

**Assessing to Learn and Learning to Assess: Examining Assessment Fidelity for the
Dyadic Parent-Child Interaction Coding System**

by

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Abstract

Fidelity to treatment protocol has been found to predict treatment outcome (Schoenwald, Sheidowm & Chapman, 2009; Henggeler, Schoenwald, Liao, Letourneau, & Edwards, 2002) and is especially important to evaluate within the context of PCIT dissemination; however few studies have addressed assessment fidelity and its role in empirically based practice. Thirty-four DPICS observations were submitted to the Auburn University Parent-Child Lab by PCIT trainees and evaluated using a DPICS fidelity checklist based on the DPICS manual (Eyberg et al., 2005). A fidelity check was completed for 2 categories: room set-up and DPICS procedure. In addition, twenty-nine videos were coded to assess coding accuracy. A multi-level regression was conducted to explore whether fidelity to assessment protocol is predictive of coding accuracy. Other variables examined included the predictive relationship of latency between training and case completion and therapist characteristics predictive of fidelity.

Analyses reveal differential implementation of room set-up and procedure to the DPICS assessment. The multi-level regression failed to support the hypothesis that room set-up and procedural fidelity would predict coding accuracy as well as the hypothesis that latency between training and case would predict fidelity. No relationship was found between specific therapist characteristics of degree type and therapist self-rating, suggesting that these therapist variables may be less important for the dissemination of an EBP. A significant relationship was found, however, between the number of client hours per week and room set-up fidelity, suggesting that therapists are focusing on maintaining the active ingredients of the DPICS assessment.

Specific changes to the manual and supervision process are suggested. Simple changes to the manual could facilitate therapist learning, and enhanced attention to the DPICS assessment during supervision could improve fidelity and the level at which the DPICS is implemented in the community. The importance of accurate assessment cannot be over-emphasized, given that PCIT is an assessment-driven intervention.

Keywords: Empirically based assessment, dissemination, fidelity, Parent-Child Interaction Therapy, DPICS

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Introduction

The field of clinical psychology has seen a great amount of change in the last two decades with regard to how clinicians choose the best treatment and assessment tools for clients. There has been a recent push by government offices and managed care providers toward evidence-based practice in psychology (EBPP) in medicine and mental health fields (Hunsley & Mash, 2005), and the field of clinical psychology has moved to adopt this position as well. In 1991, McFall outlined a call to action in the *Manifesto for a Science of Clinical Psychology*, emphasizing the importance of approaching clinical psychology as science-based, not intuition based. The American Psychological Association's (APA) Task Force on Promotion and Dissemination of Psychological Procedures identified treatments with adequate empirical support as "best practice" in 1995. More recently, the President's New Freedom Commission on Mental Health Subcommittee on Children and Families (2003) endorsed wider availability of high-quality care and cited empirically established treatments as the standard of care for children's mental health. They stipulated that families should be informed of and provided access to evidence-based interventions when they are available. The primary reason for this emphasis on evidence-based psychotherapies (EBPs) is that they have been found to provide superior outcomes when compared to non-directive, supportive therapy (Chambless & Ollendick, 2001).

Evidence-based practice in psychology (EBPP) refers to informing clinical practice based on current evidence about interventions, clinical expertise, and patient preferences. The provider must assimilate this information and understand how these factors combine in decision-making and treatment planning (Chambless & Ollendick, 2001; Roberts & James, 2008). EBPP is based on empirically supported assessment and treatments. Evidence-based psychotherapy (EBP) refers to specific interventions that have support for producing therapeutic change in controlled trial studies (Kazdin, 2008; David & Montgomery, 2011). Importantly, EBPs aim to ensure a higher

standard of treatment and enhance patient care by providing support for treatments that work for a particular population (Roberts & James, 2008). EBPs inform clinicians of three “w’s:” what works for whom and when and help to remove the ambiguity of which treatment will be most effective for a given client. In addition, clinicians and researchers are ethically obligated to use treatments that have been proven effective within a population (APA, 2010; Kazdin, 2008; Roberts & James, 2008; Woody, Weisz, & McLean, 2005).

Overview of Empirically Based Assessment

Empirically based assessments (EBAs) are objective clinical measures of therapeutic change with research supporting their use (Achenbach, 2005; Hunsley & Mash, 2005; Roberts & James, 2008). EBPs must be accompanied by objective, qualitative assessment to demonstrate change from pre- to post-intervention, thus EBAs are necessary to establish support for an EBP. However, the spread of EBAs has lagged behind that of EBPs, despite the field’s focus on more quantitative methodology (Mash & Hunsley, 2005).

The strength of EBPs comes from the basis of empirically robust assessment procedures. The initial assessment informs treatment planning and establishes baseline data for presenting problems, and continuous assessment during treatment allows clinicians and researchers a means to evaluate the progress and efficacy of the treatment (Bagner, Harwood, & Eyberg, 2006; Roberts & James, 2008). Achenbach’s assessment paradigm (1995) emphasizes the following characteristics of an EBA: the use of standardized procedures, various methods, and multiple informants; the formation of normative groups; the use of quantitative assessment methodology; operationally defined taxonomic constructs; and the creation of diagnostic constructs and taxonomies based on these normed assessment methods. In 2005, special issue editions of the *Journal of Clinical Child and Adolescent Psychology* and *Psychological Assessment* directed by Mash, Hunsley, and Achenbach reiterated these assessment standards. Hunsley and Mash (2005)

highlighted the important traits of EBAs by identifying several key components: clinical utility, treatment utility, diagnostic utility, improved decision-making, and improved accuracy of assessments. These factors, they argue, are integral parts of any validated assessment procedure.

Assessments that are empirically based allow the treatment plan to be tailored to the client by comparison to matched normative data. EBAs also allow flexibility in decision-making as to what is deviant or developmentally appropriate for a given gender, age, and ethnicity and provide more descriptive information than the categorical approach represented in the DSM (Achenbach, 1995; Achenbach & McConaughy, 1996). Additionally, EBAs allow for differential diagnoses through the use of the psychometric model (Bagner et al., 2006; Achenbach, 2005). According to Achenbach, psychometric methodology, “quantifies the assessment data...allows for variations that inevitably affect assessment...and avoids forced choices,” (Achenbach & McConaughy, 1996). EBAs in the psychometric model inform how clinicians make treatment decisions and set target treatment goals by highlighting co-occurring problems. Assessment forms the basis of clinical decision-making, so it is important that the methodology is standardized and consistent in order for clinicians to have interpretable results.

EBAs become especially important when assessing childhood behavior disorders in the context of developmental changes during treatment (Mash & Hunsley, 2005). There are many sources of variation in assessing children’s emotional and behavioral problems, such as: procedural fidelity, variation of behavior across contexts, and differences between raters or measurements (Achenbach & McConaughy, 1996). Assessments that limit this variability will yield more accurate reflections of treatment effects. It is also important within childhood assessment to have a thorough understanding of developmental expectations and gains that may take place during treatment (Bagner et al., 2006). It is critical that multiple sources are utilized when assessing childhood disorders due to the notoriously poor agreement between raters of

children's behavior. Rescorla (2009) found high variability in cross-informant ratings of child behavior. The findings show that correlations between informants with similar roles in the child's life were around 0.6, correlations between informants with different roles were around .28, and correlations between children (self) and adult informants were around .22, thus highlighting the need for multiple informants and the inclusion of Analogue Behavior Observations (ABOs) when assessing childhood disorders. Appropriate child behavior assessment necessitates the inclusion of ABO and multiple empirically validated assessment tools; this allows assessors to capture functioning across contexts and informs the design of a treatment plan (Achenbach & McConaughy, 1996; Bagner et al., 2006; Rescorla, 2009).

EBAs are important within a research context as well. By providing a standardized measure, we can ensure that other researchers have the ability to replicate studies and establish efficacy (Achenbach, 1995; Kazdin, 1998). Additionally, we can examine clinical changes quantitatively by utilizing a standardized measure at pre-treatment and post-treatment. Standardized assessments allow us to clearly interpret results and parse out changes resulting from the intervention as opposed to intervening variables. This allows researchers to determine efficacy of a given treatment. Without these standardized measures, definitive conclusions would be rendered impossible. EBA is critical in interpreting applied research and adapting EBPs to community settings.

Parent-Child Interaction Therapy: An Empirically Supported Treatment

Parent training programs are empirically supported as the best first-line intervention for childhood behavior problems (Brestan & Eyberg, 1998; Eyberg, Nelson, & Boggs, 2008; Kaminski, Valle, Filene, & Boyle, 2008). Parent-Child Interaction Therapy (PCIT) is an empirically supported parent-training program developed for children ages two to seven diagnosed with disruptive behavior disorders (Funderburk & Eyberg, 2011; McNeil & Hembree-

Kigin, 2010). Children with behavioral disorders remain an underserved population, with fewer than 10% of children receiving the treatment they need (Eames et al., 2008; Gettinger & Stoiber, 2006; Kauffman, 1999). Disruptive behavior disorders represent the majority of childhood referrals for mental health and are especially problematic given their poor prognosis (Bagner & Eyberg, 2007; Foote, Eyberg, & Schuhmann, 1998; Kaminski et al., 2008). These disorders are chronic, pervasive, and carry the highest mental health costs in the U.S. (Boggs et al., 2004; Kazdin, Siegel, & Bass, 1992; Kazdin, 1995; Steiner, 1997).

