

# Therapeutic Assessment for Preadolescent Boys With Oppositional Defiant Disorder: A Replicated Single-Case Time-Series Design

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The Therapeutic Assessment (TA) model is a relatively new treatment approach that fuses assessment and psychotherapy. The study examines the efficacy of this model with preadolescent boys with oppositional defiant disorder and their families. A replicated single-case time-series design with daily measures is used to assess the effects of TA and to track the process of change as it unfolds. All 3 families benefitted from participation in TA across multiple domains of functioning, but the way in which change unfolded was unique for each family. These findings are substantiated by the Behavior Assessment System for Children (Reynolds & Kamphaus, 2004). The TA model is shown to be an effective treatment for preadolescent boys with oppositional defiant disorder and their families. Further, the time-series design of this study illustrated how this empirically grounded case-based methodology reveals when and how change unfolds during treatment in a way that is usually not possible with other research designs.

*Keywords:* case-based, oppositional defiant disorder, therapeutic assessment, time-series, treatment outcome

The evidence-based practice movement has ushered in an era of great scrutiny regarding the effectiveness of psychological interventions. Despite the presence of a number of well-established treatments for oppositional and conduct problems, the corpus of research on interventions for children and families is not strong, and most empirically supported treatments are almost always entirely based on behavioral and cognitive-behavioral principles (Ollendick, King, & Chorpita, 2006). This is not to say that other treatment modalities are unsupported. Rather, they have yet to be sufficiently tested (Ollendick et al., 2006). Clearly, additional rigorous examination of child-focused interventions is warranted, as well as the development of innovative family-based approaches for common childhood problems.

The Therapeutic Assessment (TA) model (e.g., Finn, 2007; J. D. Smith, Wolf, Handler, & Nash, 2009; Tharinger, Finn, Wilkinson, & Schaber, 2007) is a focused intervention for adults, adolescents, children, and couples that fuses psychological assessment and brief psychotherapy. TA blends the extensive conceptualizing benefits of assessment with therapeutic techniques (Finn, 2007). The TA interventional process begins immediately upon first patient contact. The psychological assessment process itself is the substrate upon which the intervention is grounded.

TA with children and families incorporates systemic, developmental, and narrative theory principles into a child-focused, family intervention. Systemic theory emphasizes the importance of contextual influences on behavior, addressing larger interpersonal and social systems when planning effective treatments (Tharinger, Finn, Austin, et al., 2008). Experts in child therapy generally agree on the importance of using a systemic approach that treats the child within the greater context of the family (e.g., Dishion & Stormshak, 2007). The importance of a systemic approach has been recognized in recent years by some in the field of assessment psychology as well, resulting in what experts are referring to as a paradigm shift in the way child assessments are conducted (Finn, 2007; Handler, 2007; Tharinger, Finn, Austin, et al., 2008). TA also relies heavily on narrative theory (Josselson, Leiblich, & McAdams, 2007), unrepresented among current empirically supported treatments for childhood disruptive behavior disorders.

TA has been applied to adults, couples, children, adolescents, and families. The body of research examining the use of TA with children is growing, with promising results to date. The use of TA has yielded preliminary evidence of effectiveness in treating children's aggressive and oppositional behaviors in a clinical case study (Hamilton et al., 2009) and an empirical case study (J. D. Smith, et al., 2009). A number of other clinical case studies suggest TA might be effective in treating other common childhood/family problems (e.g., Purves, 2002; J. D. Smith, Finn, Swain, & Handler, 2009; J. D. Smith, Nicholas, Handler, & Nash, 2009; Tharinger et al., 2007). One group study found treatment acceptability and symptom improvement in children and families after completing TA (Tharinger et al., 2009). The small body of empirical research with adults and adolescents has also demonstrated effectiveness using group comparison studies (e.g., Finn & Tonsager, 1992; Newman & Greenway, 1997; Ougrin, Ng, & Low, 2008). In this study, we examine the efficacy of TA with preadolescent boys with oppositional defiant disorder (ODD) and their

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families. We use a replicated single-case design with daily time-series measures. Daily measures allow the researcher to examine the effectiveness of the intervention and track the process of change across time. We hypothesize that participation in TA will lead to improvement in the child's ODD symptoms, as evidenced by reductions across multiple behavioral areas, as reported by the parent(s) and child on the Behavior Assessment System for Children (Reynolds & Kamphaus, 2004) and daily measures using phase-effect analyses. Second, Finn (2007) proposed that benefits from TA continue beyond the completion of the formal intervention. We test whether this is the case.

### Oppositional Defiant Disorder in Children

ODD is one of the most common disorders among children in clinical populations, with one study finding a lifetime prevalence estimate of 10.2% in the United States (Nock, Kazdin, Hiripi, & Kessler, 2007). This and other studies have found higher rates for boys than for girls and have found that the incidence rate of ODD peaks around age 10 (Maughan, Rowe, Messer, Goodman, & Meltzer, 2004). A number of individual risk factors have been identified as precursors of ODD, such as biological, psychosocial, and functional factors (for a review, see Burke, Loeber, & Birmaher, 2002). But the pathogenesis of ODD is complex: Intrafamilial social processes and familial risk factors are consistently implicated in the development of ODD (Johnston & Mash, 2001). Some studies suggest that parenting practices are at least a partial contributing factor in the development of disruptive behavior disorders (Frick & Loney, 2002; C. Smith & Farrington, 2004). For example, lack of parental supervision; lack of parental involvement; inconsistent discipline practices; child abuse (Connor, 2002); lack of warmth and positive involvement (Kashdan et al., 2004; Stormshak, Bierman, McMahon, & Lengua, 2000); and negative, physically aggressive punishment (Kashdan et al., 2004; Stormshak et al., 2000) have all been linked to the disorder. Given the strong connection between ODD and familial factors, it is not surprising that many empirically supported treatments for this disorder target multiple levels, most commonly the child and parent and, at times, the family as a whole (Loeber, Burke, & Pardini, 2009). Interventions focused exclusively on the child are not promising (Burke et al., 2002); the most successful treatment models typically include intervention components for both the child and parents (see Pardini, 2008, for a review of empirically supported ODD treatments).

