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Randomized Controlled Trial of a Brief Intervention for Increasing Participation in Parent Management Training

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Evidence-based treatments exist for a range of child and adolescent behavior problems; however, effects are often limited by poor treatment attendance and adherence. The authors developed and evaluated the efficacy of a brief (5 to 45 min) intervention designed to increase treatment attendance and adherence in a sample of 76 parents referred for treatment of their child's oppositional, aggressive, and antisocial behavior. The results of this randomized controlled trial showed that parents who received this brief intervention had greater treatment motivation, attended significantly more treatment sessions, and had greater adherence to treatment according to both parent and therapist report. This study provides researchers and clinicians with a brief and efficacious method of increasing motivation, attendance, and adherence for treatment.

Keywords: randomized controlled trial, parent management training, treatment participation, child and adolescent therapy, treatment motivation

Clinical researchers have developed an impressive array of evidence-based treatments for a wide range of child and adolescent[1] behavior problems (Kazdin & Weisz, 2003). Most of these evidence-based treatments are skills based and require that children and parents actively participate in sessions and complete homework assignments between sessions. Unfortunately, poor attendance and adherence continue to be enormous problems in child therapy. Approximately 1/2 of families that receive services terminate treatment prematurely (Baekeland & Lundwall, 1975; Pekarik & Stephenson, 1988). Moreover, this overall lack of treatment attendance, in addition to problems with adherence in those families that do attend treatment, has been associated with a wide range of negative outcomes for families (e.g., poorer child and family therapeutic outcomes), clinicians (e.g., decreased staff productivity and cost-effectiveness), and researchers (e.g., sampling bias, reduced statistical power, limited generality of results; see Armbruster & Kazdin, 1994). Methods for increasing attendance and adherence to treatment are needed to help resolve these problems.

Identifying and helping clients overcome barriers to treatment attendance and adherence have received considerable empirical attention in medicine and health psychology (Meichenbaum & Turk, 1987) as well adult psychotherapy (Miller & Rollnick, 2002). As a result, effective methods now exist for identifying and modifying patient-specific barriers to adult treatments, such as enhancing access to care and increasing motivation and attendance at treatment sessions (Katz et al., 2004; Sehgal et al., 2002; Steinberg, Ziedonis, Krejci, & Brandon, 2004).

Methods of increasing treatment participation that are specific to child therapy are needed given the unique structure and challenges associated with child therapy. For instance, in therapy with adults, the client is responsible for presenting for treatment and managing the extent of his or her attendance and adherence to treatment. In contrast, in child therapy the parent is chiefly responsible for managing treatment participation. Parents are often the ones initiating the referral for treatment, and parents must provide legal consent, transportation, and payment for treatment. Parents play a key role in managing their children's adherence both in sessions and between clinic visits. Thus, in child therapy, although the focus is often on modifying the child's behavior, it is the parent who must manage treatment attendance and adherence. This is particularly true of treatments that make use of parent training as a component of the treatment or as the sole source of treatment.

Recent estimates suggest that approximately 1,500 controlled outcome studies have evaluated the efficacy of child therapy (Kazdin, 2000). In contrast, to date only 12 controlled studies have evaluated methods for increasing attendance and adherence at child therapy (Nock & Ferriter, 2005). These interventions have demonstrated some success by using pretreatment preparatory interviews (e.g., Day & Reznikoff, 1980), increasing outreach and family engagement methods (e.g., Szapocznik et al., 1988), and providing greater attention to parent issues over the course of treatment (e.g., Prinz & Miller, 1994).

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[1] Throughout this report we refer to children and adolescents as *children* unless otherwise specified.

Despite these early successes, few efforts have been made to integrate recent research advances on the processes affecting treatment participation, such as client motivation (Miller & Rollnick, 2002) or the experience of barriers to treatment participation (Kazdin, Holland, & Crowley, 1997). Work in these areas suggests that individuals fail to attend or adhere to treatment because their motivation for treatment is not commensurate with treatment demands, or they experience other barriers to participating in treatment (e.g., lack of transportation, beliefs that treatment is irrelevant, poor relationship with therapist). Given previous support for the relationship between these factors and poor treatment participation, we expected that efforts to increase parent motivation for treatment and to identify and remove potential barriers to treatment would lead to higher rates of attendance and adherence at child therapy.