PCIT was identified as a probably efficacious treatment for children with disruptive behavior disorders based on the 1995 Task Force guidelines (Brestan & Eyberg, 1998; Brinkmeyer & Eyberg, 2003; Eyberg, Nelson, & Boggs, 2008). The PCIT approach to treatment is different from parent management training (PMT) in several important ways. PCIT focuses on changing the parent-child interaction pattern, not strictly the child's behavior. PCIT is unique in its' treatment of both parent and child together. The theoretical framework for PCIT includes Baumrind's developmental theory (1967) on the effect of parent-child relationships and aims to help parents develop an authoritative parenting style by focusing on increasing parent-child warmth as well as appropriate limit setting. The PCIT protocol also assimilates features from attachment theory, social learning theory, and behavioral principles (Bell & Eyberg, 2002; Brinkmeyer & Eyberg, 2003). PCIT acknowledges the mutual interaction of parent and child behaviors and aims to change the parent-child relationship by teaching parents appropriate play skills and effective, consistent discipline.

PCIT utilizes Hanf's two-stage model (1969) to direct the progression of treatment (Eisenstadt, Eyberg, McNeil, Newcomb, & Funderburk, 1993; Funderburk & Eyberg, 2011). The first stage, Child-Directed Interaction (CDI), teaches parents to follow the child's lead in play and increase warmth and positive parental attention for appropriate behavior. Parents are also

taught how to use differential social reinforcement to decrease negative child behavior while avoiding negative parental behaviors such as criticism, leading questions, and commands. Parents are coded for “do” skills and “don’t” skills when interacting with their child in the context of treatment. The “do” skills form the acronym PRIDE and are aimed at increasing positive verbal behavior between the parent and child. The PRIDE skills aim to increase: Praise, Reflection, Imitation, Description, and Enjoyment (Eyberg & UF, 2010). The “don’t” skills (questions, commands, and negative talk) have been shown to exacerbate problem behavior. Parents are required to master these skills before moving from CDI to the next step of PCIT, Parent-Directed Interaction (PDI). During PDI, parents are taught effective commands, consistent discipline strategies, and appropriate follow-through on discipline (Bell & Eyberg, 2002; Brinkmeyer & Eyberg, 2003; Funderburk & Eyberg, 2011). Progression through treatment is based on two EBAs: the Eyberg Child Behavior Inventory (ECBI; Eyberg & Pincus 1999), a parent-report measure of child behavior problems, and the Dyadic Parent-Child Interaction Coding System (DPICS, Eyberg, Nelson, Duke, & Boggs, 2005), an ABO measure examined in the current study.

A feature that distinguishes PCIT from other training programs is the use of in-vivo coaching. Both the CDI and PDI sessions involve an initial teach session during which the parent and therapist discuss guidelines and role-play without the child present; however, all subsequent sessions involve the therapist remotely coaching the parent-child dyad together from a separate room. The parent and child play together while the parent is coached in-vivo through a bug-in-the-ear device. This facet of the program allows for live skills coaching and teaches the parent to discipline and gain compliance effectively without the presence of a therapist in the room (Funderburk & Eyberg, 2011; Foote et al., 1998).

Another distinguishing feature of PCIT is that it is performance-based instead of time-limited. Parents progress through the intervention based on their own skill mastery, which allows PCIT to be flexible and individualized to the client. The average PCIT intervention lasts from nine to 16 weeks, with families completing an average of 13 one-hour sessions (Hood & Eyberg, 2003). The performance-based aspect of PCIT is particularly relevant within the discussion of assessment as accurate assessment data (both ECBI and DPICS) are crucial to appropriate progression through PCIT.

DPICS as an Empirically Based Assessment

As previously stated, the treatment plan for PCIT is based on a multi-modal assessment, including the initial Dyadic Parent-Child Interaction Coding System (DPICS) observation. The DPICS observation is an ABO divided into five segments lasting five minutes each: CLP warm-up, CLP, PLP warm-up, PLP, and Clean Up (Eyberg, Nelson, Duke, & Boggs, 2005; Funderburk & Eyberg, 2011). The sequence is designed such that the demand placed on the child increases throughout the progression of segments. The full DPICS assessment is conducted at pre- and post-treatment during which time parents also complete standardized paper and pencil measures like the ECBI, the Parental Stress Index (PSI; Abidin, 1983), and surveys for parental psychopathology (Bagner & Eyberg, 2007; Bell & Eyberg, 2002; Foote et al, 1998; Funderburk & Eyberg, 2011). By utilizing different measures, clinicians obtain a more holistic picture of the presenting problem across informants and testing formats. The various methods used in PCIT assessment also fit into the Achenbach assessment paradigm by providing multiple sources of measurement across different contexts (e.g., ABO, pencil-paper measures, parental report). Also in keeping with the 1995 Achenbach assessment paradigm, the DPICS assessment is a standardized, normed procedure. The psychometric data for the DPICS-II can be found in the

DPICS-III manual (Eyberg et al., 2005) as well as validated in previous studies (Bessmer, 1998; Foote, 2000). The psychometric properties of the DPICS are further discussed in the methods.

The baseline DPICS allows clinicians to track the progress of a case and gives a context in which to interpret results at post-treatment. Specifically, DPICS codes yield frequency counts of parent and child verbalizations, allowing for a quantitative assessment of parent-child relational warmth. Shortened DPICS observations are also conducted at the beginning of most PCIT coaching sessions, and data provided by these observations are used to help tailor the in vivo coaching provided to caregivers during treatment (Bell & Eyberg, 2002). The final DPICS assessment quantifies parental skill acquisition and change at the end of the intervention (Brinkmeyer & Eyberg, 2003).

Dissemination of Empirically Supported Treatment and Assessment

EBPs are designed to ensure a combination of current research and clinical judgment, resulting in best practice interventions. EBPs aid in the provision of consistent, effective treatment for individuals within the community; however, most EBPs are designed and researched in tightly controlled research settings and can present a barrier to transporting the treatments into community settings (Fixsen, Blase, Naoom, & Wallace, 2009). Thus far, the transportation of EBPs from research to community settings has proven a major obstacle to effective dissemination. In the past, EBPs have been disseminated through graduate-level training but not made available to currently practicing clinicians. There has been a recent shift from this traditional mentoring model to more widely available training for EBPs based on the field's shift in focus toward providing interventions with empirical support. It is increasingly important that we understand the components of, and barriers to, successful dissemination of EBPs from research to community providers (Fixsen et al., 2009). EBPs have the potential for a

large impact but are currently underutilized; however, the field is moving to a more proactive stance towards dissemination of research findings and EBPs.

Within the context of EST dissemination and implementation, research has found that therapist characteristics affect the acceptance and implementation of EBPs. Notably, therapist characteristics such as: degree type of therapist, ratings of self-efficacy on skills, hours spent with client contact, and age of therapist have all shown a significant effect on the successful implementation of EBPs (Durklak & DuPre, 2008; Herschell et al, 2009; Kendall & Beidas, 2007; Pearl et al., 2011).

The dissemination of EBAs presents different challenges from those of EBTs. It is much more difficult to determine the “best practice” assessments to use when hundreds of assessments with psychometric data are made available each year, and the field has no set cutoff point for what constitutes a “good” assessment. Antony and Rowa (2005) outline several potential barriers to the successful dissemination of EBAs, including the sheer volume of new assessments released each year with psychometric data and the limited research to validate them all.

Assessment serves multiple functions, which renders the determination of the best and more efficient assessments difficult. Additionally, methods of evaluating assessments are difficult to interpret and may be a barrier for the adoption of EBAs within community settings. Finally, there are currently less widely utilized outlets for disseminating information about EBAs.

Although there are a few studies addressing the dissemination and implementation of the PCIT model (Herschell et al., 2009; Herschell, Kolko, Baumann, & Davis, 2010; Pearl et al., 2011; Wilsie, 2011), no studies to date have addressed the focus of the current study, fidelity to assessment implementation within the context of PCIT training. PCIT training continues across the U.S. and globally, however we know very little about dissemination of the DPICS as an EBA, and we currently have no information regarding the fidelity of DPICS administration by new

PCIT trainees in community settings. The goal of the current study is to provide information that will help to improve the dissemination and implementation of PCIT, with a special focus on fidelity to the DPICS procedure.