### Importance of Time-Series Designs in Psychological Intervention Research

Despite the endorsement of time-series as true experiment, worthy of standing alongside group designs in psychotherapy outcome research (e.g., Kazdin, 1992; Peterson, 2004), no intervention has reached empirically supported status based on the weight of time-series findings alone (Borckardt et al., 2008). Many now argue that case-based time-series designs ought to be used more often, precisely because these designs can reveal not only efficacy but also the trajectory of clinical improvement across time (e.g., Chambless & Ollendick, 2001; Kazdin, 2007; Morrison, Bradley, & Westen, 2003; Peterson, 2004). When we track change continuously through treatment we then have a better chance to

observe mechanisms at play. Kazdin (2007) made this point when he called for clinical research designs that reveal mechanisms. Skinner (1938) made a similar point about single-organism research being especially well suited for understanding how (and under what conditions) new behavioral repertoires emerge.

## Method Part 1: Treatment Protocol

### Participant Selection and Referral Procedures

Parents referring boys for assessment or child/family psychotherapy at a university outpatient clinic within the specified age range (9–12 years) were scheduled for an intake appointment with the clinician/researcher (first author). Prior to meeting with the clinician, the family completed a demographic questionnaire (ages of family members, education, ethnicity, household income, parents' or caregivers' education, number of children, child's school, etc.). The initial meeting included a semistructured clinical interview, rather than the typical structured interview used in laboratory procedures, which covered the source of referral, presenting problem and history, familial history of mental health, the child's homocidality/suicidality, relevant medical history, and mental status examination. Significant attention was given to the determination of an ODD diagnosis. The clinician's diagnoses were confirmed in consultation with the supervising psychologist (second author).

### The Therapeutic Assessment Model for Children and Families

This study employed the comprehensive family TA model previously presented in the literature except that only one clinician conducted the assessment, as opposed to the two-clinician condition typically used (see Hamilton et al., 2009; J. D. Smith, et al., 2009; Tharinger et al., 2007, for examples of the comprehensive model). This was done to make the model more accessible to practitioners in real-world clinical settings. TA with children and families consists of roughly nine weekly 1–2-hr sessions composed of an initial meeting; three or four test-administration sessions; a family intervention session (Tharinger, Finn, Austin, et al., 2008); a summary/discussion session (Finn, 2007; Tharinger, Finn, Hersh, et al., 2008); a child feedback session (Tharinger, Finn, Wilkinson, et al., 2008); and a follow-up session (Finn, 2007), which typically occurs 60 days after the child feedback session. The TA model for children is presented in Figure 1, which also includes elements of the research design that will be discussed in later sections. Although the intended model assumes consecutive weekly visits, these cases were more typical of how clinicians encounter clients in real-world settings and included sessions missed because of vacations, illnesses, and other circumstances. Similarly, total hours for each case varied and are reported in the Results section.

**Defining principles and goals.** TA emphasizes a collaborative relationship among the clinician, the child, and his or her family. From the first contact, the family works in partnership with the clinician to determine the direction of the assessment (Finn, 2007) and is then closely involved in each aspect of the treatment thereafter. The clinician's relationship with each family member also becomes a venue for gathering important information about family processes and dynamics (Finn, 2007; Tharinger et al.,

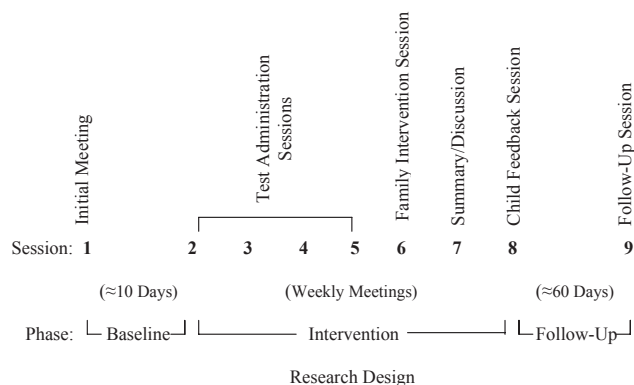


Figure 1. A priori timeline of the therapeutic assessment model and research design elements.

2007). A shared curiosity about the family's problems is allowed to emerge through collaboration and the therapeutic relationship. The American Academy of Child and Adolescent Psychiatry (2007) reported that "successful treatment of ODD requires the successful establishment of a therapeutic alliance with the child and family" (p. 131). The family TA model relies heavily on narrative theory (e.g., Josselson et al., 2007) when describing the broad goal or outcome of the family TA model, which is to assist families in developing more cohesive, compassionate, accurate, and empathic stories about their child and the family (Tharinger et al., 2007). The clinician focuses on the existing story the family holds about the child's problems and attempts to identify elements of this story that can be altered to understand more accurately what is occurring within the family. Finn and Tonsager's (1997) landmark article further describes the differences between therapeutic approaches to assessment and the more traditional paradigm often characterized as an information-gathering approach.

**The initial meeting.** In addition to the determination of study participation and diagnosis described above, the initial meeting with the parents had a number of goals: (a) Establish a safe and trusting environment, (b) enlist the parents as collaborators in the assessment process, (c) establish a set of assessment questions (Finn, 2007) that will guide the treatment and (d), follow-up inquiry in regard to the family's questions (Finn, 2007).

