TAM slope. As a set of secondary follow-up analyses, we re-ran all of the models including the PAI Positive Impression Management subscale as a covariate, to control for the extent to which parents' responses may have been biased by a tendency to attempt to present a positive impression.

TAM

We first assessed whether the intercepts and slopes for the two TAM factors varied significantly across participants (i.e., whether initial levels and rates of change in MST adherence differed across participants) and, if they did not vary, whether the mean intercept and/or slope differed significantly from zero. There was significant variability across participants in our first TAM factor for the intercept ($z=2.12, p<.05$) but not for the slope ($z=1.27$). We next tested whether the mean slope differed significantly from zero; it did not ($t=0.37$). Thus, in regards to the first TAM factor, *Establishment of a Family-Therapist Working Relationship*, different participants reported different initial levels of therapist

adherence to MST principles, but the level of adherence reported by participants did not change significantly across time.

We also assessed variability in the intercepts and slopes for the second TAM factor. Again, there was significant variability in the factor across participants for the intercept ($z=2.72$, $p<.005$) but not for the slope ($z=0.90$). We next tested whether the mean slope for the second TAM factor differed significantly from zero; it did not ($t=1.02$). Thus, as with the first TAM factor, for the second TAM factor (i.e., *Failure to Engage Client in Treatment*), different participants reported different initial levels of therapist adherence, but the level of adherence reported by participants did not change significantly across time. This suggests that by the time of the first TAM assessment (approximately 1 month after the beginning of treatment), parental perceptions regarding therapist adherence had become stable. This is similar to previous assessments involving the TAM (e.g., Schoenwald, Halliday-Boykins et al., 2003).

Parental predictors of therapist adherence

Because there was no significant variability across participants in regards to the TAM slopes, we restricted our analyses to predictions of the TAM intercepts. There were a number of significant predictors for both TAM factors (see Table 3). Results indicated that therapists' establishment of a working relationship with participants was significantly predicted by the FACES Adaptability subscale and the FACES Cohesion subscale. This suggests that familial closeness as well as the family's ability to adjust to both developmental and environmental stressors, as assessed at pre-treatment by parent report, may make it easier for the therapist to build a working relationship, which is a central part of MST. Results also suggested that the success at which therapists were able to establish a working relationship with parents was positively influenced by parental pre-treatment expectations, by their level of concern regarding their child's problems, and by an absence of parental psychopathology (i.e., BIRS Effectiveness subscale, BIRS Concern subscale, PAI Internalizing index).

The extent to which the parent was in the Action stage of change, as measured by the URICA, was correlated with the therapist's establishment of a working relationship with parents, which suggests that parents' readiness and commitment to change may facilitate a positive working relationship. In contrast, the extent to which the parent was in the Precontemplation stage of change was correlated with therapists' failure to engage parents in treatment, as assessed via the URICA, which similarly suggests that parents' denial of the significance of their child's problems may be linked to a lack of engagement in treatment by parents.

Parental expectations regarding treatment outcomes, beliefs about their own ability to improve their situation with their child, discipline styles, and psychopathology symptoms related to interpersonal conflict did not predict establishment of a working relationship by the therapist. Failure of therapists to engage parents in treatment, however, was significantly associated with lower levels of parental involvement in the lives of their children as measured by the CRBPI Firm Control subscale, lower levels of perceived family closeness / bonding as assessed by the FACES Cohesion subscale, and higher levels of parental internalizing symptoms as measured by the PAI Internalizing index. Results of these analyses are reported in Table 3. This table also includes standardized beta, which were used as effect sizes.

We next reconducted these analyses, this time including the PAI Positive Impression Management subscale (PIM) in the models, to control for potential response sets. Inclusion of the PIM resulted in slight changes in effect sizes, in both directions, but the significance

of no effects changed. This suggests that relations were not substantially influenced by participants' positive or negative response set styles.

Discussion

A review of the literature indicates that within the broad domain of intervention research, few investigations have systematically assessed the influence of non-training factors on treatment fidelity (Perepletchikova et al., 2007). When researchers have studied treatment integrity within clinical trials, much of the focus has been on therapist behaviors as they relate to treatment outcomes (Martino et al., 2009). In regards to MST, past research on predictors of MST therapist adherence has focused on therapist training and supervision, both of which have been found to be related to adherence (Henggeler et al., 2002; Schoenwald, Sheidow, & Letourneau, 2004). Although research has established associations between therapist training, supervision, adherence, and treatment outcomes, we were unable to find any study focused on the evaluation of the potential influence of family members on treatment implementation.

