Clin Child Fam Psychol Rev (2014) 17:340–356
DOI 10.1007/s10567-014-0172-4

Extending Parent–Child Interaction Therapy for Early Childhood Internalizing Problems: New Advances for an Overlooked Population

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Published online: 12 September 2014

Abstract Although efficacious psychological treatments for internalizing disorders are now well established for school-aged children, until recently there have regrettably been limited empirical efforts to clarify indicated psychological intervention methods for the treatment of mood and anxiety disorders presenting in early childhood. Young children lack many of the developmental capacities required to effectively participate in established treatments for mood and anxiety problems presenting in older children, making simple downward extensions of these treatments for the management of preschool internalizing problems misguided. In recent years, a number of research groups have successfully adapted and modified parent–child interaction therapy (PCIT), originally developed to treat externalizing problems in young children, to treat various early internalizing problems with a set of neighboring protocols. As in traditional PCIT, these extensions target child symptoms by directly reshaping parent–child interaction patterns associated with the maintenance of symptoms. The present review outlines this emerging set of novel PCIT adaptations and modifications for mood and anxiety problems in young children and reviews preliminary evidence supporting their use. Specifically, we cover (a) PCIT for early separation anxiety disorder; (b) the PCIT-CALM (Coaching Approach behavior and Leading by Modeling) Program for the full range of early anxiety disorders; (c) the group Turtle Program for behavioral inhibition; and (d) the PCIT-ED (Emotional Development) Program for preschool depression. In addition, emerging PCIT-related protocols in need of empirical attention—such as the PCIT-SM (selective mutism) Program for young children with SM—are also considered. Implications of these protocols are discussed with regard to their unique potential to address the clinical needs of young children with internalizing problems. Obstacles to broad dissemination are addressed, and we consider potential solutions, including modular treatment formats and innovative applications of technology.

Keywords PCIT · Parent–child interaction therapy · Child anxiety · Child depression · Selective mutism

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Anxiety disorders affect up to 9 % of preschoolers (Egger and Angold 2006; Lavigne et al. 1996; Wichstrom et al. 2012), and depressive disorders affect up to 2 % of preschoolers (Wichstrom et al. 2012). Rates of these disorders increase across time with roughly 25 % of adolescents suffering from an anxiety disorder and 10 % suffering from a mood disorder in the past year (Kessler et al. 2012), and early onset is associated with more intractable course and poorer outcomes over time (Hammen et al. 2008; Luby et al. 2009; Ramsawh et al. 2011), underscoring the critical need for effective early intervention. When left untreated, anxiety and depressive symptoms in youth are typically associated with disruptions in family functioning, school

attendance, academic performance, and social relationships (Grills and Ollendick 2002; Hopkins et al. 2013; Hughes et al. 2008; Katz et al. 2011). Younger children with early-onset anxiety and depression are particularly vulnerable given the potential for symptom impairments to interfere with a healthy developmental trajectory. When mood and anxiety disorders persist into adulthood, they are associated with increased rates of general medical disorders (Kessler and Greenberg 2002), losses in worker productivity (Kessler and Frank 1997), increased risk of suicide attempts and ideation (e.g., Kessler et al. 1999), considerable role disability (Merikangas et al. 2007), and overall reduced quality of life (Comer et al. 2011), further underscoring the need for effective early intervention.

In response to the considerable public health burden of untreated mood and anxiety disorders in youth, over the past two decades researchers have developed a host of treatments for anxiety and mood disorders presenting in middle childhood and adolescence that have shown tremendous utility across a number of rigorous clinical trials (e.g., David-Ferdon and Kaslow 2008; Franklin et al. 2011; Kendall et al. 2008; Mufson et al. 1999; Ollendick et al. 2009; Silverman et al. 2008; Walkup et al. 2008). However, the vast majority of such trials exclude younger child populations, and so historically, we have been left with limited evidence with which to inform the appropriate treatment of early signs of internalizing problems.