**Test-administration sessions.** Previous publications have referred to the second, third, fourth, and sometimes fifth sessions of TA as standardized testing of the child (e.g., J. D. Smith & Handler, 2009; Tharinger et al., 2007). Although many psychological test instruments are administered and used in their prescribed fashion, so as not to affect nomothetic comparisons, TA adherents emphasize obtaining additional information through such procedures as an extended inquiry (Handler, 2005); testing of the limits (Handler, 1998, 2005); and other follow-up procedures, some as simple as asking the child to reflect on the testing experience or particular responses. The additional information gleaned from these nonstandardized procedures often illuminates the nomothetic test results, while also providing the clinician with an opportunity to hear the child's "story" (Finn, 2007). For example, during the free-response phase of the Rorschach inkblot method, a child may see "a green dragon breathing fire and flying over a village of frightened people." Following the inquiry, the

clinician might ask the child to tell a story about the dragon, thus illuminating themes related to the child's experiences and providing a personal basis for interpretation of the formal scoring of this response. Similarly, a child may be asked to elaborate on a particular response on the Millon Pre-Adolescent Clinical Inventory of Personality (Millon, Tringone, Millon, & Grossman, 2005), such as why the child answered "true" to losing his or her temper easily. The clinician might ask the child, "What came to mind when you answered this question?" Again, the child's associations to this question provide a context for interpretation. The parents, who are observing the test administration, also benefit from hearing their child's responses in the context of daily life.

To increase uniformity, a battery of self-report (e.g., Millon Pre-Adolescent Clinical Inventory of Personality [Millon, Tringone, Millon, & Grossman, 2005], Behavior Assessment System for Children [Reynolds & Kamphaus, 2004]) and performance-based (e.g., Wechsler Intelligence Scales for Children [Wechsler, 2003], Rorschach inkblot method [Exner, 2003], The House-Tree-Person Test [Buck, 1966]) psychological assessment instruments were administered to each child during the test administration sessions.<sup>1</sup> In two of the cases, additional measures were also included to test for attention-deficit/hyperactivity disorder and a learning disorder. Results of the testing were not indicative of these diagnoses.

**Family intervention session.** Family intervention sessions, or family sessions (Tharinger, Finn, Austin, et al., 2008), use various procedures to introduce the family's problems-in-living into the room and provide an opportunity for those problems to be worked through with the clinician. These sessions help the clinician and family better understand family interactions and the way in which they may help or hinder the family's capacity to deal with the child's problem behaviors (Tharinger, Finn, Austin, et al., 2008). Tharinger, Finn, Austin, et al. (2008) described a number of potential outcomes of a family session: (a) Family sessions allow the clinician to observe the child in the family context, while testing systemic hypotheses and helping parents to also develop a systemic view of the child's problems. (b) As families begin to adopt a more systemic understanding, the child may feel less blamed and, over time, gain self-esteem. (c) Family sessions can also be an opportunity to test possible interventions and provide the family with a positive experience of family therapy. (d) Family sessions can also serve to foster positive family relationships. Family sessions often use established family therapy techniques and activities, such as family sculpture (Constantine, 1978) and family psychodrama (Flomenhaft & DiCori, 1992).

As noted above, family sessions are tailored to the specific needs of each family, and the clinician is allowed to use many different techniques that have the potential of meeting the session's goals. For example, to help the parents develop a more systemic understanding of their child's problems, one family in this study was asked to play a board game. First they played

<sup>1</sup> Test selection and the subsequent duration of test administration is typically determined by the assessment questions. However, for the purposes of research in which the clinician/researcher knew the presenting problem (ODD) a priori, a battery of test instruments was preselected to increase uniformity across cases, reduce potential test effects, and assess multiple factors related to ODD symptomatology and etiology.

together (child, mother, and father) while the clinician observed. The parents then took turns playing the game with their son or observing the interaction via the video link alongside the clinician. This exercise was meant to illustrate for the parents the need for parental unity, which resulted in greater structure for the child. Afterward, in discussion with the clinician, the parents accurately reported that their son was much more likely to “bend the rules” of the game and behave disruptively when only one parent was playing with him. When both parents were engaged in the task at the same time, their son was better behaved, and the parents reported more confidence in their ability to manage him because of the support of their spouse.

**Summary/discussion session.** This session involves providing feedback to the parents in the form of collaborative dialogue. Planning for this session is a crucial component in how effective the overall assessment can be. Finn and colleagues’ (Finn, 2007; Tharinger, Finn, Hersh, et al., 2008) concept of “levels” of information helps to structure the order in which findings will be presented. Level 1 feedback is information that is consistent with the parents’ currently held views. Level 1 information is readily accepted, raises little anxiety, and validates clients’ external reality. Level 2 information is not wholly in disagreement with the parents’ existing story, but it may require reformulation of the current view and, thus, might cause some anxiety. Information that is entirely dystonic to the parents’ story is termed Level 3. This kind of feedback has the potential to raise the parents’ anxiety substantially and, without the proper preparation, might be rejected.

The clinician organizes the assessment questions, from Level 1 to Level 3, on the basis of (a) the parent’s preliminary understanding of the question, (b) its congruence with the test findings and conclusions, and (c) evidence during the previous sessions that indicates a shift in the parents’ understanding of the child (Tharinger, Finn, Hersh, et al., 2008). Using the previously described family session as an example, even though these parents initially were unable to articulate that a unified parental unit was important in behavioral management of their son, the clinician determined that this feedback was now Level 2. The parents had experienced the results and were able to identify this answer fairly well during the family session, indicating minimal anxiety related to integrating this finding into the understanding of their son.