The purpose of the current study was to develop and evaluate a brief intervention designed to increase parents' motivation to participate in treatment and to increase attendance and adherence at treatment. Drawing from recent research on motivational enhancement techniques (Miller & Rollnick, 2002) and on the barriers to treatment participation model (Kazdin et al., 1997), we developed and evaluated a Participation Enhancement Intervention (PEI). The PEI is similar to some previous participation enhancement efforts in targeting the parent as the manager of treatment participation and in administering the intervention at several points over the course of treatment (e.g., Prinz & Miller, 1994; Szapocznik et al., 1988). The PEI also contains several novel components that have not been evaluated in the context of treatment for child behavior problems. For instance, the content of the PEI includes (a) providing parents with information about the importance of attendance and adherence, (b) eliciting motivational statements about attending and adhering to treatment, and (c) helping parents to identify and develop plans for overcoming barriers to treatment that may arise over the course of treatment. In addition, because therapists often do not have the time or resources to add large, additional components to their treatment protocols, the PEI was designed to be delivered by therapists in three brief (5–15 min) doses during the first few therapy sessions.

We evaluated the efficacy of the PEI in the context of treatment for child conduct problems. There are several reasons for doing so. First, child conduct problems are the most frequent reason for referral to mental health services (Kazdin, 2003), are among the most severe of childhood psychological disorders in terms of child impairment across multiple domains of functioning (Lambert, Wahler, Andrade, & Bickman, 2001), and are often associated with significant family dysfunction and impairment (Nock & Kazdin, 2002). Second, parent management training (PMT), in which parents are the primary participants in all treatment procedures, is among the most well-established treatments for child conduct problems (Kazdin, 2005; Nock, 2003). PMT is a skills-based approach, and previous research has demonstrated that greater change in parenting practices over the course of treatment is associated with more favorable child outcomes (Forgatch, 1991). Therefore, increasing parent attendance and adherence is an important and useful endeavor in the treatment of child conduct problems.

Method

Participants

Participants were 76 parents or legal guardians, their children consecutively presenting at a specialty outpatient clinic for children with oppositional, aggressive, and antisocial behavior. Treatment was initiated by families referred by a child psychiatry triage center, as well as by other community sources (e.g., physicians, schools, child guidance clinics). During the study period (2001–2003) 120 parents contacted the clinic, met eligibility criteria in a telephone interview, and scheduled an intake appointment. Thirty-four parents failed to attend an intake appointment and therefore did not participate in this study. All 76 parents who attended the intake interview agreed to participate and are included in this study. This study was approved by the Yale University Institutional Review Board, and parent consent and child assent (for children $\geq$ 7 years) was obtained from all 76 participating families.

The primary caretaker of the child participated in treatment and included biological mothers (90.6%); step-, foster, or adoptive mothers (3.1%); biological fathers; or other family members (6.3%).[2] Parents ranged in age from 20 to 66 years (M = 34.6, SD = 8.3) and self-identified ethnicity as follows: European American, 60.9%; African American, 26.6%; Hispanic, 6.3%; and biracial, 6.3%. Parents' marital status was self-reported as 45.3% married, 29.7% never married, 15.6% divorced, 7.8% separated, and 1.6% widowed. Nearly half (42.2%) of families in the current study were receiving public assistance. Children (20 girls, 56 boys) ranged in age from 2 to 12 years (M = 6.7, SD = 2.3). Child ethnicity matched parent-identified ethnicity in all cases.

Assessment

General information sheet. Basic demographic information about the child, parent, and family was obtained during an interview with the parent at the first therapeutic contact. This information included details about parent and child age, gender, and ethnicity, as well as family income, family composition, and marital status.

Parent motivation. Parent motivation for therapy was assessed using the Parent Motivation Inventory (PMI; Nock & Photos, in press). Given there was no existing measure of parent motivation for therapy at the time this study was conducted, the PMI was developed to assess this construct. The PMI is a 25-item self-report measure in which parents indicate their level of motivation for child therapy on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*). Items corresponded with three theorized components of motivation: (a) Desire for Child Change (e.g., "I want my child's behavior to improve"), (b) Readiness to Change (e.g., "I am willing to change my current parenting techniques and try new ones"), and (c) Perceived Ability to Change (e.g., "I believe that I am capable of learning the skills needed to change my child's behavior"). Evaluation of the PMI using the Flesch–Kincaid Reading Index indicated the language used in the measure is equivalent to a fifth-grade reading level (Flesch, 1948). The PMI was administered at the end of parents' first clinic visit. The PMI total and subscale scores have strong internal consistency and test–retest reliability (see Nock & Photos, in press). The internal consistency reliability (Cronbach's alpha) of the PMI total score and three subscale scores in the current study were .96, .84, .96, and .77, respectively.

Treatment attendance. Treatment attendance was assessed using two different methods in order to fully examine the relations between parent participation and other study variables. The total number of sessions attended was recorded for each family. Families were also coded according to whether the parent had terminated treatment prematurely or had completed the eight-session treatment regimen. Premature termination was

[2] Throughout this report we refer to all parents or legal guardians as *parents*.

defined as a parent stating explicitly that he or she did not want to continue in treatment, or a parent failing to appear for 3 consecutive weeks despite repeated attempts at contacting and scheduling. Number of sessions attended and premature termination were highly correlated, $r(76) = .76$, $p < .01$; however, they were not redundant ($r^2 = .58$), and both were retained to examine different patterns in the data.