The historically limited focus in the empirical literature on treating internalizing disorders in very young children may be due, in part, to the fact that supported methods for older children rely heavily on strategies and tasks that are beyond the developmental capacities of younger children, and so simply training providers to apply treatments designed for older children to address the clinical needs of younger children is misguided. For example, the restricted metacognitive abilities and receptive and expressive language abilities typical in early childhood (Flavell et al. 1998, 2000; Smith and Hudson 2013) may preclude young children from effectively engaging in many treatment elements supported with older populations, such as thought monitoring, cognitive restructuring, and mood identification. Treatment activities in which children reflect on how others might perceive situations differently require theory of mind skills and perspective-taking abilities that are not present at earlier developmental stages (Flavell et al. 2001). The limited executive functioning, restricted attention, and poor organizational skills that characterize early childhood limit the extent to which one can assign young children homework tasks, which are a key component of effective treatments for internalizing symptoms in older children (Kendall and Barmish 2007).

Moreover, preschool-aged children are substantially more reliant on their parents for basic life skills and emotional support. Young children are also susceptible to their parents' biases toward certain negative stimuli during key processes of family emotion socialization. Research has demonstrated that anxious parents demonstrate heightened response to threat-related stimuli when such stimuli relate to their child (Cartwright-Hatton et al. 2013; Lester et al. 2012), suggesting that parents with biases toward negative appraisals of certain situations may inadvertently teach their children what to be anxious about or avoidant of. Therefore, treatments for this young age group require more parental involvement than is typically required of treatments designed for older children where treatment goals may even center on training youth to be independent observers and change agents.

Recently, a small handful of research groups have begun examining developmentally sensitive downward extensions of treatments supported for use with older youth presenting with mood and anxiety disorders (e.g., Freeman et al. 2008; Hirshfeld-Becker et al. 2010; Rapee et al. 2010). Importantly, adaptations associated with many of these downward extensions include, but are not limited to, a greater emphasis on the role of parents in treatment, greater use of concrete language, more tangible learning opportunities and interactive games, and stronger emphasis placed on reward systems. These adaptations enable young children to retain a direct role in treatment, but they also emphasize parenting practices associated with the maintenance of child symptoms and parent-guided homework practice outside of session.

Downward extensions retain the content of treatments shown to work with older children with similar conditions but adjust the format of treatment delivery and treatment activities in order to foster developmental compatibility with younger populations. For example, in Freeman and colleagues' downward extension of cognitive-behavioral therapy centering on exposure and response prevention for young children with OCD (Freeman and Garcia 2008), preschoolers with OCD are taught to resist compulsions just as are children and adolescents in supported OCD treatment for older children (March and Mulle 1998), but parents are more explicitly incorporated into treatment and homework assignments, and young children are taught to resist the "worry bully" that is trying to "trick" them into engaging in compulsions through practice with worry bully puppets.

In the treatment of early internalizing disorders, downward extensions of approaches found to work with older patients affected by the same diagnostic conditions (i.e., mood and anxiety disorders) have begun to show support (e.g., Freeman et al. 2008; Hirshfeld-Becker et al. 2010; Rapee et al. 2010). In recent years, there has also been a wave of exciting developmentally lateral extensions of methods found to work with other diagnostic conditions

(i.e., non-internalizing problems) in the same age group—e.g., Cartwright-Hatton et al. (2011) and Waters et al. (2009) promising parent-only group interventions for early child anxiety. Developmentally lateral extensions retain the format and methods of treatments shown to work with similarly aged children with different presenting conditions, but adjust the content of treatment in order to address the targeted clinical population. A strength of this approach is that the developmental compatibility of the treatment format with younger populations is assured.

Downward extensions of mood and anxiety disorder treatments for young child populations have been well articulated elsewhere (Freeman et al. 2008; Hirshfeld-Becker et al. 2010). The present paper reviews a recent set of developmentally lateral extensions of evidence-based practices for the treatment of early internalizing problems. Specifically, in recent years, a number of research groups have successfully adapted and modified parent–child interaction therapy (PCIT), originally developed to treat externalizing problems in young children, to treat various early mood and anxiety problems with a set of neighboring protocols. As in traditional PCIT, these extensions target child symptoms by reshaping parent–child interaction patterns associated with the maintenance of child symptoms and do so through the use of live and unobtrusive parent coaching delivered through a bug-in-the-ear receiver from a therapist situated behind a one-way mirror. This review outlines this emerging set of novel PCIT adaptations and modifications for mood and anxiety problems in young children and reviews the preliminary evidence supporting their use. Specifically, we cover (a) PCIT for early separation anxiety disorder; (b) the PCIT-CALM (Coaching Approach behavior and Leading by Modeling) Program for the full range of early anxiety disorders; (c) the group Turtle Program for behavioral inhibition; and (d) the PCIT-ED (Emotional Development) Program for preschool depression. But first, we begin with a brief overview of traditional PCIT as a treatment for early childhood behavior problems and the case for adapting PCIT for the problems of early mood and anxiety problems.