The way in which feedback is provided in TA has been found to have a significant impact on the changes experienced by the client (e.g., Finn, 1996; Finn & Tonsager, 1992; Newman & Greenway, 1997). Following this session, the clinician summarizes the session’s discussion in the form of a letter, using everyday language, rather than the traditional, often jargon-filled, psychological evaluation report (for examples of letters to parents provided in family TA, see Smith & Handler, 2009 and Tharinger et al., 2007).

**Child feedback session.** Feedback to the child in TA is often given in the form of an individualized fable or story that is tailored to the emotional capacities of the child and family (Tharinger, Finn, Wilkinson, et al., 2008). However, other methods of feedback to children are also acceptable within the parameters of the TA model. The goal of this session parallels that of the TA as a whole: Provide the child with a more accurate, cohesive, empathic, and compassionate story (Tharinger et al., 2007). The clinician summarizes important events in the child’s life that have contributed to his or her current situation, while also instilling a sense of

hope for the future. Children have been found to feel more understood and validated through a successful feedback session, in which a fable is provided to the child. Fables and other forms of child feedback provide an experience of positive accurate mirroring (Tharinger, Finn, Wilkinson, et al., 2008). J.D. Smith, et al. (2009) and Tharinger, Finn, Wilkinson, et al. (2008) provide examples of fables used in a TA.

**Follow-up session.** Finn (2007) noted the importance of a follow-up session 4–8 weeks after the completion of the TA. He found that many families benefit from the experience and recommendations of the TA, but when much of the information is dystonic, families need a booster session to further integrate the TA experience into their existing story. This session also allows the clinician an opportunity to receive feedback about how TA affected the family and then reevaluate the recommendations and conclusions in light of new information. It is important to note that none of the families entered into any child/family treatment during the follow-up period, which was a condition of inclusion in the study.

## Session Procedures

One defining feature of the family TA model is use of live video, which allows parents to observe the assessment of their child in real time. During test-administration sessions, parents observed the child and clinician in an adjacent room via video link. The clinician met briefly with the parents before each session to prepare. They were provided with test materials to follow along as they were administered to the child and were encouraged to take notes. The clinician then met with the child in the adjacent room. The last half hour of each session was reserved for “miniconsultations” (Tharinger et al., 2007) between the clinician and parents. The initial meeting, family intervention session, child feedback session, and follow-up session included the child and his parent(s), whereas the summary/discussion session involved only the clinician and parents.

## Method Part 2: Elements of the Research Protocol and Design

### Participant Selection and Description

In accordance with specified criteria for replicated single-case design experiments, a small set of successive cases ( $n = 3$ ) with the same presenting diagnosis was examined (Chambless & Ollendick, 2001; Ollendick et al., 2006). Participants were *not* recruited for participation in a research study, in an effort to increase generalizability and limit sample-selection bias. Further, it was the intention of the researchers to examine the efficacy of the TA model with children commonly encountered in real-world clinical settings, which is in contrast to a highly controlled sample typically sought in treatment-outcome studies.

Screening was conducted during the initial meeting, based on the following inclusion and exclusion criteria: Male child, age 9–12 years, meets diagnostic criteria for ODD as defined by the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; *DSM-IV*; American Psychiatric Association, 2000). The child must be free of organic brain deficits, including head trauma or mental retardation, and cannot be displaying psychotic symp-

toms; one parent or guardian must be willing and able to attend *each and every* session. This parent or guardian also must be free of severe psychopathology (e.g., autism, brain damage, psychosis). The parent(s) consent(s) to their expected level of involvement and that of child; the family is not currently participating in a child-focused family/child intervention and agrees not to seek treatment during the 60-day follow-up period; clients referred under court order were not accepted. Those families meeting criteria for study inclusion were given the option of participation in TA or traditional therapy/assessment. An information sheet was provided to the parents describing the TA model and the research aspects of the study.

The children of the three families included in this case study were two Caucasian and one mixed-race (Caucasian/African American) child, ages 10, 11, and 11 years. Two families consisted of single, divorced mothers (without partners in the home), whereas the third family was composed of married biological parents. Each of the children had at least one sibling. The annual reported household incomes were \$21,000, \$27,000, and \$90,000. The educational level of the parents included a graduate equivalency diploma, two bachelor's degree recipients, and one parent with a graduate degree. Two families had never sought medication for the child, whereas the third child was currently on an attention-deficit/hyperactivity disorder medication.

Only these three families were offered participation in the study, and there was no attrition. Informed consent and assent for treatment and research was obtained during the initial meeting. Although clinical consensus and research suggests that attention-deficit/hyperactivity disorder, conduct disorder, anxiety, and depression are commonly comorbid with ODD (Connor, 2002), potential participants were only excluded from the study if a diagnosis of conduct disorder was also present, per *DSM-IV* criteria for ODD diagnosis. Two of the included children only met diagnostic criteria for ODD, whereas the third also met diagnostic criteria for an anxiety disorder.

## Treatment Integrity

**The clinician, clinician training, and supervision.** The clinician for this study was a Master's-level graduate student (first author) in a clinical psychology doctoral program. Formal training included two graduate-level assessment courses, as well as a 1-day introductory and a 4-day intermediate workshop in therapeutic assessment, conducted by the model's creator, Dr. Stephen E. Finn. A therapeutic assessment expert (second author) provided ongoing supervision and training. The therapist also conducted preliminary, supervised training cases.

**Treatment manual.** Finn and colleagues' publications, describing each of the model's components in detail, provide the conceptual, theoretical, and technical framework to allow for implementation and replication of the model. A formal treatment manual is not necessary if it is replaced by a clear description of the treatment that provides an operational definition of the intervention (Chambless & Ollendick, 2001).