Treatment adherence. Adherence was assessed using parent and therapist report on a new, three-item measure—the Adherence Questionnaire (AQ)—which we developed in collaboration with therapists who had extensive experience with the treatments used in this study. The AQ contains two ratings of the quantity of parent adherence to the treatment regimen in the previous week ("During the past week, in what percentage of your interactions with [child's name] did you use the skills you have learned so far?"). This item is completed separately by the parent and therapist and is scored on a 5-point scale (0%, 25%, 50%, 75%, 100%). In addition, the AQ contains one therapist-completed item regarding the overall quality of parent adherence. This item is also scored on a 5-point scale (0 = *no adherence/mastery*, 4 = *perfect adherence/mastery*). Therapists were provided with criteria on which to rate the quality of parent adherence that were specific to the behavioral treatment administered (e.g., "Are prompts specific, close, and calm . . . Is praise immediate, enthusiastic, and contingent?") and made ratings incorporating information from direct observations of parent skill use in sessions as well as parent report of skill use throughout each week. The inclusion of therapist and client report and of measures of both adherence quantity and quality is consistent with previous measurements of adult therapy adherence (Schmidt & Woolaway-Bickel, 2000). The AQ was administered during the fifth, seventh, and eighth sessions to assess parent adherence at multiple points over the course of therapy. The AQ was not administered until the fifth session because initial sessions involve primarily assessment and didactic meetings; therefore, parents do not have the opportunity to actually adhere to the treatment regimen until approximately the fifth session.

Procedures

After contacting the clinic for treatment, all parents attended an initial clinic orientation session during which the content and duration of treatment provided, as well as the details of the research project, were explained by the therapist. Following this session all parents and children were scheduled for a comprehensive psychosocial evaluation of the child, parent, and family. Formal treatment for child conduct problems began during the following session.

The current study examined treatment period from the first clinic visit through the delivery of eight manualized treatment sessions (i.e., one orientation session, one assessment session, and six treatment sessions).[3] The decision to focus on this specific period was guided by three considerations. First, most problems with participation such as premature termination typically occur early in treatment. Attrition is a direct function of time in treatment, with most participants dropping out early in treatment, a phenomenon that generalizes across many forms of treatment (Phillips, 1985). Second, the main content of the treatment package used in this study is delivered over the first eight treatment sessions, and subsequent sessions are used to practice and improve the skills that are learned. The use of the completion of the initial treatment delivery stage in cognitive–behavioral treatments as a definition of "treatment completers" is consistent with previous reports (e.g., Nye, Zucker, & Fitzgerald, 1995; Patterson & Chamberlain, 1994). Third, the duration of the treatment period examined is consistent with the median duration of treatment in child and adolescent therapy (Kazdin, Bass, Ayers, & Rodgers, 1990; Weisz, Weiss, Alicke, & Klotz, 1987), suggesting these results may have some generality to other child and adolescent therapy efforts.

Design. This study used an additive treatment design. All families ($N = 76$) received the same treatment for child conduct problems, as described below. In addition, families were randomly assigned to receive only treatment as usual (TAU; $n = 37$) for child conduct problems or to receive a PEI ($n = 39$) in addition to treatment for child conduct problems (see Figure 1 for a flow diagram of the study design). Random assignment was conducted by the clinic director (Alan E. Kazdin) with a random numbers table using a blocking strategy to ensure an equal number of participants were assigned to each group and a replacement strategy in instances of families who did not attend the intake session and enroll in the study ($n = 34$). Parents were aware of treatment condition for conduct problems but unaware of which condition they were in for the current study (i.e., PEI vs. TAU). Therapists were, by necessity, aware of treatment condition for all participants.

Treatment for child conduct problems. All parents received PMT (Kazdin, 2005), and children 7 years old and above (50%) also received cognitive problem-solving skills training (see Kazdin, 2003). In PMT, parents were seen individually to develop adaptive parenting practices and child–parent interaction patterns and to alter child behavior at home and at school. Practice, feedback, and shaping were used to develop parental skills in sessions and specific behavior-change programs for use outside of sessions. In problem-solving skills training, children were seen individually to learn problem-solving skills (e.g., generating alternative solutions, means–ends thinking) to manage interpersonal situations (e.g., with parents, teachers, siblings, and peers). Within the sessions, problem-solving skills were developed through practice, modeling, role-playing, corrective feedback, and social and token reinforcement. Outside of the sessions, the children applied problem-solving steps to interpersonal situations in everyday life. For school-age children, child functioning at school was incorporated into treatment through contact with the teacher and home-based reinforcement programs. Over the course of therapy, parents and children were seen together on several occasions to review, discuss, and practice aspects of treatment. The mean duration of treatment involvement for the current study was 6.4 sessions ($SD = 3.7$), although many families continued in treatment after the conclusion of this project (i.e., beyond the eighth session).