The Case for Adapting PCIT for Early Child Internalizing Problems

Traditional PCIT (Eyberg and Funderburk 2011) is an evidence-based, short-term intervention drawing on attachment theory and social learning theory for children between the ages of two and eight who are, historically, presenting with disruptive behavior problems. Through incorporation of play therapy components into behavioral parent training, PCIT targets young children's problematic behavior by modifying parental behavior and dyadic interactions between parents and children. Given that young children typically lack sufficient cognitive abilities to systematically identify and change problem behaviors, PCIT focuses on reshaping the primary context within which young children's development unfolds (i.e., interactions between parent and child) rather than engaging children directly.

Similar to other parent training protocols, PCIT emphasizes improved communication, positive attention, problem solving, consistency, and parental follow-through in family interactions. A distinguishing feature of PCIT is the regular use of individualized live parent coaching via a bug-in-the-ear receiver from a therapist who monitors family interactions from an observation room. The first phase of traditional PCIT—Child Directed Interaction (CDI)—focuses on strengthening a mutually rewarding and positive parent–child relationship, during which time parents learn to selectively attend to a child's behavior to increase the frequency of positive behaviors. Specifically, parents learn to more effectively praise desired behavior and ignore undesired behavior, as well as receive incidental teaching to reinforce spontaneous positive child behavior. After parents demonstrate mastery of CDI skills, families enter the Parent Directed Interaction (PDI) phase of treatment, which focuses on effective instruction giving and the consistent use of discipline, particularly "time out" procedures.

Empirical work demonstrates that PCIT is associated with considerable improvements in child disruptive behaviors and parental distress, and can increase parental confidence in the ability to manage difficult child behaviors (Abrahamse et al. 2012; Hood and Eyberg 2003; Nixon et al. 2003, 2004; Schuhmann et al. 1998). Related work also shows PCIT and its adaptations are associated with considerable gains in externalizing problems associated with autism (Solomon et al. 2008), premature birth (Bagner et al. 2010), mental retardation (Bagner and Eyberg 2007), and child maltreatment (Chaffin and Silovsky 2004).

Although PCIT was originally developed to treat externalizing problems in young children, researchers are increasingly finding that adapted PCIT can also offer tremendous clinical benefit to families of young children with internalizing problems. Moreover, the reality of comorbid externalizing and internalizing disorders among 30–40 % of child clinical samples (Tannock 2009) suggests that children presenting for anxiety or depression treatment may also very well experience interference and distress related to an externalizing disorder that would warrant indication for PCIT or a related behavioral parent-based intervention. For such complex presentations that constitute a meaningful proportion of community cases, it can be difficult to determine whether internalizing or externalizing problems are primary or whether a more transdiagnostic treatment approach could parsimoniously address seemingly heterotypic comorbid presentations.

Researchers have pursued developmentally lateral extensions of PCIT for early internalizing problems for a number of reasons. First, as noted earlier, whereas supported programs for internalizing problems for older youth have garnered considerable empirical support, these programs rely heavily on cognitive strategies that are beyond the developmental capacities characteristic of younger child populations. Supported programs for older youth can only be downward extended to a certain extent to younger populations, whereas PCIT offers a developmentally compatible fit with the competencies of early child populations.