**Treatment adherence and therapist competence.** Ongoing treatment integrity checks occurred during supervision of the clinician, and expert integrity ratings were also conducted: Dr. Stephen E. Finn, the creator of the family TA model, independently assessed adherence (the degree to which an intervention is deliv-

ered as intended) and competence (level of skill shown by the therapist in delivering the treatment). Nine complete sessions, comprising 9 total hours, were pseudorandomly selected: At least two sessions were included from each case and a representative selection of different session types (i.e., test administration, family session, etc.) were included. The two dimensions were rated on a 0–9 scale (0 = *not at all*, 9 = *extremely*). Each of the nine sessions received one overall score for adherence ( $M = 6.9$ ) and competence ( $M = 6.3$ ).

## Measures and Data-Analytic Strategy

**Daily time-series.** During the initial interview with the parents, five or six dependent variables were established for monitoring symptoms specific to each child and the family's overall distress, based on the family's assessment questions. For example, the mother in Case 1 felt that increased patience between she and her son would indicate change had occurred. Thus, she reported her own patience with her son as one daily measure and her son's patience with her as another measure (the specific dependent variables chosen for each family are presented in the Results section). This procedure is a hybrid that the clinician/researcher used to facilitate the research design. An individualized paper record was provided for the family to complete daily. Parents were instructed to complete the record when the child went to sleep each night. Some items required the parent to ask the child about his feelings (e.g., the child's self-esteem). The intact parental unit was instructed to come to a consensus. Completed records were periodically returned when the family arrived for scheduled meetings; the records were then collected by the clinic secretary, so the clinician would remain blind to the results while treatment was ongoing.

A replicated single-case A-B-phase design with follow-up was used to test the hypothesis that the child and family would benefit as a result of participation in the family TA. Tracking of daily measures began at the initial meeting. A pretreatment baseline period of at least 10 days was collected prior to the first test administration session, where it could be said that active intervention began, which was followed by a minimum 60-day follow-up period. We have termed these periods the baseline (B), intervention (I), and follow-up (F) phases. To determine the effectiveness of the family TA treatment, and to illuminate the process of change, three phase-effect comparisons were conducted: Analysis 1 compares the baseline and intervention periods to determine if the onset of treatment resulted in symptomatic change; Analysis 2, a comparison of the intervention and follow-up periods combined to the pretreatment baseline, indicates if change occurred as a result of treatment onset and beyond; and Analysis 3, which compares the baseline and intervention periods combined to the follow-up period, provides evidence of change after treatment ceased. When the results of these three comparisons are examined holistically, the process of change is revealed and the researcher is able to determine *when* change occurred, not simply *if* it occurred.

Simulation modeling analysis (Borckardt, 2006) for time series was used, which compares the symptom scores of different data streams (i.e., the baseline, intervention, and follow-up periods) while accounting for autocorrelation (the nonindependence of sequential observations from the same informant), which is inherent in time-series data. An effect size is generated for the observed

difference between the data streams in each phase (level change), as well as the probability of obtaining that effect size in a null distribution. No data-transformation methods were used. Because the daily measures for each family are not independent, the highly conservative Bonferroni (1935) correction was used to determine statistical significance. In a similar vein, because dependent variables reported by each family are not independent, we tested for within family cross correlation.

Missing values were addressed using the expectation-maximization algorithm (Dempster, Laird, & Rubin, 1977), which was found to be superior to other missing data methods, such as listwise deletion, mean substitution, and mean of adjacent observations (Velicer & Colby, 2005), in time-series data streams with up to 40% missing data. Missing data for Cases 1 and 2 were minimal, ranging from 5.6% (Case 1) to 14.8% (Case 2). Missing data for the dependent variables of Case 3 ranged from 22.3% to 31.5%, which was predominantly due to the mother misplacing 21 days of daily measures at the end of the intervention phase.

**Behavior Assessment System for Children—Version 2 (BASC-2; Reynolds & Kamphaus, 2004).** At the initial meeting and follow-up, the BASC-2 was administered to the parents (form PRS-C or PRS-A) and child (form SRP-C or SRP-A). This measure assesses the child's observable behaviors on multiple dimensions, including behavioral problems, emotional disturbances, and adaptive functioning. The BASC-2 manual (Reynolds & Kamphaus, 2004) provides reliability evidence for these versions of the rating forms. The rating forms showed internal consistency, test-retest reliability, and interrater reliability. The parent and child report forms were scored using the BASC-2 ASSIST Scoring and Reporting Software (Reynolds & Kamphaus, 2004). Percentile ranks and T scores presented for Case 2 are the average of both parents' reports, whereas Cases 1 and 3 are the mother's report. Scores in the clinical (T score  $\geq 70$  for the clinical scales; T score  $\leq 29$  for the adaptive scales) or at-risk (T score = 60–69 for the clinical scales; T score = 30–40 for the adaptive scales) range are presented.

**Parent Experience of Assessment Survey—Version 1 (PEAS; Finn, Tharinger, & Austin, 2007).** This 64-item parent report assesses six factors relevant to the parents' experience of assessment using a 1–5 Likert-type scale. The six subscales are Learned New Things, Positive Clinician–Parent Relationship, Collaboration, Positive Clinician–Child Relationship, Family Involvement in Child's Problem, and Negative Feelings About the As-

essment. The PEAS was administered at the follow-up session to obtain an overall impression of the parents' experience. Pilgrim and Tharinger (2010) found acceptable reliability of the PEAS' subscales in a sample of 32 parents.