Fidelity

EBPs are designed for implementation based on a specific procedure outlined by the creator, usually in the form of a treatment manual. Treatment fidelity is defined as “the extent to which treatment was implemented as intended,” (Perepletchikova, 2011). It is important that fidelity measures are established during training in order to provide feedback to trainees and prevent procedural drift in implementation (Bellg et al., 2004; Eames et al., 2008). DiGennaro and Coddling (2011) found that therapists drift from treatment as outlined within 3 – 5 sessions of implementation; conversely, Durklak & DuPre (2008) found that programs monitoring implementation had two to three times the effect sizes of successful intervention outcomes. Similarly, the early inclusion of team supervision and didactic training has been found to increase therapist fidelity to treatment protocol (Vismara et al., 2007). Significant results (statistically or clinically) obtained from a treatment delivered without adherence to the treatment plan does not allow conclusions to be drawn regarding the agent of observed change (Perepletchikova, 2011). As a result, the implementation of treatments without fidelity could propagate the use and spread of ineffective treatments and even inadvertently harm clients.

Despite the recent increase in treatment fidelity studies, there are far fewer studies investigating the fidelity of EBAs with trainees. However, researchers have investigated the fidelity of one well-known EBA, the Wechsler Intelligence Scale for Children (WISC-IV; Wechsler, 2004). Studies conducted to examine the relationship of fidelity to the WISC protocol have found that almost all assessments conducted by graduate student trainees have at least one error in administration or scoring (Belk, LoBello, Ray, & Zachar, 2002; Erodi, Richard, &

Hopwood, 2009; Keuntzel, Hetterscheidt, & Barnett, 2011; Loe, Kadlubek, & Marks, 2007). Importantly, Erodi, Richard, and Hopwood (2009) found that the errors might be systematic. Graduate student trainees were most accurate in assessing individuals at the middle range of intelligence scores and were consistently less reliable on the lower and higher scores. This systematic error affects an individual's IQ score, and trainee administration error could place individuals within an incorrect level of intellectual functioning. These studies highlight the importance of monitoring assessment fidelity and providing feedback to trainees about the ways in which they systematically vary from the assessment protocol. Though unrelated to the EBA chosen for the proposed study, an investigation of fidelity to the WISC highlights that trainee adherence to assessment protocol needs to be evaluated, and that the correction of systematic errors in assessment implementation has the potential to improve future clinical practice.

To use PCIT as an example, if the DPICS is conducted without fidelity to the protocol, a family could graduate from treatment before the caregivers have truly mastered the skills outlined in the PCIT protocol. In such situations, the long-term effects of the treatment may not maintain, and the family may have less positive outcomes requiring additional mental health services. Although the proposed study cannot answer all of the questions related to DPICS assessment fidelity and PCIT treatment outcome, it will be a first step towards investigating the relevant factors affecting fidelity.

Goal and Aims of the Proposed Study

The current study aims to add to the current literature concerning fidelity and implementation of the DPICS following a 40-hour PCIT workshop. The aims of this study are multifaceted: 1) provide descriptive information about implementation of the DPICS assessment protocol for a sample of PCIT trainees in various community settings, 2) examine the relationship between DPICS room set-up and procedural fidelity and DPICS coding accuracy, 3)

examine the effect of latency between the initial PCIT 40-hour workshop training and assessment fidelity, and 4) examine trainee characteristics that could predict assessment fidelity.

Hypotheses

First, overall fidelity for the DPICS was assessed for two categories: room set-up fidelity and procedural fidelity. The hypothesis was non-directional and predicted a difference between fidelity scores. Inter-rater reliability (IRR) was conducted for 30% of the fidelity checklists and met 80% agreement. In instances where 80% IRR was not met, videos were re-coded. Secondly, it was hypothesized that greater trainee fidelity to the DPICS procedure would predict greater coding accuracy on the DPICS Child Led Play (CLP) segment. IRR for 30% of the DPICS observations was conducted and followed the same IRR criterion as the fidelity checklists. Procedural fidelity and room set-up fidelity were used as predictors of coding accuracy, because it was thought that closer adherence to procedure would be linked to more accurate coding. Third, we examined whether latency between PCIT training and the submitted trainee work sample would predict DPICS procedural fidelity, room set-up, and coding accuracy. It was hypothesized that a shorter latency between the training workshop and implementation of the DPICS assessment would result in higher procedural fidelity, room set-up fidelity, and coding accuracy based on research citing that drift from procedure increases over time (DiGennaro & Coddling, 2011). Finally, therapist characteristics were also examined in relation to fidelity. Characteristics were chosen based on previous work by Durklak and DuPre (2008), Herschell et al. (2009), Kendall and Beidas (2007), and Pearl et al. (2011). The characteristics examined were: number of weekly hours of client contact, degree type of trainee, and an aggregate score of self-report questionnaire items concerning knowledge of assessment in PCIT. It was hypothesized that hours of client contact and post-workshop self-report ratings would predict higher levels of DPICS fidelity; it was also hypothesized that an effect for degree type would be observed.

Method

Participants

Participants were mental health professionals from various agencies seeking training in PCIT. Trainees completed a Demographic Questionnaire during an initial 40-hour training workshop (see Appendix A). Six agencies participated across four training workshops, resulting in a total of 31 trainees; however, not all trainees were able to continue training after completion of the workshop (see Table 1 for trainee demographics). After the 40-hour workshop, a total of 16 trainees submitted 34 DPICS pre-treatment assessments for supervisory feedback. The work samples were watched by the training team to provide feedback to trainees, and the information from that feedback serves as the data for this study. The data for this study, including DPICS observations, questionnaire data, and demographic data were submitted by trainees as part of a larger, IRB-approved study of anonymous training data. Although trainees submitted a large number of PCIT session videos and several paper and pencil measures from their training cases, only the DPICS video-recordings, coding sheets, workshop demographic data, and workshop knowledge questionnaire data were used in the present study.

Trainers

Elizabeth Brestan-Knight, Ph.D., a certified PCIT Master Trainer, served as the lead trainer. Graduate students with a background in research and the clinical applications of PCIT also assisted in the trainings.

Measures

Dyadic Parent Child Interaction Coding System – III (DPICS-III; Eyberg et al., 2005). The DPICS-III is a behavioral coding system developed for use within the context of PCIT. Psychometric data for the DPICS-III are not yet available; however, the DPICS-II has been found to have good reliability for parent categories, with intra-class correlations ranging from .69

- .99 (Bessmer, 1998). These codes include parent codes for: negative talk, command, labeled and unlabeled praise, question, reflection, behavioral description, and neutral talk. In a study conducted by Foote, all categories used in the DPICS composite scores met adequate kappa reliability with kappa ranging from .64 for clinical parent prosocial codes to .84 for negative talk. The DPICS composite categories have shown discriminative validity for clinical and non-clinical families (Bessmer, 1998; Foote, 2000) as well as abusive and non-abusive parents (Aragona & Eyberg, 1981; Borrego Jr., Timmer, Urquiza, & Follette, 2004). The DPICS composite categories also have good convergent validity, significantly predicting ECBI Intensity scores, Parental Stress Index (PSI), and the Parenting Locus of Control Scale (PLOC; Bessmer, 1998; Foote, 2000).

Work samples of DPICS observations were submitted by trainees for PCIT certification and were evaluated for fidelity to the DPICS assessment protocol. Fidelity to the DPICS protocol was measured by integrity checklists based on the DPICS manual (Eyberg et al., 2005) and a post-hoc video review. All DPICS work samples were viewed by undergraduate research assistants and given a fidelity score. A trainee, an undergraduate coder, and a graduate student or the master trainer also coded the DPICS work samples using the DPICS-III coding system.

Dr. Brestan-Knight and the graduate student coders trained undergraduate research assistants on the DPICS coding system. Coders were trained for approximately one semester while completing the DPICS manual workbook under the supervision of the training team. Coders were required to meet 80% reliability with graduate coders on practice DPICS videos in order to code for this study. Weekly meetings were held with the coders to provide practice and maintain reliability. Undergraduate research assistants also watched the DPICS observations and conducted fidelity checks. Those conducting fidelity checks were trained on the fidelity checklist by the author and were given examples and hypothetical situations with which to practice. Any

research assistants who did not meet 80% reliability with the author for room set-up or procedure were retrained.

Two fidelity scores were assigned for each DPICS observation video: room set-up and procedural fidelity. Fidelity scores were calculated by dividing the number of completed criteria by the total number of criteria described as essential to the assessment procedure in the DPICS manual. The room set-up fidelity checklist consisted of six items, and the procedural fidelity checklist consisted of 19 items (Appendix D).

Coding accuracy was assessed using the DPICS-III manual (Eyberg et al., 2005). All coders, trainees, and the training team members used the DPICS-III manual. Coding accuracy was assessed for the following codes: praise, reflections, and behavioral descriptions, negative talk, commands, and questions. The overall coding accuracy was assessed using percent agreement with a graduate or undergraduate coder. IRR was conducted for 30% of the videos. Coding accuracy was assessed for parent codes during the five-minute CLP segment of the full DPICS observation.

We considered 80% fidelity to room set-up, procedure, and coding accuracy as the benchmark for acceptable implementation. This criterion was established based on the field's convention of 80% fidelity as acceptable for implementation of a therapeutic package, though 70% is also considered acceptable for inter-rater agreement (Aspland & Gardner, 2003). Because the 2009 PCIT Training Guidelines do not stipulate a required level of fidelity during implementation of the DPICS observation, we have extended the 80% benchmark to procedural and room set up fidelity for this study. The PCIT Training Guidelines do stipulate that trainees must meet 80% IRR for their DPICS coding accuracy at some point during the training period.