Second, parents of young children with anxiety and depression are often inadvertently involved in the maintenance of their child's symptoms. That is, parents' attention to their child's avoidant or withdrawn behaviors (e.g., crying, whining, clinging, and behavioral avoidance) can inadvertently reinforce such behaviors (Settipani et al. 2013; Thompson-Hollands et al. 2014). For example, a child may receive parental attention when she is throwing a tantrum about separating from her mother to go to school (i.e., mother providing excessive reassurances of child's security, mother raising voice and making threats such as loss of privileges if child does not separate, parent bribing child to separate), but her positive behavior may go unrecognized on the days she can separate from her mother without incident. PCIT specifically targets parent–child interaction patterns characterized by negative reinforcement cycles and works to give parents' tools to selectively ignore unwanted child displays so as to extinguish maladaptive patterns and to positively attend to desired child displays so as to increase their frequency. Moreover, research shows that negative reinforcement cycles between parents and their anxious children can be due to co-presentations of irritability and rage among anxious children (Storch et al. 2010, 2012).

Third, recent research suggests that community parents of anxious youth are more likely to seek treatment for behavior problems even when their child is presenting with both anxiety and behavior problems (Mian et al., under review), suggesting that community parents may be more motivated to work to minimize child tantrums and difficult behavior problems even if the etiology of such problems lies in anxiety-specific issues. This is particularly important given research showing that matching service provision with parent preferences predicts subsequent engagement and utilization of those services in clinical settings (Bannon and McKay 2005). As such, family engagement in treatment for early child anxiety may be improved if, in addition to teaching parents how to help children confront new situations, treatment also focuses on improving positive parent–child relationships and increasing child compliance in stressful situations. Adaptations of PCIT can offer parents the opportunity to master PDI in the context of any tantrum and equip them to consistently manage any problem behaviors that occur, regardless of whether their function lies in anxiety or more traditional oppositional non-compliance.

Moreover, it is not clear whether standard PCIT without an emotion-specific module is effective for early internalizing problems, as the only existing work evaluating standard PCIT for anxiety did not yield clinically significant anxiety-related outcomes (Pincus et al. 2005). Pincus et al. (2008) found that parents who completed a trial of modified PCIT for separation anxiety disorder reported feeling better equipped to handle tantrums when they occurred because they experienced less of their own anxiety in response to trying to determine whether the child's distress was due to anxiety or anxiety-free misbehavior.

Fourth, a parenting-based approach may be particularly useful for young child internalizing problems, given research demonstrating that certain parenting styles and behaviors are intricately linked with child anxiety (Hudson et al. 2008; McLeod et al. 2007; van Oort et al. 2011; Waters et al. 2012) and depression (Piko and Balazs 2012) just as certain parenting styles and behaviors are intricately linked with disruptive behaviors in young children (Baumrind and Black 1967; Granic and Patterson 2006; Querido et al. 2002; Webster-Stratton and Hammond 1999). In particular, a parenting style characterized by hostility and cold and rejecting tendencies has been associated with childhood depression (McLeod et al. 2007). As PCIT directly identifies and targets maladaptive patterns and inconsistent discipline seen among parents with a cold and rejecting parenting style in the context of disruptive child behaviors, PCIT may also provide similar utility to parents of depressed children. Moreover, the intrusive, overprotective, and controlling behaviors observed in parents of anxious youth that can serve to deny children important and developmentally appropriate autonomy opportunities (see Cooper-Vince et al. 2013; Hudson et al. 2008; Lebowitz et al. 2013; McLeod et al. 2007) may be well suited for parent training approaches that incorporate live coaching during naturalistic parent–child interactions (see Puliafico et al. 2013).

Fifth, there is evidence that parents' own psychopathology can encroach upon their ability to implement child anxiety treatment with fidelity (Creswell et al. 2013). Parents with poor distress tolerance may have difficulties tolerating their child's distress, particularly during exposure or behavioral activation tasks that intentionally take children out of their comfort zones. PCIT is relatively unique in that its format allows the clinician to directly coach parents in real time from behind a one-way mirror. This unobtrusive, in vivo feedback can allow the clinician to coach parents through their own distress, and systematically work to increase the parent's ability to tolerate their own and their child's states of negative affect.