## Results

Cross-correlations were run for all combinations of dependent variables within each case. Variables in which an increase was desired were recoded. Results indicated a significant relationship between the dependent variables at Lag 0, suggesting that reported scores on the measured indices were highly related on a day-to-day basis. All cross correlations were significant at Lag 0 (Ranges: Case 1  $r = .48-.92$ , Case 2  $r = .64-.94$ , Case 3  $r = .19-.76$ ). Because of the high cross-correlations, we chose to create a combined score of all dependent variables to obtain a global measure of improvement. All variables were given the same valence, so that a decrease indicated improvement, and a mean score was calculated for each day across the variables of each case. The phase-effect results of the combined variable were congruent with the significance and pattern of results for the individual dependent variables. Thus, we have chosen to report results of the combined score for brevity and simplicity.

Case 1 included nine sessions (17 direct contact hours) spanning 153 total days (baseline  $N = 14$ , intervention  $N = 79$ ; follow-up  $N = 60$ ). The mother completed six indices of change daily: (1a) overall family distress, (1b) intensity of worst anger outburst, (1c) mother showed patience with son, (1d) son showed patience with mother, (1e) mother handled son well today, (1f) number of anger outbursts. The comparison between the baseline and intervention periods (Analysis 1; see Table 1) resulted in a statistically significant effect ( $r = .696$ ; Bonferroni correction =  $p \leq .008$ ), which indicates that reported symptom scores during the baseline improved significantly after the onset of treatment but prior to follow-up. Next we examined whether improvement continued through the follow-up period by comparing the baseline symptom scores with those reported during the intervention and follow-up periods combined (Analysis 2). The effect ( $r = .602$ ) was again significant, indicating that ceasing treatment did not result in a return to prior symptom levels. Last, to examine whether symptom improvement occurred during the follow-up period itself (i.e., symptom improvement is not contingent upon being in treatment), we

Table 1  
Results of Time-Series Phase-Effect Analyses: Combined Dependent Variable Scores

Case	Analysis 1			Analysis 2			Analysis 3			pAR(Lag 1)
	Phase M			Phase M			Phase M			
	B	I	<i>r</i>	B	I + F	<i>r</i>	B + I	F	<i>r</i>	
1	6.74	4.43	.696*	6.74	4.51	.602*	4.78	4.61	.326*	.563
2	6.90	3.75	.611*	6.90	2.13	.490*	4.67	1.12	.686*	.609
3	4.32	4.53	.091	4.32	3.90	.132	4.44	3.18	.435*	.422

Note. B = baseline; I = intervention; F = follow-up; pAR(Lag 1) = the level of autocorrelation of subsequent observations for the entire data stream. The specific affective or behavioral dependent variables measured daily in each case are presented in the text. Phase effects assess level change.

\* Significant  $p$  value using the Bonferroni correction (Case 1 = .008, Case 2 = .025, Case 3 = .008).

compared the baseline and intervention period symptom scores with those reported during the follow-up period (Analysis 3). Again, this case showed significant improvement ( $r = .326$ ). Results of the BASC-2 for Case 1 were consistent with the daily measures (see Tables 2 and 3). Although the child's self-report at baseline had few elevations, all elevated scales were within normal limits at follow-up. Similarly, all scales of his mother's report were within normal limits at follow-up. It is important to note that she reported that her son's aggression and conduct problems had decreased, he appeared less depressed, and his adaptability and activities of daily living had improved.

Case 2 included 10 sessions (17 direct contact hours) spanning 141 total days (baseline  $N = 10$ , intervention  $N = 56$ , follow-up  $N = 75$ ). Five indices of change were measured on a daily basis by the child's mother and father, who were instructed to come to an agreement for each of the day's ratings: (2a) overall family distress, (2b) intensity of worst anger outburst, (2c) intensity of defiance, (2d) intensity of irritation behaviors, (2e) son dealt with frustration well. Results of the three phase-effect analyses indicated a similar trajectory of improvement to Case 1: Analysis 1,  $r = .611$ ; Analysis 2,  $r = .490$ ; and Analysis 3,  $r = .686$  (Bonferroni correction =  $p \leq .025$ ). The BASC-2 results indicated substantial improvement across nearly all domains that were identified as normative problems at baseline. All reported elevations at baseline dropped into the normative range at follow-up, with the exception of the parent's unchanged score on Social Skills.

Case 3 included 10 sessions (18 direct contact hours) spanning 184 total days (baseline  $N = 49$ , intervention  $N = 72$ , follow-up

$N = 63$ ). The case had a significantly longer pretreatment baseline period (49 days) because of an unforeseen medical problem that occurred after the initial meeting and prior to treatment beginning. Six indices were measured daily: (3a) overall family distress, (3b) intensity of worst anger outburst, (3c) reaction to directives, (3d) son felt good about himself today, (3e) reaction to change, (3f) reaction to disappointment. Phase-effect Analyses 1 and 2 did not yield significant effects:  $r = .091$  and  $r = .132$ . Analysis 3 resulted in a significant phase effect of  $r = .435$  (Bonferroni correction =  $p \leq .008$ ), indicating symptom improvement occurred after treatment ceased. The BASC-2 reports indicated substantial improvements across multiple domains of functioning. The mother's report showed dramatic improvement. At baseline, nine scales reached the clinical level (Hyperactivity, Aggression, Conduct Problems, Depression, Atypicality, Withdrawal, Attention Problems, Adaptability, and Social Skills), whereas two additional scales (Somatization and Activities of Daily Living) were in the at-risk range. At follow-up, no scales fell into the Clinical range. Although still At-Risk at follow-up, the improvement in reported Aggression was substantial with a 39-point decrease from baseline.