Demographics Questionnaire. The demographic questionnaire was distributed to each trainee to gather information on trainee characteristics prior to training. Data from the

demographic questionnaire were used to assess whether therapist characteristics would predict successful implementation of the DPICS assessment. Post-training questionnaires were administered to trainees to gauge self-reported comfort and confidence with the assessments used in PCIT (Appendix B). An aggregate score of self-report questionnaire items concerning knowledge of and comfort with the assessments in PCIT at post-training were used as one of the therapist characteristics examined in relation to successful implementation. Self-report measures were examined to test the relationship between self-reported confidence and observed implementation of the DPICS.

Latency between the first day of PCIT training and the date upon which the DPICS assessment was conducted was used as a predictor of DPICS fidelity scores. The first day of training was used because it marks the first day the trainees learned about the DPICS. The latency between the date of the first day of training and the date of the DPICS assessment was measured using a calendar and information submitted with trainee work samples.

Thus, relevant trainee factors included in the analyses were: latency from training to assessment implementation, the number of weekly hours of client contact, trainee degree type, and a composite of items from a post-training questionnaire.

Procedure

Practicing mental health professionals from six sites attended a five-day, 40-hour training workshop led by a PCIT Master Trainer and a graduate student training team. The trainings were conducted at four separate locations and each workshop was based on the training guidelines outlined by PCIT International in 2009 (see Appendix C).

Training workshops consisted of didactic presentations, role-play, and modeling skills. The didactic component focused on the historical and theoretical framework for PCIT as well as an overview of PCIT core components. Trainees were then introduced to the assessment

procedures of PCIT and taught how to administer, score, and interpret these assessments. The DPICS protocol was described and the trainers referenced the portion of the DPICS manual that outlines the DPICS procedure. Trainees were allowed to role-play PCIT therapy sessions with one another while receiving in-vivo feedback from the training team. In addition, trainees received training and practice using the DPICS coding system in live coding practice sessions. After the completion of the 40-hour workshop, trainees returned to their sites and began implementing PCIT with clients. Ongoing supervision and feedback were continued via Skype or conference calls and session video reviews. After about six months, the master trainer travelled to the trainee's site to conduct an advanced training. This allowed the trainer to see current PCIT cases and give feedback to trainees in-vivo.

A total of 34 pre-treatment DPICS assessments were assessed for fidelity and were used to address the first hypothesis. It is important to note that some trainees submitted more than one pre-treatment DPICS assessment; thus, multiple DPICS observations from the same trainee are included in the data set. Although 34 DPICS observations are included in total, of these, 16 observations represent the trainee's first work sample. Five of the trainees did not submit their DPICS coding sheets for their assessment. Thus, 29 videos were used to address the second hypothesis, which addressed IRR. See Table 2 for a breakdown of the number used to test each hypothesis.

Room set-up and procedural fidelity were calculated using the DPICS fidelity checklist (Appendix D). Items on the checklist were coded such that 0 = Did not happen, 1 = Completed, and 2 = Could not see/N/A. A total score for DPICS set-up fidelity and procedural fidelity was calculated by dividing the total number of yeses by the total number of criteria. Any item that received a "Did not see" was not included in the final criterion count. IRR was calculated for 30% of the sessions using percent agreement. Reliability was coded such that 0 = Disagree on a

checklist item and 1 = Agree on a checklist item. The average IRR for room set-up was 87.88% and for procedural fidelity was 93.30%.

Analyses

Descriptive analyses and simple paired t-tests were run to describe set-up and procedural fidelity for each session. A multi-level regression (hierarchical linear model, HLM) was run to determine whether room set-up and procedural fidelity predicted coding accuracy, with the case number as level one (represented by fidelity score and coding accuracy) and the therapist as level two. Another multi-level regression was run to test whether latency from training to the case was predictive of room set-up and procedural fidelity. Lastly, a third multi-level regression was run to determine whether trainee characteristics were predictive of assessment fidelity. The same HLM levels were used for all analyses. A two-tailed test of the normal distribution with an alpha of .10 was used for tests of significance due to the small sample size.

Results

The first hypothesis predicted that there would be a difference between room set-up and procedural fidelity, and this hypothesis was supported. All means are given in percentages. Fidelity for room set-up (RS) was lower than procedural (Proc) fidelity ($n=34$, $m(RS)=45.64$, $m(Proc)=72.59$). The paired t-test was significant at $t(33)=5.84$, $p<.001$. The standard deviation for room set-up was fairly wide ($SD=23.57$), indicating a large amount of variability observed in room set-up criteria. The room set-up fidelity scores are more sensitive to variability, given that the score represents only six criteria as opposed to 19 for procedural fidelity, which could account for the low scores and amount of variability present. Additionally, a simple Pearson's r test was conducted and revealed a low correlation between the two fidelity scores ($r=.198$), which suggests that any differences reflect a true effect between the fidelity scores.

Notably, the average scores for the trainee's first case were examined for room set-up, procedure, and coding accuracy. Of the 16 first cases submitted, only one (6.25%) met the 80% room set-up criteria. Similarly, only six of the 16 first work samples submitted (37.5%) met the 80% competency benchmark for procedural fidelity. Coding accuracy was also examined for the first work samples submitted. Three trainees did not submit codes with the first DPICS, resulting in only 13 of 16 first work samples having codes. None of the submitted first work samples (0%) met the 80% competency benchmark for accuracy.

The scores for room set-up and procedure were evaluated for strengths and weaknesses in fidelity. The results are included in Table 3 and Table 4 and display an item breakdown of fidelity scores. Room set-up fidelity checks resulted in the lowest scores for the presence of a time-out chair facing the corner, extraneous furniture in the room, and three sets of toys spread out on the floor. Highest scores were obtained for the presence of a child-sized chair and table and two sets of toys spread on the table. The procedural fidelity checks revealed lowest fidelity for timing, with lowest scores for the inclusion of a full five-minute PLP warm-up, PLP interval, and clean-up interval. The highest scores were obtained for the prompts given, with over 90% fidelity for the inclusion of CLP, PLP warm-up, and PLP prompts given verbatim from the manual.

The second hypothesis predicted that room set-up and procedural fidelity would predict coding accuracy, however, this hypothesis was not supported for either category. In the HLM, neither room set-up fidelity ($z = -0.16, p = .87$) nor procedural fidelity ($z = .84, p = .40$) was a significant predictor of coding accuracy.

The third hypothesis predicted that as latency between PCIT training and the date of the submitted DPICS observation increased, the level of coding accuracy would decrease, but this hypothesis was not supported by the data ($z = -1.32, p = .19$). Additionally, a simple linear

regression was run to examine whether latency between PCIT training and date of the submitted DPICS observation predicted procedural fidelity. The regression was non-significant at $F(1, 15) = .12, p = .90$. Thus, latency was not found to predict procedural fidelity or coding accuracy. Based on the HLM model, time from PCIT training to the date of the submitted DPICS observation emerged as a significant predictor for room set-up ($z = 1.64, p = .10$). The z and p values for hypothesis two and three are listed in Table 5.

The fourth hypothesis predicted that therapist characteristics (degree type, hours of client contact per week, and self-reported comfort with the DPICS procedure and coding system) would predict DPICS fidelity (both room set-up and procedure), and this was partially supported by the data. None of the predictors emerged as significantly improving the fit of the model for procedural fidelity or coding accuracy, but the number of client hours per week emerged as a significant predictor of room set-up fidelity ($z = -2.25, p = .02$). An inverse relationship was found between the two variables such that as client hours per week increases, room set-up fidelity decreases.

Discussion

Fidelity to an EBA has been established as an important component in the dissemination and implementation of EBPs (Achenbach, 1995; Bagner, 2006). The EBP literature supports the use of standardized assessment to systematically evaluate treatment, monitor treatment effects and client progress, and complement clinical judgment (Kazdin, 2008). Additionally, EBAs are helpful in demonstrating efficacy and change to managed care providers (Roberts & James, 2008). This study uniquely contributes to our understanding of the role of EBA within the broader EBP framework and explores the role of fidelity in the implementation of a specific EBA, specifically the DPICS observation that guides treatment decisions in PCIT. To date, very little research has examined the DPICS as it is implemented in clinical practice and, to our

knowledge, no previous study has addressed implementation of the DPICS procedure. Additionally, the PCIT Training Guidelines (2009) are vague regarding the level of DPICS coding accuracy required to reach mastery and, as currently written, the training guidelines do not mention either fidelity to room set-up or fidelity to the DPICS procedure as an important part of PCIT training. This study examines current levels of DPICS fidelity implemented in the community by examining the work samples submitted by novice PCIT trainees. The study explores factors relevant to the implementation of the DPICS in hopes of informing future training efforts and furthering the dissemination and implementation of high-quality interventions.