Sixth, PCIT is developmentally sensitive to the reinforcements of young children and recognizes that young children are more motivated by social rewards, such as special play time with their parents and receiving praise and attention, than by tangible rewards. Given the central role of reinforcement in effective treatment of child anxiety and depression, PCIT's emphasis on increasing parents' ability to use their attention strategically with their children may be a particular advantage of a PCIT-based approach to treating early child internalizing problems.

Finally, a growing body of literature suggests that parents of anxious (Silverman et al. 2009) and depressed children (Rengasamy et al. 2013) often experience strained relationships with their children due to conflict over the child's symptoms. Whereas PCIT directly addresses reparation of strained parent–child relationships in the CDI phase of treatment, established psychosocial treatments for internalizing disorders in older youth are largely symptom-focused and do not work to improve parent–child relations more broadly.

PCIT Adaptations for Early Internalizing Problems

For the above reasons, in recent years, there has been a wave of clinical efforts to extend PCIT for early internalizing problems. We now turn our attention to the four efforts that have been the most systematic and have received the most support.

PCIT for Separation Anxiety Disorder

Separation anxiety disorder (SAD) is one of the most common anxiety disorders in young children, affecting 4–8 % of children (Bufferd et al. 2012; Kessler et al. 2012) and 1–3 % of preschool-aged youth (Egger et al. 2006). SAD is characterized by persistent and excessive fears of separation from caregivers, behavioral and somatic distress when faced with separation (e.g., crying, tantrums), worries about harm coming to parent or the child herself, and persistent avoidance or attempts to escape from separation situations (e.g., going to school or a friend's house). Symptoms must be present for at least 4 weeks to warrant a diagnosis of SAD, and symptoms must reflect a level of distress around separation that is developmentally inappropriate for the child's age (American Psychiatric Association 2013). For example, it is not uncommon for a 3-year-old to display tears or clinginess upon separation from his parents. If the child were 7 years old, however, and demonstrating daily episodes of clinginess that were interfering with the child's ability to separate from his parents and attend school, the child's difficulties would be considered interfering and developmentally inappropriate relative to the child's peers.

Symptoms of SAD often have a direct impact on the child's parents or other family members, since the child often requires significant support and accommodation from her parents to relieve her anxiety (Lebowitz et al. 2013). Children with SAD may exhibit many negative behaviors during their episodes of separation distress, such as acting disruptively, pleading for parents to stay, whining, crying, or complaining of physical symptoms such as stomachaches or headaches. Parents' reactions to these negative behaviors (e.g., yelling, reassuring, overly attending to distress, and controlling behaviors) may also inadvertently reinforce fearful and avoidant behaviors, just as we see with parents' reactions reinforcing the disruptive behaviors in children who benefit from PCIT. Parents of separation anxious children often exhibit behaviors that actually facilitate the child's anxiety, such as overprotection, excessive reassurance, and permitting the child to avoid situations that make him anxious (e.g., accompanying the child to a birthday party rather than asking the child to try going alone). When parents do not provide these comforting and accommodating behaviors, aversive parent–child interactions may result due to conflict around the child's separation concerns and the realistic demands of the environment (e.g., needs to get the child to school). Furthermore, research suggests that parenting styles that restrict children's developmentally appropriate autonomy are associated with greater child anxiety (McLeod et al. 2007).

The work of Pincus and colleagues was the first to integrate parent–child interaction strategies from PCIT to treat early separation anxiety disorder (Pincus et al. 2005, 2008). Specifically, Pincus and colleagues developed and evaluated an intervention program to treat children ages 4–8 with a diagnosis of SAD. Using a multiple-baseline open trial ($n = 3$), Pincus first examined whether PCIT in its standard form would reduce symptoms of SAD in young children. In this initial trial (Choate et al. 2005), the three participating children experienced reductions in separation anxiety symptoms and disruptive behavior symptoms according to parent report. In a larger open trial ($n = 10$) of children ages 4–8 diagnosed with SAD, parents again reported overall reductions in separation anxiety and increases in appropriate parenting skills (Pincus et al. 2008). However, parents reported that children were still symptomatic overall, and none of the ten children experienced a clinically significant reduction in symptoms; that is, all children still met diagnostic criteria for SAD. The results of this second study were interpreted to indicate that standard PCIT was not sufficient to achieve clinically significant reductions in symptoms of SAD in young children and that an adaptation of standard PCIT may be

necessary to achieve more robust outcomes specific to separation anxiety.