Parents' reports of participation in the family TA were generally positive across the subscales of the PEAS measure. Parents reported that they learned new things about their child and his problems (aggregate score = 4.67 out of 5), were able to develop a positive relationship with the clinician (4.90), felt that the TA process was collaborative (4.78), felt that their child developed a positive relationship with the clinician (4.70), and learned how the family was involved in the child's problems (4.48). The score of 1.80 in regard to the parents' negative feelings about the assessment was acceptable.

Table 2  
BASC-2 Child Self-Report

Scale	Case 1				Case 2				Case 3			
	Baseline		Follow-up		Baseline		Follow-up		Baseline		Follow-up	
	T	%	T	%	T	%	T	%	T	%	T	%
<b>Clinical</b>												
Attitude to School	66 <sup>c</sup>	92	56	73	48	50	41	23	53	65	60 <sup>c</sup>	82
Attitude to Teachers	62 <sup>c</sup>	87	57	76	93 <sup>b</sup>	99	42	22	63 <sup>c</sup>	90	38	10
Atypicality	59	84	40	10	54	68	43	30	43	30	43	24
Locus of Control	71 <sup>b</sup>	96	46	43	59	81	43	28	64 <sup>c</sup>	89	44	34
Social Stress	51	59	47	44	65 <sup>c</sup>	92	45	36	50	55	41	19
Anxiety	55	73	42	24	70 <sup>b</sup>	96	38	9	56	73	39	12
Depression	65 <sup>c</sup>	90	46	46	83 <sup>b</sup>	99	39	4	66 <sup>c</sup>	91	40	1
Sense of Inadequacy	65 <sup>c</sup>	91	47	45	55	75	43	29	51	60	42	25
Attention Problems	55	71	44	31	50	54	36	6	43	28	48	49
Hyperactivity	59	82	46	37	55	70	34	2	48	46	43	26
<b>Adaptive<sup>a</sup></b>												
Relations with Parents	41	20	53	57	59	79	55	62	38 <sup>c</sup>	14	52	50
Interpersonal Relations	49	37	54	58	48	31	57	70	51	41	51	46
Self-Esteem	48	31	56	65	10 <sup>b</sup>	1	58	86	35 <sup>c</sup>	9	56	65
Self-Reliance	46	33	54	63	45	32	55	65	45	32	41	18
<b>Composite scores</b>												
School Problems	63 <sup>c</sup>	90	54	69	74 <sup>b</sup>	98	40	15	59	84	46	37
Internalizing Problems	61 <sup>c</sup>	87	43	24	67 <sup>c</sup>	94	40	16	56	75	39	11
Inattention/Hyperactivity	58	80	44	30	53	64	34	3	45	33	45	33
Emotional Symptoms	59	83	44	30	75 <sup>b</sup>	98	40	13	59	84	43	23
Personal Adjustment <sup>a</sup>	45	27	56	69	37 <sup>c</sup>	11	58	80	40	14	50	46

Note. BASC-2 = Behavior Assessment System for Children—Version 2 (Reynolds & Kamphaus, 2004).

<sup>a</sup> Higher scores on the adaptive scales are desirable. <sup>b</sup> T scores in the clinical range. <sup>c</sup> T scores in the at-risk range.

Table 3  
BASC-2 Parent Report

Scale	Case 1				Case 2				Case 3			
	Baseline		Follow-up		Baseline		Follow-up		Baseline		Follow-up	
	T	%	T	%	T	%	T	%	T	%	T	%
<b>Clinical</b>												
Hyperactivity	56	76	40	14	63 <sup>c</sup>	89	50	59	79 <sup>b</sup>	98	53	69
Aggression	64 <sup>c</sup>	90	50	60	77 <sup>b</sup>	98	57	78	101 <sup>b</sup>	99	62 <sup>c</sup>	88
Conduct Problems	61 <sup>c</sup>	88	53	72	69 <sup>c</sup>	95	56	78	75 <sup>b</sup>	97	53	72
Anxiety	57	77	44	29	61 <sup>c</sup>	86	56	73	39	14	35	5
Depression	73 <sup>b</sup>	97	50	60	68 <sup>c</sup>	94	54	71	84 <sup>b</sup>	99	54	73
Somatization	48	50	48	50	52	64	41	19	62 <sup>c</sup>	87	48	50
Atypicality	44	34	41	11	64 <sup>c</sup>	91	47	43	71 <sup>b</sup>	96	50	64
Withdrawal	47	43	47	43	56	76	50	60	87 <sup>b</sup>	99	57	79
Attention Problems	56	70	48	47	50	51	57	74	78 <sup>b</sup>	99	56	70
<b>Adaptive<sup>a</sup></b>												
Adaptability	39 <sup>c</sup>	15	51	51	30 <sup>b</sup>	3	44	27	22 <sup>b</sup>	1	45	30
Social Skills	41	21	43	27	39 <sup>c</sup>	15	39 <sup>c</sup>	15	20 <sup>b</sup>	1	43	27
Leadership	53	60	60	82	52	55	49	50	41	19	44	28
Activities of Daily Living	34 <sup>c</sup>	6	47	38	46	33	42	21	30 <sup>c</sup>	3	38 <sup>c</sup>	13
<b>Functional</b>												
Communication	48	42	58	75	58	76	47	35	43	22	45	31
<b>Composite scores</b>												
Externalizing Problems	61 <sup>c</sup>	88	47	47	72 <sup>b</sup>	96	54	74	89 <sup>b</sup>	99	56	79
Internalizing Problems	62 <sup>c</sup>	88	47	42	63 <sup>c</sup>	90	50	58	64 <sup>c</sup>	91	45	33
Behavioral Symptoms	58	82	45	35	69 <sup>c</sup>	95	54	68	93 <sup>b</sup>	99	57	78
Adaptive Skills <sup>a</sup>	42	20	52	57	43	24	44	28	28 <sup>b</sup>	2	42	20

Note. BASC-2 = Behavior Assessment System for Children—Version 2 (Reynolds & Kamphaus, 2004). Case 2 presents an average score for both parents.