After the initial 40-hour training, 16 of 34 trainees submitted DPICS observations for a return rate of 50%. The 2009 Training Guidelines stipulate that a trainee must meet 80% IRR for coding accuracy once, but it does not require trainees to send the initial DPICS observation upon beginning the first case. Rather, our training team requested that trainees submit the DPICS in order to check the 80% IRR criterion using an actual work sample (and not through just a role play during our 40-hour training workshop). Some trainees reported technical difficulties or barriers to recording the DPICS and were unable to submit a video for review. Thus, this study may underestimate the link between coding accuracy and the fidelity of DPICS implementation for new PCIT therapists as the therapists that were either unmotivated to send a video or unable to send a video were not part of our sample.

The directions for how to conduct a DPICS observation with regard to room set-up and procedure are outlined in the DPICS manual, yet it seems that our sample had difficulty with the implementation of both the room set-up directions and the DPICS procedure. The mean for procedural fidelity was the highest (72.6%), followed by coding accuracy (68.5%), and room set-up fidelity (45.6%). The overall averages for procedural fidelity and coding accuracy are

encouraging, based on the stipulation in the PCIT Training Guidelines that trainees should reach 80% coding accuracy with a PCIT trainer. The data from this sample revealed a very low incidence of 80% fidelity for room set-up, procedure, and coding accuracy. Specifically, less than half of the trainees met the 80% criterion for room set-up and procedural fidelity to DPICS, and zero trainees met the 80% criteria for coding accuracy.

The findings from this study at first seem contradictory to the broader literature. Durklak and DuPre (2008) suggested that fidelity to a treatment protocol might have diminishing returns. In their analysis of the literature, studies rarely met or exceeded 80% fidelity, but some positive effects were seen around 60%. However, most studies in the current literature consider delivery of the broader treatment package, not assessment. We have cited the 80% fidelity score as the benchmark for implementation of an outlined therapy protocol, but this 80% does not necessarily yield accurate assessment data. Anecdotally, it can be generally agreed upon that an 80% fidelity score for delivery of a specific session achieves the primary goals, but it would be significantly more controversial to strive for 80% fidelity to the WISC protocol. The primary difference between adherence to the broader treatment package and assessment is that the latter depends on adherence to procedure for accurate conclusions to be made and can yield significantly different outcomes when altered. Rapport could be damaged if a therapist is too focused on structure and strict adherence to an outline in therapy, but assessment is a different type of therapist activity with the primary goal of systematically collecting data to evaluate treatment progress.

A significant difference emerged in the current study between room set-up and procedural fidelity in implementation. The authors posit that this difference may be largely due to constraints in the therapists' workplace and limited time availability. If a therapist is pressed for time or resources, it seems they are more willing to sacrifice room set-up than procedural fidelity. Additionally, it is possible that room set-up required for DPICS is under-emphasized in

training or the prescriptive room set-up described in the manual is not placed in a convenient location for therapists as they prepare for the assessment. Notably, although these trainees had the chance to role-play the PCIT PRIDE skills and practice their DPICS coding, they did not have the opportunity to set up a room or conduct a DPICS observation during the training week.

The current study found that neither room set-up nor procedural fidelity were predictive of coding accuracy for the DPICS. It seems that fidelity to the DPICS assessment protocol outlined in the DPICS manual and DPICS coding skill are unrelated. With the current sample, it seems that the technical implementation of the DPICS observation and DPICS coding skills may be acquired and maintained differently. Current literature has found that skill acquisition is an essential focus for training, especially given the finding that assessment errors are often systematic (Erodi, Richard, & Hopwood, 2009). Within the training context, it seems that each skill needs to be assessed separately to ensure trainees are learning each skill thoroughly. Trainee mastery in each area will result in the most accurate assessment, and we cannot rely on one skill set (e.g., coding) to serve as the sole indicator of competency. Currently, the 2009 PCIT Training Guidelines require trainees to demonstrate coding mastery but the guidelines do not prescribe that trainers assess overall competency in the DPICS observation procedure. Based on the findings from the current study, trainers cannot assume that a trainee who is a reliable coder in the 40-hour workshop will necessarily implement the DPICS procedure accurately. The authors recommend that trainers begin to more closely evaluate the relationships between fidelity and coding accuracy with the goal of making future trainings more effective.

More broadly, current literature points to several factors that have been found to moderate the relationship between dissemination and implementation. These factors could be likened to non-specific therapeutic factors that lie outside the direct methods employed by an EBP that differentially affect treatment (David & Montgomery, 2011). First, longer latency from

training to implementation has previously been found to negatively effect implementation of an EST (DiGennaro & Coddington, 2011). The current PCIT Training Guidelines (2009) stipulate that PCIT training has a short shelf-life and suggest trainees have two to three cases lined up to begin the implementation of the PCIT protocol upon their return from training (PCIT International, 2009). The implicit assumption is that DPICS will operate under the same time constraints. The findings in this study did not find a relationship between latency of training and the level of fidelity with which the DPICS was administered. In the current study, it seems that the DPICS assessment is less sensitive to the effect of time than hypothesized. Time between training and case was not found to significantly impact subsequent implementation of the DPICS observation for procedural fidelity or coding accuracy. There are several plausible causes for the lack of significance for the effect of latency on coding accuracy and procedural fidelity. First, the relationship could have failed to reach significance due to the small sample size of the study. Alternately, differences between EBA and EST implementation are understudied in the literature, and the effect of latency could differentially affect the assessment and the treatment components of PCIT. In subsequent research, it will be important to distinguish between the effect of time on assessment and treatment procedures.

The current finding suggests that the training for the DPICS observation has a longer shelf-life than what is assumed to be the case for PCIT therapy skills. If the same were found to hold true for the broader range of procedures in the PCIT protocol, this could give both trainees and supervisors the flexibility to take more time in choosing appropriate cases. This flexibility could allow therapists to select cases best suited for PCIT after their initial training instead of potentially force-fitting clients into an intervention. This could, in turn, promote the retention of trainees in the supervisory process. By placing less emphasis on timing, supervisors could help structure the trainee's first case to promote the best fit between the client and the intervention.

This would promote both better services for the client and result in more initial successes for the trainee first implementing PCIT. A more thorough examination of the specific effects of time on procedural fidelity is warranted to determine whether the observed skill retention is limited to the DPICS assessment procedure or can be extended to include a wider range of session procedures in PCIT.

Conversely, a significant relationship emerged for improved room set-up fidelity as time from training increased. This could be the result of practice effects or modified behavior resulting from supervisory feedback. The PCIT Training Guidelines (2009) mandate supervision at least once per month by a trainer through the completion of two cases to become PCIT certified. Thus, improved room set-up fidelity could be a reflection of trainee practice effects or a product of the intensive supervision process. The data for this sample supports the importance of close supervision and feedback, based on the improvement of room set-up fidelity over time. Improving room set-up fidelity will help to enhance the standardization of the DPICS assessment. For example, trainees struggled with the use of recommended toys displayed as outlined in the manual (41% on the table and 32% on the floor). The standardized use of toys gives the DPICS assessment consistency between dyads and clinics, and it is unclear whether deviation from the outlined room set-up and toys provided could negatively impact the integrity of the data obtained from DPICS observations during treatment. Practice effects and the role of the feedback process should be further examined in subsequent research.

The results of this study suggest that specific therapist variables could be less influential in training than previously thought. Degree type and therapist ratings of self-efficacy emerged as non-significant in the current study. Notably, one therapist variable emerged as a significant predictor in the model. Room set-up fidelity was inversely related to client hours per week with clients, revealing that room set-up fidelity suffers as number of client hours per week increases.

Anecdotally, several trainees have discussed the difficulty inherent in setting up the room according to the DPICS protocol because of the demands already placed on their time and short breaks between clients. Additionally, the room is supposed to be void of any excess furniture, which can be difficult to accommodate if the room houses a couch or bookshelves. It could be that therapists who see more clients have less time and resources available between sessions and have less of an opportunity to set up the room according to protocol. Agency buy-in has also been discussed as a relevant factor in the implementation of a standardized procedure and should be further explored as a predictive factor for implementation (Aarons, Hurlburt, & Horwitz, 2011; Colquitt, LePine, & Noe, 2000). Trainees may be unable to set up the room as outlined in the DPICS manual if the agency is limited in resources, does not have a room designated for PCIT, or if the agency fails to prioritize fidelity to EBPs as an important component of best-practice interventions.

Although therapist characteristics were, for the most part, not predictive of DPICS fidelity, previous research finding these links addressed therapist fidelity to treatment protocol rather than to assessment protocol. For example, a study conducted by Durklak and DuPre (2008) found a significant effect for therapist ratings of self-efficacy in predicting fidelity to an EBP treatment package, and Herschell et al. (2009) found a significant effect for achieving CDI mastery between degree types. Specific therapist variables may be less influential when following an assessment protocol, in that a reliable, valid assessment instrument should limit most additional individual variability introduced. Additionally, more information is needed about the interaction between therapist characteristics and work environment. Colquitt, LePine, and Noe (2000) found that while therapist characteristics were important to skill acquisition in training, motivation to learn and situational characteristics of the work environment were also

influential on skill acquisition during training. Further exploration of trainees' motivation to learn should be explored for its relevance to skill acquisition in PCIT trainings.