PEI. The PEI is a brief, adjunctive intervention composed of selected motivational enhancement techniques and aspects of the barriers to treatment participation model designed to increase parents' motivation for treatment and ability to identify and overcome potential barriers to treatment participation. For 5–15 min during the first, fifth, and seventh sessions (i.e., total of 5–45 min), therapists had discussions with parents in which therapists elicited self-motivational statements about parents' plans for changing their parenting behaviors and for attending and adhering to the treatment regimen (e.g., "What steps can you take to help change your child's behavior?"). During these brief discussions therapists also inquired about a range of potential barriers to participating in treatment such as problems with transportation, a lack of support from others, or the perception that treatment is too demanding or irrelevant. Therapists helped parents develop specific plans to overcome each barrier should it arise or exacerbate through the use of a change plan worksheet. The length of each discussion varied slightly (5–15 min) depending on the number of barriers identified and the amount of time needed to problem solve around each barrier, and the number of doses of PEI depended on the number of sessions attended. At the end of each of these PEI sessions, therapists gave parents a copy of the completed change plan worksheet along with prepared brochures describing the importance of consistent attendance and adherence in producing positive therapeutic outcomes. We expected that these procedures would increase parents' motivation to participate and their ability to resolve potential barriers to participation that might arise

[3] In some instances one or more treatment sessions were repeated to ensure parent mastery of the content of the treatment for conduct problems. In such instances only one such session was counted for this study to minimize the influence of extra sessions on the current study.

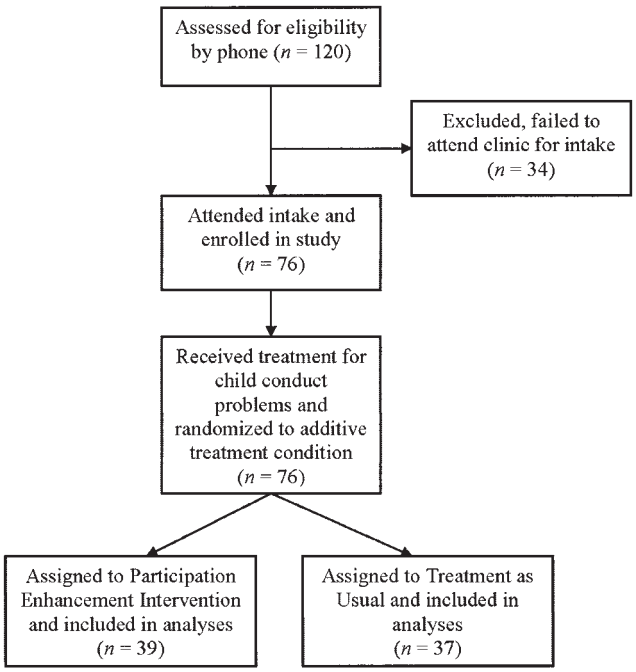

Figure 1. Flow diagram of progress through randomized controlled trial.

over the early stages of treatment, thus increasing attendance and adherence at treatment.

Parents in the PEI condition did not receive more time or attention than those in the TAU condition. Rather, families in the TAU condition participated in clinical interviews or engaged in regular therapeutic activities during the time the PEI component was delivered. Also, parents in both conditions benefited from preexisting clinic procedures aimed at increasing treatment participation, such as between-session phone calls from therapists, the dissemination of homework binders to organize between-session tasks, free child care during therapy sessions, and a sliding fee scale that ensures affordability for all families presenting to the clinic. Thus, the current study evaluated the efficacy of the PEI above and beyond current clinic procedures.

Treatment integrity. Five master's level clinicians (1 male, 4 female, ages 25–40, all European American), served as therapists. Therapists had experience and supervised training in PMT, problem-solving skills training, and PEI. To maintain treatment integrity (a) therapists followed detailed treatment manuals; (b) all treatment sessions were videotaped, some of which were reviewed weekly to provide feedback to the therapists; (c) all cases were reviewed weekly; and (d) ongoing supervision was provided using direct observation of live treatment sessions via a TV monitor connected to cameras in the treatment rooms.

Results

Preliminary Analyses

All variables were normally distributed, and no outliers were detected with the exception of the PMI and attendance variables, which each displayed negative skewness. Transformations corrected this skewness, and the resulting variables more closely approximated normality (Tabachnick & Fidell, 2001). Statistical tests used transformed values for these measures, but we report untransformed values to facilitate interpretation of the data.