<sup>a</sup> Higher scores on the adaptive scales are desirable. <sup>b</sup> T scores in the clinical range. <sup>c</sup> T scores in the at-risk range.

## Discussion

Families with a preadolescent boy presenting with ODD experienced demonstrable benefits in multiple areas of functioning after participation in TA. Across the three cases, the child's symptoms improved after the onset of treatment, as per daily measures and the BASC-2. Thus, the TA model appears to be a potentially efficacious intervention for this disorder. The research design employed in this study has the potential to illuminate the process and trajectory of change, not just overall effectiveness. Broadly speaking, our results indicate that all three cases improved significantly from baseline to follow-up, but the daily time-series analyses suggest that each case had its own idiographic trajectory, which deserves further examination.

The broad improvement experienced by Cases 1 and 2 appeared to have been initiated early in the treatment, during the active intervention period, with evidence of continued improvement through the follow-up period. However, Case 3 did not realize benefits during the intervention period itself, but the follow-up period marked a time of significant improvement for this family. Across all three cases, the results of the BASC-2 support the findings of the time-series data: The children improved in domains conceptually consistent with ODD, such as aggression, school problems, anxiety, and depression. Our second hypothesis, that families would continue to experience benefits beyond the formal intervention, was also supported.

The results of the PEAS indicate consumer acceptability of the family TA model, which was also found by Tharinger et al. (2009).

High scores on the subscales of this measure, particularly the clinician's relationship with the parents and the child, collaboration, and the family's involvement in the child's problems, also suggest that the clinician of this study was successful in achieving the broad goals of the TA model. The parents' reports of the clinician's relationship with the family also suggest that a therapeutic alliance was established.

## Conclusions

The results of this study expand the body of empirical research on the therapeutic effectiveness of the TA model with children. Evidence indicates that children with ODD (and their families) benefited from participation in this treatment. Using a time-series design, the current study—and two previous empirical case studies (J. D. Smith, Nicholas, et al., 2009; J. D. Smith, Wolf, et al., 2009)—showed that the child and family benefit from TA. The timing and trajectory of the improvement appears variable.

According to the guidelines put forth by the Task Force on Promotion and Dissemination of Psychological Procedures (Ollendick et al., 2006), our findings satisfy the requirements for inferring that TA is possibly efficacious. Without question, large-group studies conducted in a laboratory setting with a comparison group will provide sharper estimates of both aggregate benefit and more discerning inferences about cause. Still, it is the continuous measurement of key indices over time that renders case-based (and group) time-series designs so immediately relevant to the question of mechanism: It enables us to observe how mutative aspects of the therapy operate in



real time (e.g., Kazdin, 2007). Although the current study did not specifically address mediators and mechanisms of change, time-series methodology can reveal the ebb and flow of clinical improvement during intervention and allows us to test how well our theories of change measure up against what we observe.

Despite the advantages of this methodology, there are also some limitations. For example, the family and the clinician were not blind to the hypothesis of the study (i.e., the family would benefit from treatment), and the family members were the sole reporters of the data used to assess improvement. Thus, demand characteristics and other potentially biasing factors could have influenced their reports. However, it is important to understand what is measured and reflected in the finding of a treatment efficacy study. TA aims to help parents develop more cohesive, accurate, compassionate, and empathic stories about their child (Finn, 2007; Tharinger et al., 2007), suggesting that self-report measures are appropriate because they likely reflect a changing perspective. The individualized nature of the time-series design employed in this study poses a challenge for replicated single-case designs. With the intent of tailoring both the treatment and the research design to each specific family, we developed individualized variables to be measured daily that would capture the particular problem areas of each family. However, in doing so, we were left with only two dimensions shared by each family in the time-series aspect of the study, making direct comparisons of symptomatic change difficult. One way in which this issue was addressed was to combine the dependent variables for each case, which came at the cost of examining changes in specific symptoms across cases. Again, the inclusion of the BASC-2 provided a shared measure, but the time-series measures are the essence of this study. Perhaps it is almost of greater importance to enact change in areas the family reports as their greatest concern, rather than measuring domains the family did not report as problematic.

This study was intended to test the efficacy of the TA model with a common childhood problem and with patients already seeking psychological services. The clients were diverse in terms of racial background, socioeconomic status, and family structure. The need to test TA under stringently controlled conditions still remains. In addition to larger sample sizes, future studies might examine the effectiveness of TA for ODD in younger and older children, given evidence of age-related differences (Maughan et al., 2004); lengthen the follow-up period (e.g., 6 to 12 months); and focus more heavily on the family system as a whole, as opposed to the identified child client. Burke, Pardini, and Loeber (2008) found that ODD affects parenting approaches and familial communication, suggesting these would be possible areas to target in future study.

Randomized controlled trials will likely continue to be the predominant paradigm for assessing treatment efficacy. However, not only are these studies costly but the findings arguably obscure the processes of change (Skinner, 1938) and arguably don't translate to real-world clinical practice (e.g., Jacobsen & Christensen, 1996; Morrison et al., 2003; Westen & Morrison, 2001). Experimental single-case designs may provide a comparably inexpensive yet scientifically valid method to bridge the gap between the laboratory and clinical practice (e.g., Barlow & Hersen, 1984; Borckardt et al., 2008; Kazdin, 1992, 2008). The current study provides evidence of the knowledge that can be attained from this methodology, both individually and between cases, while also demonstrating the efficacy of a promising intervention for children with ODD.

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