Client hours per week did not emerge as a significant predictor of either coding accuracy or procedural fidelity. This is encouraging, given the negative relationship found for room set-up fidelity and increased client hours per week. It seems that therapists who are more time-restricted are placing more emphasis on maintaining the active components of the DPICS assessment such as coding accuracy and procedural fidelity. A strength of the current study is the finding that the DPICS assessment is being implemented with acceptable levels of fidelity to the active ingredients of the DPICS assessment, such as adherence to the outlined prompts and coding procedures, despite case load.

A focus on procedural fidelity and coding accuracy should yield the most accurate assessment data for PCIT clients and aid in decision-making when planning treatment. However, the timing of prompts was problematic, despite the sample's overall good level of performance on the domains assessed. Examination of Table 4 reveals that the timing of segments was an area of relative weakness in the current study, with less than 70% of trainees (range: 40 – 62%) demonstrating accuracy for timing on any segment (CDI WU, CDI, PDI WU, PDI, or CU). Inaccurate timing could result in an over- or under-inflation of certain codes and also thereby affect coding accuracy; however, inaccurate timing had a minimal effect on the coding accuracy of the current study because coders only coded for the same time period as the trainee (for example, if the trainee only coded for four minutes, the reliability coders coded for four minutes as well). More broadly, conducting an assessment for the proper length of time is an area of importance in that there is potential for over- or under-prediction of codes and future study may well address the timing of segments during a standardized behavior observation. .

Bellg et al. (2004) identified four considerations for monitoring and improving training, which included: standardized training procedures, ensuring trainee skill acquisition, creating strategies to minimize “drift” in skills, and accommodating trainee differences. These considerations highlight the next important steps for the dissemination efforts needed for PCIT. The institution of a standardized training procedure would help ensure that all PCIT-trained therapists are implementing the intervention as outlined, and that all trainers are addressing the same essential components during training. More research related to the current training efforts and levels of community implementation will help bolster trainee skill acquisition and streamline the training process. The dissemination of PCIT is in its infancy, and research examining skill acquisition and retention are crucial next steps for furthering these efforts. Lastly, Bellg et al. (2004) recommend accommodating trainee differences, but based on these findings, tailoring training to specific therapist characteristics for the DPICS assessment could be unnecessary and potentially take time away from training techniques of greater importance. A greater understanding of relevant training factors for community dissemination will help to standardize and streamline further training efforts.

Limitations

Though this study is an important first step in examining dissemination of the DPICS observation and assessment aspect driving PCIT, it is difficult to interpret the findings of the current study within the broader context of existing literature because the research in this area is extremely limited. To date, most research examines the dissemination and implementation of EBPs and does not examine the assessment procedures within the treatment package. The function of treatment sessions and assessment are different and may work within different frameworks and mechanisms. It is difficult to distinguish between the current findings and those

of other studies in the literature because of this critical difference in the research questions examined.

Secondly, the sample size for the study is a limitation. The limitation of sample size is a recurrent theme in research examining EBP dissemination, given the limits on training time and resources that necessitate small training cohorts. Often, training cohorts are limited to between six and eight trainees because of the time and resources required to provide the supervision needed to complete two PCIT cases. Herschell et al. (2010) cited the current paucity of research relating to the trainee's role in dissemination of EBPP a "missed opportunity." The current study is no exception in that the sample size is quite small and a clear limitation of our investigation.

Additionally, there is some self-selection in the trainees included in the study. The videos included in the current study represent 16 of the 34 individuals who participated in the initial 40-hour workshop. Trainees that were not included in the study failed to send in videos, codes, or maintain PCIT clients after the training. Thus, the trainees included in the study were especially motivated during the training process and may not fully represent the body of therapists trained in the initial 40-hour workshop both at our training site and other training sites within the PCIT community. As a result, our findings with regard to DPICS fidelity and coding accuracy may not be representative of the larger community practicing PCIT.

The current study also includes multiple videos from some trainees. This nesting effect was accounted for statistically, but it is difficult to tease apart practice effects or modified performance resulting from supervisory feedback. As some trainees submitted more than one work sample, it is possible that some received supervision between cases and that some did not. Anecdotally, some trainees would send in multiple DPICS observations at once, but some sent in one, received feedback, and then sent in a later case. Thus, simple practice effects or feedback could have affected subsequent performance on DPICS fidelity.

Lastly, generalizability for the study is limited. Because there is no standardized PCIT training procedure, it is possible that DPICS is differentially emphasized across trainers. For example, the trainings included in the current study placed a heavy emphasis on DPICS coding, and this could result in more familiarity with the DPICS than would be observed at other training sites. Different training methods across sites prevent direct comparison of the findings from this study to others examining the dissemination of PCIT. In the future it will be important for PCIT International to develop standard training materials to help prevent “drift” in the coverage of the essential components of PCIT between trainers.

The current literature focuses on the dissemination and implementation of therapy, but very little is known about the relationship between therapist characteristics and the dissemination of EBAs. This paucity results in generalizations from the treatment dissemination literature to factors relevant to the dissemination of EBAs. The current study lays the groundwork for moving towards a better understanding of fidelity to the DPICS assessment within the PCIT model. This study provides information on how the DPICS assessment is being implemented in the community by one sample of trainees and speaks to the current practice of trained, practicing clinicians new to the PCIT model with a range of experience implementing clinical service and EBPs.

Future Directions

Future research should examine how the level of therapist buy-in is related to EBP implementation. A better understanding of the theory and practice of PCIT before training might increase training motivation and retention. The addition of a readiness to begin training measure could be helpful when therapists are preparing to receive PCIT training. This checklist could assess components of the work environment (such as resources and support for EBPs generally) as well as commitment and model buy-in on the part of the trainee specifically for PCIT. This

could help reduce training attrition rates and ensure a good fit for the PCIT model in practice. Also, increased emphasis on the resources needed to implement PCIT and the DPICS observation (e.g., toys, bug-in-the-ear, adjoining observation rooms) could help ensure better preparedness on the part of both the trainee and their centers to begin implementing PCIT after training.

Once trainees are assessed for model fit, an emphasis on the importance of assessment should begin in training. Several studies have found improved outcomes when treatments are delivered with fidelity, and that training and supervision play an integral role in promoting these improved outcomes (Durklak and DuPre, 2008; Vismara et al., 2007). All aspects of the DPICS assessment (room set-up, procedure, and coding accuracy) should be continuously and systematically emphasized in trainings, in the DPICS manual, and in the PCIT protocol in order to ensure that PCIT is implemented as intended.

Though the data in the current study failed to support improved outcomes for higher levels of coding accuracy based on fidelity, our methods examined only the first segment (CLP) of the first DPICS assessment submitted by trainees and did not include an examination of appropriate progression through treatment based on trainee DPICS coding. Tracking coding accuracy and fidelity across treatment sessions would enhance our understanding of how fidelity plays out in treatment. A future study could assess drift from the outlined DPICS assessment procedure and how this drift might negatively impact treatment planning and progression. The authors would predict a relationship between assessment fidelity and appropriate movement through treatment, as designated in the PCIT manual.

While the average of 72.6% for procedural fidelity is close to the proposed field standard, we suggest that PCIT trainers consider further steps that might be taken to increase DPICS fidelity to at least 80%. The inclusion of a photograph or video pan to show the room set-up

taken before the DPICS assessment is a simple, low-cost way to assess room set-up and would provide trainers with the opportunity to give specific suggestions for improvement. Additionally, having the therapist submit a checklist like the one used in the current study along with their coding sheet could highlight the steps for the therapist in-session and prevent implementing the assessment incorrectly.

Additional recommendations are that trainers require that trainees meet 80% fidelity to the DPICS procedure in their first work sample and track progress across sessions. It might be helpful to provide remedial modules for trainees who fall below the 80% cutoff and require the maintenance and demonstration of these skills to achieve certification. This study would support the inclusion of the extended fidelity checklists used in the current study to both the DPICS manual and PCIT protocol. Currently, the PCIT protocol includes a “Treatment integrity checklist for pre-treatment assessment” checklist; however, this list contains only one item for room set-up and four items for procedural fidelity, as opposed to the respective six and 19 items in the checklist included in this study. As PCIT continues to grow and spread into the community, more detailed outlines and specified procedures will necessitate inclusion in the manual and protocol to ensure equal implementation across providers. The inclusion of more comprehensive checklists would be a helpful, low-cost addition to the next manual and protocol that may result in a large impact for the implementation of the DPICS assessment.

Future efforts should be focused on greater understanding of the relationship of skill acquisition to the implementation of EBAs. Specifically, a better understanding of therapist factors relevant to the implementation of the DPICS procedure is needed to optimize limited time for training and supervision. The next steps beneficial to understanding the role of fidelity in PCIT would be to track DPICS coding accuracy during all sessions implemented with a family relative to the fidelity with which the sessions were implemented.