To rule out the alternative hypothesis that any differences on the primary outcome variables were due to pretreatment differences on demographic variables, we evaluated such differences using *t* tests for continuous variables and chi-square tests for categorical variables. The results, presented in Table 1, indicate there were no between-groups differences on any child, parent, or family characteristic after random assignment to treatment conditions. In addition, given one of our primary dependent measures was attendance at treatment, all participants were included in the analyses regardless of treatment completion status.

Effect of the PEI on Parent Motivation

We hypothesized that parents who received the PEI would report higher motivation for treatment and would have greater treatment attendance and adherence. Between-groups differences on parent motivation for therapy and parent treatment attendance are reported in Table 2. Item means are reported for each PMI subscale to facilitate interpretation of results and comparison across subscales. As shown, parents who received the PEI reported significantly greater readiness and perceived ability to change their parenting practices through participation in PMT, as well as greater motivation overall on the PMI. In contrast, the PEI had virtually no effect on parents' desire for change in their child's behavior.

Effect of the PEI on Attendance

Parents in the PEI condition attended significantly more sessions than parents in the TAU condition with a medium-to-large effect size between the two groups, as presented in Table 2. Similarly, using the criterion of attending eight sessions as signifying treatment completion for the current study, those in the PEI condition completed treatment (56.4%) at a higher rate than those in the TAU condition (35.1%), although this difference did not reach statistical significance, $\chi^2(1, N = 76) = 3.46$, $\varphi = .21$, $p = .06$.

Effect of the PEI on Adherence

We intended to evaluate between-groups differences on treatment adherence using repeated measures analyses of variance;

Table 1
Pretreatment Differences on Demographic Variables

Variable	PEI (n = 39)	TAU (n = 37)
Child factors		
Mean age (*SD*)	6.7 (2.7)	7.2 (2.9)
Male (%)	66.7	81.1
Ethnic minority[a] (%)	38.5	45.9
Parent factors		
Mean age (*SD*)	35.1 (7.9)	35.5 (9.8)
Single parent (%)	51.3	51.4
Nonbiological parent (%)	10.3	13.5
Family factors		
Mean no. of people in home (*SD*)	3.9 (1.2)	4.0 (1.4)
Public assistance (%)	41.0	40.5
DCF involvement (%)	23.1	32.4

Note. PEI = Participation Enhancement Intervention; TAU = treatment as usual; DCF = Department of Child and Family Services.
[a] Self-identified as African American, Hispanic, or biracial.

Table 2
Effects of Intervention on Parent Motivation and Participation

Variable	PEI (n = 39)		TAU (n = 37)			
	M	*SD*	*M*	*SD*	*t*(74)	*d*
Parent Motivation Inventory						
Desire for Child Change	4.5	0.5	4.5	0.5	< 1.00	0.15
Readiness to Change	4.8	0.4	4.6	0.4	2.57*	0.60
Perceived Ability to Change	4.7	0.4	4.5	0.5	2.35*	0.55
Total score	4.7	0.4	4.5	0.4	2.08*	0.48
Parent attendance						
No. of sessions	6.4	3.2	5.2	3.0	2.01*	0.47

Note. PEI = Participation Enhancement Intervention; TAU = treatment as usual.
* $p < .05$.

however, the statistical power for such analyses was quite low (power = .22). Therefore, we examined between-groups effect sizes associated with the PEI over the course of treatment using *t* tests for independent samples at each time point with pairwise deletion. Given the unidirectional nature of our hypotheses, and to further increase statistical power, we used one-tailed *t* tests for these analyses.

As presented in Figure 2A, there was only a small, nonsignificant between-groups difference on therapist-reported quantity of treatment adherence at Session 5 for parents receiving the PEI ($M = 57.9$, $SD = 20.5$) versus the TAU condition ($M = 54.4$, $SD = 20.2$), $t(35) = < 1$, $d = 0.18$. However, there was a large and statistically significant between-groups difference at Session 7 for the PEI ($M = 68.7$, $SD = 15.5$) versus the TAU condition ($M = 54.5$, $SD = 21.8$), $t(21) = 1.81$, $d = 0.79$, $p < .05$, which increased further at Session 8 for the PEI ($M = 72.2$, $SD = 8.3$) versus the TAU condition ($M = 55.5$, $SD = 22.4$), $t(18) = 2.12$, $d = 1.00$, $p < .05$.