The present study's findings suggest that parent factors are significantly related to adherence. In the current implementation of MST, we found that a therapist's adherence to the MST principles (Henggeler & Borduin, 1992) appears to be influenced by characteristics of the parent with whom s/he is working. Parental psychopathology, motivation levels, expectations about treatment outcomes, and level of functional involvement in child-rearing practices all were related to parents' perceptions of how well MST therapists adhered to MST principles.

In the present study, we focused on parents and parent characteristics as predictors of adherence because, although multiple systems are targeted with MST, parents generally are the primary focus of MST interventions (Halliday-Boykins & Henggeler, 2001). We used the parent report TAM because it has been most frequently used in studies of MST adherence, and has the strongest validity of the various informants (Henggeler et al., 1997; Huey et al., 2000; Schoenwald et al., 2000; Schoenwald, Sheidow, et al., 2003). We used parent report to assess parent characteristics, since parents are most likely to know about their own cognitions (e.g., expectations about therapy, from the BIRS), their own affect (e.g., depression and anxiety, from the PAI), etc. However, one possible concern raised by this focus on parent-report for the predictors as well as the outcomes is that common method variance may underlie our findings. That is, one might argue that parents who rated themselves positively also tended to rate therapist adherence more positively not because of an actual correlation between adherence and these characteristics but rather because of a response style of answering most questions in a positive (or a negative) fashion. We attempted to control for such a possibility by including the PAI Positive Impression Management subscale in our analyses, but it will be useful for future research to determine whether our findings replicate when using utilizing multiple methods and / or informants to assess therapist adherence.

Regarding our substantive findings, the first higher-order TAM factor, *Establishment of a Family-Therapist Working Relationship*, appears to involve the therapist's ability to establish and develop a positive working relationship, alliance, and bond with the client, as well as to communicate and exercise MST principles with parents and family members. It was primarily positive parent characteristics—such as family cohesiveness, the family's ability to adjust to family stressors, and parental motivation for change and therapy—that were related to this TAM factor. One can imagine, for instance, how parents having a high score on the URICA Action Phase (which fundamentally represents both the acceptance that one has a problem, and the active working on the problem) could make it easier for the

therapist to establish a family-therapist working relationship focusing on the family's problems. Similarly, in families with better family functioning it may be easier for the clinician to develop a working relationship because the parents likely have better social skills, as reflected in their family functioning.

Conversely, one can see how the more depressed and anxious a parent was, the harder it would be to establish a good working relationship. These findings suggest that a close bond between family members, low levels of parental psychopathology, as well as high levels of family adaptability at the time treatment commences may allow the therapist to establish rapport, develop a productive working relationship, and more clearly communicate treatment goals and accomplishments with parents. Within such a family environment, parents who see themselves as capable change agents within the context of treatment may be more likely to be open to working collaboratively with therapists to make the changes needed to decrease youth problem behaviors, facilitating adherence to MST principles. This suggests that the impact of the parent on the *Establishment of a Family-Therapist Working Relationship* factor may be through providing an easier starting place for the therapist to work.

The second TAM higher-order factor, *Failure to Engage Parent / Family in Treatment*, appears to relate more to session-by-session activities that lead to accomplishment (or failure thereof) of treatment goals. Whereas *Establishment of a Family-Therapist Working Relationship* appears to be dependent on the therapist's ability to establish and maintain rapport with parents as well as skill with MST principles, *Failure to Engage Parent/Family in Treatment* appears to be more related to the clients' evaluation of the therapy sessions. This factor also appears to reflect a lack of motivation on the parent's part, which could increase the difficulty with which a therapist might have in engaging the parent in therapy. Parents' CRPBI Firm Control scores showed a negative relation to this factor. The CRPBI Firm Control scale reflects the use and belief in the importance of the use of consistent and firm discipline to control children's behavior. This negative relation suggests that parents who do not believe in such discipline techniques (the use of which is an important part of MST) see MST sessions as non-productive and may be more difficult to engage in treatment.

Parents with higher scores reflecting the precontemplation phase of therapy also were more likely to view therapists' in-session behaviors as non-productive. The URICA Precontemplation factor reflects a belief by the individual (in this case the parent) that there is no problem and hence no need to change anything; thus, parents with higher scores on this scale likely would have lower motivation to engage in therapy. In addition, the PAI Internalizing Symptoms Factor showed a positive relation to this TAM factor. The PAI Internalizing Symptoms Factor includes depression, an important component of which is social withdrawal and a lack of motivation, which also could increase the difficulty with which the therapist might face in engaging the parent. These findings suggest that low levels of parent commitment may increase the difficulty that therapists have in structuring productive sessions, and that high ratings on *Failure to Engage Parent/Family in Treatment*, thus may depend substantially on parent motivation to change. Future research should evaluate the extent to which failure to engage parents and/or family members in treatment is dependent on parental characteristics when compared to therapist skill.