Pincus and colleagues developed and introduced an additional treatment phase into PCIT that specifically promoted the brave behaviors that are typically targeted in established CBT approaches for SAD in older youth, and then evaluated a modified PCIT protocol that included this new phase in a randomized controlled trial (RCT). In their modified PCIT program, a three-session anxiety-focused module (i.e., "Bravery Directed Interaction" or BDI; Choate et al. 2005; Pincus et al. 2008) was inserted between abbreviated three-session formats of CDI and PDI.

Pincus and colleagues' modified PCIT protocol for early separation anxiety was a fixed nine-session protocol. Rather than requiring families to achieve mastery criteria in CDI and PDI—as in standard PCIT—a fixed-length protocol was applied for research purposes, in order to afford a controlled comparison against a fixed-length waitlist condition. Each of the three treatment phases consisted of one teach session and two coach sessions, and CDI and PDI coach sessions were conducted with the traditional parent-worn bug-in-the-ear, live-coaching format. The BDI phase did not include a bug-in-the-ear format and was instead more consistent with traditional CBT for child anxiety in which both the child and his or her parent were in the room with the therapist for the majority of the session. All sessions (both teach and coach) were 60 min long. In the RCT, families were randomized to receive either immediate PCIT (nine sessions over 9 weeks) or a 9-week waitlist condition. Families assigned to the waitlist condition received the adapted PCIT protocol after they completed the 9 weeks of waitlist.

Aside from the absence of mastery criteria for determining the length of CDI, the content of Pincus and colleagues' protocol was consistent with that of traditional PCIT. However, the content of the commands taught and coached in PDI focused largely on giving the child clear instructions related to learning to separate from the parents. This occurred last in sequence of the three different modules so that parents could provide commands that were relevant to the child's anxiety treatment (e.g., for a child afraid of dogs who is refusing to engage in an exposure to a dog, the parent might sit at a table near the dog and give a direct command of, "Please sit next to me"). Therefore, this module was only likely to be effective and consistent with the framework of exposure therapy if the child and parent had received psychoeducation for anxiety and already had the opportunity to complete exposures to feared stimuli before engaging in PDI. The content of BDI consisted of several components. The first component provided parent education regarding the cycle of anxiety and family factors that maintain anxiety in children. The second component taught parents the importance of applying CDI skills in separation situations. Third, BDI taught parents the importance of non-avoidance and appropriate ways to conduct separation practices with their children outside of session. The BDI phase also functions by giving the child control of treatment through the collaborative creation of the child's "Bravery Ladder," similar to a Fear Hierarchy used in CBT for older anxious youth. The child, parent, and therapist created a Bravery Ladder that lists the child's specific feared situations, ranked in order from least anxiety provoking (e.g., playing alone in a separate room of the house from the parents) to most anxiety provoking at the top of the hierarchy (e.g., sleeping over at a friend's house). Finally, the BDI phase consisted of some additional "Do's and "Don't Skills" that were tailored to the specific needs of separation anxious youth—e.g., parents were encouraged to save extra praise for after a child began to approach a previously avoided separation situation. Parents were also encouraged to withdraw attention when the child was engaging in negative and anxiety-based behaviors such as excessive complaining or whining.

Families enrolled in the RCT evaluating Pincus and colleagues' modified PCIT for early separation anxiety were assessed at baseline, throughout treatment, post-treatment (or post-waitlist), and at a 3-month follow-up evaluation. Thirty-eight children participated in the study, who all met diagnostic criteria (DSM-IV-TR) for SAD and who ranged in age from 4 to 8 (mean age of 6.9). At post-treatment, 73 % of children assigned to adapted PCIT no longer met criteria for a diagnosis of SAD, and results were largely maintained at a 3-month follow-up visit. In contrast, no participants in the waitlist group were diagnosis free at post-waitlist (see Pincus et al. 2010, in preparation). Moreover, parents of children enrolled in the study experienced significant decreases in parenting stress.