A similar pattern of results emerged on parent-reported quantity of treatment adherence, as presented in Figure 2B. There was only a small between-groups difference on parent-reported quantity of treatment adherence at Session 5 for parents receiving the PEI ($M = 61.3$, $SD = 21.4$) versus the TAU condition ($M = 58.3$, $SD = 19.2$), $t(37) = < 1$, $d = 0.17$, *ns*. However, there was a medium between-groups difference at Session 7 for the PEI ($M = 68.7$, $SD = 15.5$) versus the TAU condition ($M = 59.0$, $SD = 20.2$), $t(21) = 1.29$, $d = 0.56$, *ns*, which increased to a large between-groups difference at Session 8 for the PEI ($M = 63.9$, $SD = 18.2$) versus the TAU condition ($M = 50.9$, $SD = 23.11$), $t(18) = 1.37$, $d = 0.65$, $p < .10$.

Examination of between-groups differences on therapist-reported quality of parent treatment adherence followed a similar pattern, presented in Figure 2C. There was no between-groups difference at Session 5 for parents receiving the PEI ($M = 2.6$, $SD = 0.8$) versus the TAU condition ($M = 2.6$, $SD = 0.8$), $t(35) < 1$, $d = 0.05$, *ns*. However, there was a small-to-medium between-groups difference at Session 7 for the PEI ($M = 2.8$, $SD = 0.4$) versus the TAU condition ($M = 2.5$, $SD = 1.0$), $t(21) < 1$, $d = 0.39$, *ns*, which increased to a large and statistically significant difference at Session 8 for the PEI ($M = 3.0$, $SD = 0.0$) versus the TAU condition ($M = 2.7$, $SD = 0.5$), $t(18) = 1.74$, $d = 0.82$, $p < .05$. The results did not change when we included only parents who completed treatment; thus, these treatment effects were not influenced by attrition over the course of the study.

Parent Motivation as a Potential Mediator of Intervention Effects

The PEI was designed to increase parents' treatment motivation and participation. We expected that an increase in parents' motivation would be the means through which the PEI increased treatment participation. Given that the PEI was associated with increased motivation and participation in this study, we evaluated parent motivation as a statistical mediator in the relation between treatment condition and parent attendance and adherence. Because treatment condition was not significantly associated with parent desire for child change we evaluated the influence of only parent readiness and perceived ability to participate (at Session 1) as mediators of the relations between treatment condition and treatment attendance and adherence at the end of treatment (parent-reported quantity of adherence at Session 8) to evaluate temporal relations among the study variables. Following the criteria for demonstrating the operation of a statistical mediator (see Baron & Kenny, 1986; Holmbeck, 1997; Kazdin & Nock, 2003), we conducted a series of regression analyses evaluating the relations between (a) treatment condition and attendance/adherence, (b) treatment condition and parent motivation, (c) parent motivation and attendance/adherence, and (d) treatment condition and attendance/adherence while statistically controlling for parent motivation. A variable is considered to act as a statistical mediator if the relation between the predictor and criterion variable (result of step a) is diminished when the mediator enters the equation (result of step d).

In the prediction of treatment attendance, (a) treatment condition predicted number of sessions attended, $F(1, 75) = 7.48$, $\beta = .30$, $p < .01$, and (b) treatment condition predicted both readiness to participate, $F(1, 75) = 5.15$, $\beta = .26$, $p < .05$, and perceived ability to participate, $F(1, 75) = 5.58$, $\beta = .27$, $p < .05$. However, in step c neither readiness to participate, $F(1, 75) = 2.32$, $\beta = .17$, *ns*, nor perceived ability to participate, $F(1, 75) = 0.68$, $\beta = .10$, *ns*, significantly predicted number of sessions attended. Thus, the mediational models predicting treatment attendance were not supported.