There is a caveat, however, to the call to increased focus on fidelity. Henggeler et. al, (2002) found that there could be a detrimental effect for fidelity and client rapport if fidelity to a therapy protocol is over-emphasized in supervision. The DPICS assessment happens within the first couple of sessions with families, and it should be emphasized before and during those feedback sessions. Fidelity will be important to monitor throughout treatment, but it is important not to miss the forest for the trees. For example, room set-up could become a lower priority in supervision if the trainee is implementing the full DPICS assessment at the beginning of every session. The Henggeler et al. (2002) study highlights the importance of balancing clinical judgment, rapport-building, and case conceptualization with high-quality intervention implementation.

The DPICS assessment is a strong model for assessment procedures that align with Achenbach's 1995 paradigm. It uses standardized procedures to yield reliable, empirical data. It utilizes various methods and informants to produce a well defined clinical picture across people and contexts by using various methodologies (paper and pencil measures and an ABO) and raters (therapist, parents, and, if indicated, teachers). It is based on normative groups and relies on operationally defined constructs (Bessmer, 1998; Foote, 2000). The DPICS is an ideal paradigm through which to study the dissemination of EBA. As the model reflects the current best practice of assessment methodologies, it is an appropriate platform for further research examining dissemination and implementation of an EBA procedure into the community. The current study demonstrates that novice trainees are, for the most part, implementing the standardized DPICS assessment protocol with fidelity in the community. This translates into best-practice clinical care and provides interpretable results from which to base clinical intervention throughout the duration of PCIT, which should ultimately result in optimal outcomes for the parents and children being served by PCIT therapists - locally, nationally, and internationally.

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Appendix

Table 1*Trainee Demographics*

Mean age	39.1 years (<i>SD</i> = 9.4)
Hours worked per week	40.5 hours (<i>SD</i> = 7.9)
Hours of client contact	17.7 hours (<i>SD</i> = 10.3)
Years of experience with children and families	12.15 years (range: 3 – 31)

<i>Characteristic</i>	<i>Response</i>	<i>n</i>	<i>Percent</i>
Gender	Female	27	87%
	Male	4	
Ethnicity	White/Caucasian	21	67.70%
	Asian	8	25.80%
	Black/African American	2	6.50%
Work Setting	Hospital or medical center	11	36%
	Child advocacy center	9	29%
	Counseling center	8	26%
	Private practice	1	3%
	Other	2	7%
Degree Type	Masters	11	36%
	Masters of Social Work	10	32%
	PhD.	6	19%
	Bachelor's degree	3	10%

Table 2*List of Hypotheses*

Hypothesis 1	Descriptive: Room and Procedural fidelity	n = 34
Hypothesis 2	Does procedural fidelity predict coding accuracy	n = 29
Hypothesis 3	Does the time from training predict fidelity	n = 34
Hypothesis 4	Do therapist characteristics (demographics, survey score) predict overall DPICS fidelity	n = 16

Table 3

Average Fidelity for DPICS Room Set-up

Criteria	Percent Correct
Child-sized table	79.41
Child-sized chairs	60
Time out chair facing the corner	5.88
No extraneous furniture	14.29
Two sets of toys spread on the table	41.18
Three sets of toys spread in the floor	32.26

Table 4*Average Fidelity for DPICS Procedure*

Criteria	Percent Correct
CLP Warm-Up Prompt	80.00
Signal Given/Verbatim	68.57
5-minute CLP Warm-UP	57.14
CLP Prompt	91.43
Signal Given/Verbatim	82.86
5-minute CLP	62.86
Coded CLP	65.71
PLP Warm-Up Prompt	97.14
Signal Given/Verbatim	77.14
5-minute PLP Warm-Up	54.29
PLP Prompt	91.43
Signal Given/Verbatim	82.86
5-minute PLP	54.29
Coded PLP	65.71
Clean Up Prompt	88.57
Signal Given/Verbatim	77.14
5-minute Clean Up	40.00
Coded Clean Up	60.00
25-minute Observation	68.57

Table 5

HLM Model Hypotheses 2 and 3

Variables	<i>z</i>	<i>p</i>
RS Fidelity	-0.16	0.87
Proc Fidelity	0.84	0.40
Latency	-1.32	0.19

Appendix A

Demographic Questionnaire

Trainee Background Information (circle all that apply)

Age: _____

Eclectic or Integrative

Gender: Male

Female

Race/Ethnicity: American Indian or Alaska Native
Asian
Black or African American
Hispanic or Latino
Native Hawaiian or Other Pacific Islander
White or Caucasian

Place of Employment:

Advocacy Center
Counseling Center
Hospital
Private Practice
Other: _____

Year highest degree was completed: _____

Education: M.A. or M.S.
MSW
PsyD
PhD
Other: _____

Counseling or theoretical orientation:

Cognitive
Behavioral
Cognitive-Behavioral
Psychodynamic
Humanistic-Existential
Systemic
Solution-Focused
Gestalt

Other: _____

I don't know

Hours worked per week (on average): _____

Hours per week with direct client contact: _____

Years of experience working with children and/or families: _____

Number of years in current position: _____

Number of courses taken to learn about parent training: _____

1. Have you ever administered a structured behavior observation with parents, children, or couples?

Yes

No

If so, please provide the name of the observation or describe the procedure:

2. Have you ever used a manualized treatment (e.g. DBT, TF-CBT, Coping Cat, Incredible Years, etc.) ?

Yes

No

If so, please provide the name of the treatment(s):

3. Have you used PCIT previously?

Yes

No

If so, how many of your clients have completed the protocol? _____

4. Have you previously received formal training in PCIT ?

Yes

No

If so, please list approximate dates of training, training location, and the name(s) of your trainer(s)?

Appendix B

1. Regarding my competency in using the assessments that guide PCIT and evaluate treatment outcomes, I feel:

Very Uncomfortable	Somewhat Uncomfortable	Neutral	Somewhat comfortable	Very comfortable
1	2	3	4	5

2. Regarding my knowledge of the uses of assessment in guiding PCIT, I feel:

Not Very Knowledgeable	Somewhat Knowledgeable	Very Knowledgeable
1	2	3

3. Regarding my knowledge of the four common assessments used in PCIT, I feel:

Not Very Knowledgeable	Somewhat Knowledgeable	Very Knowledgeable
1	2	3

4. Regarding my ability to score and interpret the common assessment methods used in PCIT, I feel:

Not Very Knowledgeable	Somewhat Knowledgeable	Very Knowledgeable
1	2	3

5. Regarding the DPICS III codes, I feel:

Not Very Knowledgeable	Somewhat Knowledgeable	Very Knowledgeable
1	2	3

Appendix C

PCIT Training Guidelines (2009)

Training Guidelines for Parent-Child Interaction Therapy

These guidelines were developed by the PCIT Training Committee, a subcommittee of the National PCIT Advisory Board made up of expert PCIT trainers. The “PCIT Guidelines” is a living document that will evolve as new research arises in intervention, training and dissemination. At this time, the Guidelines reflect what is considered to be the *minimum* training necessary to develop competence as a PCIT therapist.

What is PCIT?

PCIT is a behavioral family intervention for children 2-7 years of age with disruptive behavior disorders. It has been identified as a best practice for physically abusive parents. Developed by Sheila Eyberg at the University of Florida, PCIT integrates concepts from social learning theory, traditional play therapy, and attachment theory to enhance the parent-child relationship, increase children’s pro-social behaviors, and increase parents’ behavior management skills. The program is implemented in two phases: The first phase is the Child Directed Interaction (CDI) phase during which parents develop child-centered interaction skills. The second phase is the Parent-Directed Interaction (PDI) phase during which effective discipline skills are the focus.

PCIT gives equal attention to the development of the parent-child relationship and the development of parents’ behavior management skills. Because parent-child interactions in families with conduct-disordered children are frequently negative and coercive in nature, a critical goal of PCIT is to increase positive, nurturing interactions. PCIT includes the child in treatment, both in session and during daily homework assignments. In contrast to the traditional

approach to parent training that focuses on didactic and role play, parents in PCIT rehearse new skills weekly in session through live interactions with their children. This active practice facilitates skill development and allows therapists to conduct ongoing assessments of parents' progress. In addition, it provides the opportunity for live-coaching by the therapist. During parent-child interactions, immediate feedback is given by the therapist from an observation room, while the parent wears a radio frequency earphone. Therapists use behavioral principles such as modeling, reinforcement, and selective attending in their coaching to shape the parents' behaviors. The use of live coaching and immediate feedback is key to PCIT. Therapists directly observe parents' behaviors and can modify them as they occur.

To understand the PCIT Training Guidelines, one should first be aware of the core components that define Parent-Child Interaction Therapy. Core components of PCIT include...