It is also worth noting that we found that parental perceptions of overall therapist adherence to MST principles appear to be established rather quickly, within the first 4 weeks of treatment. That is, in our data, parent perceptions of therapy were first assessed 1 month after the start of therapy, and by that point the mean slope for adherence did not differ from zero.

In our factor analysis of the TAM, we found three clusters of items involved in first TAM factor *Establishment of a Family-Therapist Working Relationship*. These three clusters were: (a) the extent to which the therapist adhered to specific MST principles (e.g., encouraged the family to work to change their situation), (b) the family had positive expectations for success about the treatment, and (c) the therapist and family had a collaborative understanding of each other and the situation, and functioned together collaboratively; i.e., they had a positive working relationship. The fact that these clusters formed a common factor indicates that they were empirically strongly related but their content is somewhat theoretically disparate. Our interpretation of the results with this factor suggest that a more readily formed working alliance may indirectly improve adherence because it allows the therapist to focus on implementing MST rather than expending excessive energy on rapport building. It would be useful for future research to directly and separately assess the construct of working alliance so that such a mediational model could be tested.

Although the current findings provide insight into the factors that influence therapist adherence to MST principles, there are some limitations to the study that should be considered. First, our design was correlational, in that parents were not randomly assigned to different levels of parent characteristics (which obviously would be impossible). Although our predictors did show temporal precedence in that the parent characteristics were assessed prior to the start of treatment, and hence treatment adherence could not have influenced these parent characteristics at the time they were assessed for this study, strong inferences regarding the direction of causality cannot be made because of the possibility of third variable influences. However, we did find that controlling for positive impression management – likely one of the strongest third variable explanations – had minimal impact on our results. Second, as noted above, in the present study we focused on parent-report of adherence, because it has been found to be the strongest predictor of outcome, and because research has shown that parent ratings of therapist adherence to MST principles are a valid method of assessing the construct (e.g., Henggeler et al., 1997; Henggeler, Pickrel, & Brondino, 1999). However, it would also be useful to measure adherence objectively via observer or coder ratings in order to ensure objectivity (Elkin, Pilkonis, Docherty, & Sotsky, 1988; Huey et al., 2000; Schoenwald et al., 2004). Third, previous research (e.g., Henggeler et al., 2002; Schoenwald et al., 2004) has found that therapist training and supervision predict therapist adherence, and it would be interesting to determine the relative extent to which parent characteristics versus therapist training and supervision variables predict adherence. However, in the present study all of our clinicians received the same supervision and training, so it would not be possible to conduct such an analysis. It would be useful for future research, however, either through meta-analytic analyses combining across studies or multi-site studies with variability in therapist training and supervision to assess the relative influences of parent characteristics vs. therapist training and supervision on therapist adherence. Finally, it may be beneficial for future research to evaluate the effects of parental factors on youth outcomes as well as the effects of these factors on therapist adherence to MST principles.

In regards to pragmatic clinical implications, our results reinforce the importance for therapists to consider a client's readiness for change (van-Bilsen, 1995) and for helping parents obtain treatment for their own psychological problems (Weissman et al., 2005). Specifically, these results could suggest particular intervention targets upon which it might be important to focus. For instance, one predictor of adherence in our study was the BIRS Concern factor, which reflects parents' concern about their child's problems. Higher levels of concern were related to better adherence. This suggests that increases in parents' understanding of the medium and long term impacts of their child's problems, perhaps through techniques such as motivational interviewing, might be useful for increasing

adherence. Another example is that parental internalizing problems were negatively associated with adherence, which suggests that an emphasis on treatment of parent psychopathology is useful. As a multi-systemic intervention, MST already considers referral of parental mental health problems for treatment, and these results highlight the importance of this emphasis. From a research standpoint, the results indicate that when considering the factors that influence therapist behavior, a fairly wide range of factors should be considered. Results also suggest that one possible mechanism through which parental psychopathology and readiness to change may impact outcome is through their effect on therapy adherence, at least in regards to MST.