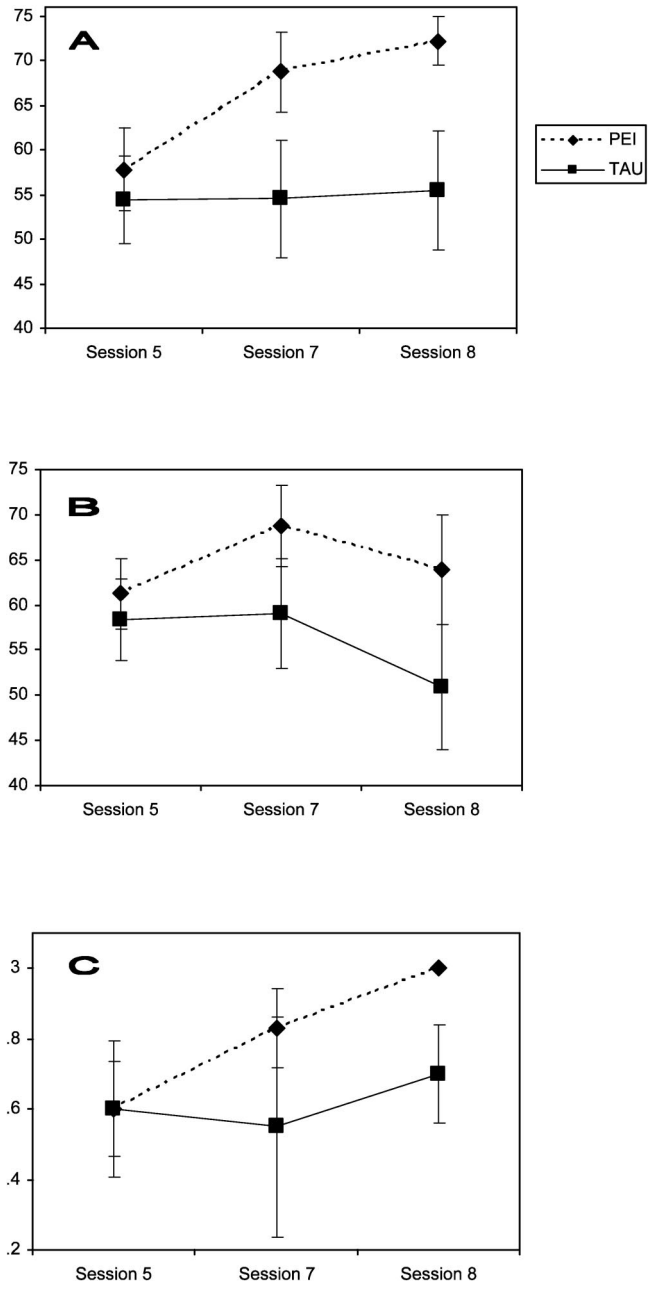

Figure 2. A: Therapist-reported quantity of treatment adherence. B: Parent-reported quantity of treatment adherence. C: Therapist-reported quality of treatment adherence. Diamonds represent means of the Participation Enhancement Intervention (PEI) condition. Squares represent means of the treatment as usual (TAU) condition. Error bars represent standard error of the mean.

In the prediction of treatment adherence, treatment condition significantly predicted therapist-reported quantity (but not quality nor parent-reported quantity), $F(1, 19) = 4.49$, $\beta = .45$, $p < .05$, and also predicted the parent motivation variables, as mentioned above. In addition, both readiness to participate, $F(1, 19) = 4.43$, $\beta = .45$, $p < .05$, and perceived ability to participate, $F(1, 19) = 4.87$, $\beta = .46$, $p < .05$, significantly predicted therapist-reported treatment adherence. Finally, the relation between treatment condition and therapist-reported adherence was reduced to a nonsignificant level when readiness to participate was entered into the equation ($\beta = .35$) as well as when perceived ability to participate was entered into the equation ($\beta = .35$). However, these decreases were not statistically significant according to Sobel tests ($z = 1.37$, $p = .17$ and $z = 1.41$, $p = .16$, respectively). Overall, these data provide some support for the mediational role of parent motivation, although further evaluation with a larger sample is needed to clarify these relations.

Discussion

The primary goal of this study was to develop and evaluate a brief intervention designed to increase parents' treatment motivation and participation. The main findings were that the PEI was associated with (a) significantly greater parent motivation (medium effect size); (b) significantly greater treatment attendance (medium effect size); and (c) higher parent- and therapist-reported quantity and quality of treatment adherence (medium and large effect sizes). Moreover, there was some support for the mediational role of parent motivation in the relation between PEI and treatment adherence.

These findings extend child therapy research in several important directions. Given the lack of evidence-based methods available to researchers and clinicians for increasing participation in child therapy, the intervention developed and evaluated in this study is especially important. The PEI increased parent motivation to participate in treatment using several brief sessions spaced over the early stages of treatment. Parents in the PEI reported a greater readiness and perceived ability to participate but no difference in their desire for child change. Although this specific pattern of results was not hypothesized, it is consistent with the design of the intervention. The PEI was aimed at increasing parents' motivation to change their own behavior, not their desire that their child will change, which remained high in both conditions. Thus, it is not particularly surprising that desire for child change was not affected by the intervention, but parents' readiness and perceived ability to change their own behavior were significantly increased.

The two primary measures of parent participation, treatment attendance and adherence, were strongly influenced by the PEI. The consistency of findings across all of the measures of participation using both parent- and therapist-report suggests these findings are robust. The lack of a between-groups difference in adherence at Session 5 was likely due to the fact that the first several therapy sessions are devoted primarily to psychoeducation, and parents do not learn or practice parent management skills until several sessions into treatment. Thus, there is not much to which parents can actually adhere until after the fifth session.