- Use of standardized assessment instruments to guide treatment (e.g., Eyberg Child Behavior Inventory, Dyadic Parent-Child Interaction Coding System-III)
- Inclusion of both the Child Directed Interaction and Parent Directed Interaction phases of treatment
- Coaching of parents in live interactions with their children for the majority of non-didactic sessions
- Coding of parent-child interactions almost every coaching session
- Assignment of homework between sessions

I. Workshop training for practitioners

A. Agency and clinician entry requirements

- Trainee must have a master's degree or higher in the mental health field and must be actively working with children and families.*
- Trainee must be licensed in his or her field *or* receive supervision from a licensed individual trained in PCIT.
- Trainee's agency must provide appropriate space and equipment for conducting PCIT. Appropriate space includes a stripped therapy room, a separate observation room with either two-way mirror or video monitoring, and a communication system that allows the therapist to speak in real time to the parent during parent-child interaction.
- Trainee's agency must serve a population of clients within the age range for PCIT services; and must allow time for trainees to participate in ongoing training and consultation. (See *V. Recommendations for Optimal Training* below for further discussion.)

B. Training requirements

- **40-hours of face-to-face contact with a PCIT trainer** that includes an overview of the theoretical foundations of PCIT, coding practice, case observations, and guided coaching with families, with a focus on mastery of CDI and PDI skills and coaching.
- **Advanced live training** with real cases approximately 2-6 months after the initial training that focuses on refining coaching skills, addressing complex treatment issues, and a check-off on coaching criteria (See criteria below).
- **Case Experience:** The trainee must treat a minimum of two PCIT cases to completion as primary therapist or co-therapist. Until the two PCIT cases are completed, trainees must remain in regular contact (i.e., recommended weekly, but no less than monthly)—via telephone, live observation, or tape review—with a PCIT trainer. This tends to be a year.

- **Skill review** – Trainees must have their treatment reviewed by a PCIT trainer. Review can be conducted through videotapes, live observation, or online/telemedicine system. To check skill development, trainers must review the following sessions conducted by the trainee: 1) CDI Didactic, 2) PDI Didactic, 3) CDI coaching (ideally the first CDI coaching session), and 4) PDI coaching (ideally the first PDI coaching session).

C. Skill Requirements

Assessment (Pretreatment, Posttreatment, Weekly)

By the end of the training process, a trainee should be able to...

- Administer, score, and interpret the required standardized measures for use in assessment and treatment planning (Required measures: ECBI, DPICS-III; Recommended measures: PSI-SF, BASC or CBCL, SESBI).
- Administer and reliably code DPICS-III Abridged behavioral observations.

DPICS-III Abridged Coding

By the end of the training process, a trainee should be able to...

- Achieve a minimum of 80% reliability with a PCIT trainer in five minutes of live coding or in continuous coding with a criteria tape. Reliability checks of live coding will be conducted, with additional training scheduled as needed.

CDI-Related Therapist Skills

By the end of the training process, a trainee should be able to...

- Present the CDI didactic, adequately explaining all non-optional items on the treatment integrity checklist in the PCIT manual by Eyberg as observed by the trainer.

- Meet the parent criteria for CDI skills (10 labeled praise, 10 behavioral descriptions, 10 reflections; 3 or fewer negative talk, questions, and commands) in a 5-minute interaction with child or 5-minute role play.
- Use the session by session CDI coded information (i.e., DPICS) to guide the coaching session.

PDI-Related Therapist Skills

By the end of the training process, a trainee should be able to...

- Present the PDI didactic, adequately explaining all non-optional items on the treatment integrity checklist in the PCIT manual by Eyberg as observed by the trainer.
- Effectively manage a PDI discipline session and accurately demonstrate the discipline sequence with a client. In the rare case when a full timeout procedure does not occur or cannot be taped, the therapist should demonstrate the skills through a role play.
- Accurately explain the House Rules procedure as described in the PCIT manual by Eyberg. Accuracy can be assessed through role play and does not require observation of a session with an actual client. However, the trainer must observe the role play either live or via tape.
- Accurately explain the Public Behaviors procedure as described in the PCIT manual by Eyberg. Accuracy can be assessed through role play and does not require observation of the session with an actual client. However, the trainer must observe the role play either live or via tape.

Coaching Skills

By the end of the training process, a trainee should be able to...

- Demonstrate adequate and sensitive coaching as observed by the trainer.

General

By the end of the training process, a trainee should be able to...

- Model CDI skills during all interactions with parents and children throughout the course of therapy.
- Demonstrate the ability to structure the opening and closing of sessions (including homework review and assignment; feedback on skills; and general session management and timing).

II. Standards for In-house Trainers of PCIT Therapists

In-house trainers are individuals who have received such PCIT training as to be qualified to teach and supervise staff within their own program or agency. In-house trainers at this level are not considered to have the experience or expertise to conduct large-scale trainings or the training of individuals not under their direct supervision.

A trainer of PCIT should have a demonstrated *history of expertise* in provision of PCIT, PCIT supervision, and PCIT training. Before being considered competent to train others in PCIT, trainers will...

- Meet all therapist-skills criteria above
- Maintain a relationship with their Master Trainer for consultation for a minimum of one year from the time they begin training as trainers. Thereafter, it is recommended that trainers attend at least annual training (e.g., national or regional conference or workshop) to keep their skills and knowledge of PCIT current.
- Complete of *at least 4 PCIT cases* in consultation with a PCIT Master Trainer

- Be observed in the provision of supervision by a PCIT Master Trainer for a minimum of one CDI session and one PDI session. The Master Trainer will provide feedback on the content and style of the novice trainer's supervision.
- Remain active in PCIT service delivery either through a clinical caseload or live supervision of PCIT therapists.

III. Standards for Master Trainers of PCIT

- Master Trainers are individuals responsible for maintaining fidelity of in-house trainers and providing broader dissemination of the PCIT protocol (e.g., nationally and internationally). To be considered a PCIT Master Trainer, individuals must be approved through a process defined by the developer of PCIT, Sheila Eyberg. Contact Dr. Eyberg for more information.

IV. Principles for In-house Trainers of PCIT Therapists for Special Populations

Trainers of PCIT for special populations should...

- Meet all standards for PCIT trainers (section above)
- Provide evidence of extensive experience with the cultural group of interest.
- Not disseminate any changes in PCIT without adequate empirical evidence to support the change.

V. Recommendations for Optimal Training

The following recommendations are provided to describe training situations that approximate the ideal. Based on the experiences of expert PCIT trainers, these recommendations increase the likelihood that agencies will develop and maintain effective PCIT programs.

- A *minimum* of two clinicians within a single agency are trained at one time.

When only one clinician within an agency can be trained, individuals participate in an ongoing PCIT supervision/networking group for long-term support and consultation.

- PCIT programs are clinic-based. If home-based PCIT is offered, it is adjunct to the in-clinic services.
- Because PCIT training has a short “shelf-life”—that is, therapists are likely to lose their new skills if they do not practice them within three weeks of receiving their training—it is recommended that therapists identify two or three families potentially appropriate for PCIT *prior* to receiving training and that therapy is initiated with these families immediately upon completion of the training.
- Weekly supervision is recommended for at least the first month of a case, with contact tapering to not less than monthly through the completion of at least two cases.

VI. Exceptions

- Agency administrators may observe PCIT trainings without participating in the experiential components. However, such observation does not qualify administrators to conduct PCIT or train others.
- Graduate students who are enrolled in a masters or doctorate program in a mental health field (e.g., clinical psychology, counseling, social work) and are receiving PCIT training from a trainer within the context of their program do not have to meet the Clinician Entry Requirements regarding licensure and previous experience.

PCIT Training Committee

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Appendix D

DPICS-III Fidelity Checklist

Room set-up fidelity

Item Number	Yes	No	Could Not See
1. 1 table present in the therapy room			
2. 2 child size chairs present in the therapy room			
3. 1 time-out chair facing the corner in the therapy room			
4. No extraneous furniture present in the therapy room			
5. 2 sets of toys spread out on the table			
6. 3 sets of toys strewn out on the floor			
TOTAL			
Fidelity [(# Yes/ 6) x 100]			

Procedural fidelity

Item Number	Yes	No	Time of Segment (If Applicable)
1. Provided a prompt to begin CLP warm-up			
2. Signal was given to indicate the directions were heard by the parent – OR– if prompt was heard, prompt was given verbatim			
3. Conducted 5-minute CLP warm-up			
4. Provided a prompt to begin CLP			
5. Signal was given to indicate the directions were heard by the parent – OR– if prompt was heard, prompt was given verbatim			
6. Conducted 5-minute CLP observation			
7. Coded CDI skills during CLP observation			
8. Provided a prompt to begin PLP warm-up			
9. Signal was given to indicate the directions were heard by the parent – OR– if prompt was heard, prompt was given verbatim			
10. Conducted 5-minute PLP warm-up			
11. Provided a prompt to begin PLP			
12. Signal was given to indicate the directions were heard by the parent – OR– if prompt was heard, prompt was given verbatim			
13. Conducted 5-minute PLP observation			
14. Coded PDI skills during PLP			
15. Provided a prompt to begin CU			
16. Signal was given to indicate the directions were heard by the parent – OR– if prompt was heard, prompt was given verbatim			
17. Conducted 5-minute CU observation			
18. Coded PDI skills during CU			
19. Video recorded 25-minute DPICS observation			
TOTAL			
Fidelity [(# Yes/ 19) x 100]			