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Table 1

Sample demographic characteristics

Adolescent	
Mean age	14.6 (1.3)
Percent male	84%
Percent African-American	56%
Percent Euro-American	44%
Primary caregiver	
Mean age	41.7 (9.6)
Percent biological mother	75%
Percent biological father	2%
Percent grandparent	9%
Percent single parent/caregiver	53%
Median education	12.8 (years)
Family	
Median annual income	\$17,550

Table 2

Factor loadings

TAM Item	Factor 1	Factor 2
1. The session was lively and energetic. *	0.35	-.52
2. The therapist tried to understand how the family's problems all fit together. *	0.49	-.17
3. The family and therapist worked together effectively. *	0.74	-.04
4. The family knew exactly which problems were being worked on. *	0.32	0.17
5. The therapist recommended that the family members do specific things to solve their problems. *	0.67	0.15
6. The therapist's recommendations required family members to work on their problems almost every day.	0.62	0.05
7. The family and therapist had similar ideas about ways to solve problems. *	0.66	-.06
8. The therapists tried to change some ways that family members interact with each other. *	0.45	0.07
9. The therapists tried to change some ways that family members interact with people outside the family.	0.42	0.16
10. The family and therapist seemed honest and straightforward with each other.	0.69	-.05
11. The therapist's recommendations should help the children to mature. *	0.58	-.12
12. Family members and the therapist agreed upon the goals of the session. *	0.76	-.02
13. The family and therapist talked about how well the family followed her/his recommendations from the previous session.	0.76	0.01
14. The family and therapist talked about the success (or lack of success) of her/his recommendations from the previous session. *	0.60	0.17
15. The therapy session included a lot of irrelevant small talk (chit chat).	-.03	0.41
16. Not much was accomplished during the therapy session.	0.05	0.55
17. Family members were engaged in power struggles with the therapist.	0.20	0.45
18. The therapist's recommendations required the family to do almost all the work.	0.18	0.38
19. The therapy session was boring.	0.23	1.03
20. The family was not sure about the direction of treatment. *	-.30	-.06
21. The therapist understood what is good about the family.	0.18	-.76
22. The therapist's recommendations made good use of the family's strengths. *	0.48	-.37
23. The family accepted that part of the therapist's job is to help change certain things about the family. *	0.08	-.56
24. During the session, the family and therapist talked about some experiences that occurred in previous sessions. *	0.22	-.07
25. The therapist's recommendations should help family members to become more responsible. *	0.55	-.25
There were awkward silences and pauses during the session.	-.18	0.10

Notes:

* item loading on the one factor solution from Letourneau et al. (2003).

Table 3

Significant effects on intercept for TAM factors

Establishment of a Family-Therapist Working Relationship

Independent variable	Beta (SE)	t-value
BIRS Parent Concern	0.12 (0.05)	2.51 *
BIRS Parent Efficacy	0.08 (0.05)	1.68 ⁺
BIRS Parent Involvement	0.03 (0.05)	0.55
BIRS Program Effectiveness	0.11 (0.05)	2.22 *
CRPBI Firm Control	0.07 (0.05)	1.51
CRPBI Psychological Control	0.08 (0.05)	1.60
CRPBI Warm	0.09 (0.05)	1.95 ⁺
FACES Adaptability	0.10 (0.04)	2.12 *
FACES Cohesion	0.11 (0.05)	2.41 *
PAI Externalizing	-0.02 (0.06)	-0.36
PAI Internalizing	-0.10 (0.05)	-2.06 *
URICA Precontemplation Phase	-0.05 (0.05)	-1.02
URICA Contemplation Phase	0.07 (0.05)	1.60
URICA Action Phase	0.09 (0.05)	2.04 *
URICA Maintenance Phase	0.08 (0.05)	1.63

Failure to Engage Client in Treatment

Independent variable	Beta (SE)	t-value
BIRS Parent Concern	-0.03 (0.05)	-0.57
BIRS Parent Efficacy	-0.07 (0.06)	-1.31
BIRS Parent Involvement	-0.03 (0.06)	-0.56
BIRS Program Effectiveness	-0.01 (0.06)	-0.09
CRPBI Firm Control	-0.11 (0.05)	-2.23 *
CRPBI Psychological Control	0.10 (.05)	1.85 ⁺
CRPBI Warm	.01 (0.05)	0.20
FACES Adaptability	0.01 (0.05)	0.23
FACES Cohesion	-0.16 (0.05)	-3.18 ***
PAI Externalizing	0.09 (0.05)	1.64
PAI Internalizing	0.18 (0.05)	3.71 ****
URICA Precontemplation	0.15 (0.05)	2.90 ***
URICA Contemplation	0.04 (0.05)	0.72
URICA Action	0.02 (0.05)	0.33
URICA Maintenance	.01 (0.05)	0.27

Notes

⁺
p<.10*
p<.05

**
p<.01

p<.005

p<.001.