The modification of parent motivation for treatment was the hypothesized mechanism of change in the PEI. Administration of the PEI led to a significantly higher level of parent motivation (as measured at the first session) before any change in adherence (no difference occurred until after Session 5), demonstrating temporal precedence of the change in the proposed mediator (see Kazdin & Nock, 2003). Although there was some evidence that parent motivation mediated the relation between the PEI and treatment adherence, the proposed mediational model was not fully supported. It is likely that the relatively small sample size and con-

servative test of mediation limited our statistical power to detect a significant mediation effect (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; Shrout & Bolger, 2002). Nevertheless, these initial findings are encouraging and suggest that future investigations of the mediational role of these variables are warranted.

The design of this study allowed us to rule out several alternative explanations for these findings. The use of random assignment and the demonstration of group equality on multiple domains at baseline reduced the likelihood that these results are attributable to selection bias or participant characteristics. The inclusion of the TAU group reduced the likelihood that these results can be explained by history, maturation, testing, statistical regression, attrition, reactivity of experimental arrangements, timing of measurement, attention or contact with participants, or cues of the experimental situation. The ability to rule out these alternative explanations of the data strengthens these findings.

The clinical power of the brief intervention evaluated also deserves special comment. The observed treatment effects were obtained using a 5 to 45 min verbal intervention delivered over the course of several weeks, measured against a powerful comparison group. Given the low intensity of this intervention, the medium treatment effects observed for parent motivation and treatment attendance and the large effects observed for treatment adherence are especially impressive (see Prentice & Miller, 1992).

These findings have direct, significant implications for researchers and clinicians alike. The PEI is a brief intervention that can be learned and implemented by researchers and clinicians in a wide range of settings and clinical populations with relative ease. Although further work is needed to evaluate and refine this intervention, mental health professionals may benefit from its immediate use. Interventions such as the PEI may help to prevent many of the methodological, clinical, and financial problems raised by poor attendance and adherence at treatment.

These positive implications notwithstanding, several important limitations of this study deserve comment. First, the generality of the findings may be restricted, as this study was completed among parents of clinically referred youths identified because of conduct problems. This study included only families who sought treatment and attended at least one session; thus, these results may not generalize to all families of children with conduct problems. However, the power of this study is in demonstrating what treatment effects can occur in a therapeutic setting. That is, a higher priority was given to maximizing internal and construct validity rather than to demonstrating the external validity of the intervention (see Mook, 1983). Research will advance most efficiently if the efficacy of clinical interventions and their mechanisms of change are studied in well-controlled settings before the generality of such interventions is evaluated.

Second, several aspects of the assessment procedures limited the conclusions that could be drawn from this study. Although this study examined parent motivation for treatment, many other parent and family factors that may influence treatment participation were not evaluated (Morrissey-Kane & Prinz, 2000; Nock & Kazdin, 2001). A broader range of parent characteristics, such as psychopathology and other potential causes of impairment, should be included in future studies of parent treatment participation. Problems with some of the specific measures also may limit the validity of the results. Although the measure of treatment adherence used was consistent with methods used in previous studies, it may have been subject to biases of the parents and therapists. Careful examination of Figure 2A and 2B reveals differences in the pattern of therapist- and parent-report of quantity of treatment adherence over time. Therapists' ratings showed stability over time, whereas parents' ratings decreased later in treatment. It may be that clinicians assume clients who are initially adherent remain adherent, whereas the parents' reports suggest amount of adherence may actually decrease over time. Future studies of treatment adherence should incorporate more objective measures of adherence, such as completed homework logs or in vivo behavioral observations over the course of treatment. In addition, the current study included only the first eight sessions. Although this is the period of highest risk for attrition, the relations among the study variables may differ during later stages of treatment. Moreover, given that the intervention was implemented from the first therapy session to include all families who presented to the clinic (i.e., so as not to exclude families who dropped out after only one session), we were not able to evaluate potential pretreatment differences on motivation. Although it is possible that participants in the two treatment conditions differed on this construct at pretreatment, the use of random assignment limited the probability of this alternative explanation of the results. Third, there was limited statistical power for some of the more complex analyses. This study yielded statistically significant findings despite this limited power; however, the findings require replication using a larger sample to draw valid statistical conclusions regarding the relations among the study variables.

The intervention developed and evaluated in this study was delivered in a brief basic format at a relatively low dose (i.e., 5 to 45 min). Given the promising results with this minimal manipulation, modifications to the parameters of this treatment should be evaluated in future studies. Studies of a more powerful intervention (e.g., eliciting more self-motivational statements) across various durations or dosages may yield stronger treatment effects and are likely to provide more information about possible dose–response relations between treatment and outcome. In addition, this intervention can be modified and applied with relative ease to children, to adolescents and adults, in group format, and to those with a wide range of behavioral problems. These proposed directions represent only a small range of potential avenues for research on treatment participation. Whether these or other questions are addressed, future work in this area is essential, and the potential payoffs are tremendous for researchers, clinicians, and especially for those seeking mental health services.

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