Pincus and colleagues also conducted a behavioral assessment before and after treatment that mirrored the format of the Dyadic Parent–Child Interaction Coding System (DPICS; Eyberg et al. 2013) used in standard PCIT. In addition to evaluating CDI and PDI skills, researchers also included a BDI condition in which a confederate entered the room while the parent and child played and the clinician coded the child's observable anxiety and willingness to talk with the stranger.

Preliminary results also suggest that parents learned not to avoid separation situations, but rather to utilize CDI and BDI skills during their child's anxiety episodes by praising brave behaviors and reflecting their child's emotions. Reflecting child behaviors and emotions were thought to be critical to affective education, as parents were taught to label the child's behaviors and reflect the child's emotions with objective terms (e.g., reflecting a child's statement of, "Don't leave me!" with a comment such as, "I see that you

are feeling anxious about me leaving the room"). Prior work suggests that emphasizing reflective affective education can be useful in the treatment of child anxiety (Suveg et al. 2006) and may be particularly useful in the treatment of young children who would not otherwise have the cognitive capacity to understand emotion regulation strategies as typically delivered in protocols designed for older children.

This program of research collectively suggests an exposure-based component is necessary when applying PCIT to anxious populations in order to achieve meaningful reductions in early child anxiety symptoms. At present, it is not clear whether outcomes are associated with simply using exposure-based components or whether the synergy of exposure-based treatments in the context of the PCIT format is responsible for improvements. Future work evaluating PCIT for SAD relative to non-PCIT exposure-based treatments for SAD is needed to clarify these issues.

CALM Program for Anxiety Disorders in Early Childhood

Building on the preliminary success of Pincus and colleague's modified PCIT for SAD, Puliafico et al. (2013) developed the Coaching Approach behavior and Leading by Modeling (CALM) Program to target the full range of anxiety disorders affecting young children (beyond simply SAD) with a greater emphasis on in-session parent-led exposures and parental modeling, and incorporating live bug-in-the-ear parent coaching during in vivo exposure tasks. The CALM Program was developed for young children (3–8 years) presenting with SAD, social anxiety disorder, generalized anxiety disorder, and/or specific phobias, which collectively affect 9 % of the preschool population (Egger and Angold 2006), utilizing the live-coaching format of traditional PCIT throughout treatment.

As with the work of Pincus and colleagues, the CALM Program has been evaluated thus far as a fixed-length treatment protocol (see Puliafico et al. 2013). Unlike the 9-session protocol of Pincus and colleagues, the CALM Program consists of 12 sessions (including eight exposure sessions, rather than two) and does not include a PDI phase of treatment. As with the modified PCIT for SAD, the CALM Program provides psychoeducation about anxiety and parents are initially taught and coached in the CDI skills (Eyberg et al. 1995). Rather than the abbreviated three sessions of CDI provided in PCIT for SAD, the CALM Program provides six CDI sessions, which include coaching in low-level exposures, before moving forward, affording parents more time to strengthen a mutually rewarding parent–child relationship and potentially achieve mastery in the use of selective attention to ignore undesired behavior and praise desired behavior before leading children in higher-level exposure-based tasks.

The CALM Program places strong in-session emphasis on the therapist live-coaching parent-led exposures, rather than the more common family-based CBT-based approaches of either the therapist coaching the child through exposures with the parent present in the room or the therapist providing asynchronous input to parents on parent-led exposures that occur outside of session. A "fear ladder" is used to guide the selection and optimal ordering of indicated exposure tasks and to identify treatment progress. CALM treatment engages children in parent-led exposure tasks and encourages brave child behavior by teaching and coaching parents in the "DADS" steps, which for each anxiety-provoking opportunity for brave child behavior has the parent: (1) Describe the situation (e.g., parent says "I see a big dog in the room"), (2) Approach the situation first themselves (e.g., parent goes over to dog and pets it), (3) give a Direct command for the child to join the situation (e.g., parent says "Delia, please pet the nice dog"), and then (4) provide Selective attention based on the child's performance (e.g., parent gives a labeled praise to the child for petting the dog, such as "Great job being brave and petting the big dog!"; or if the child does not pet the dog, the parent continues to pet the dog, ignoring any anxious child behavior such as whining or clinging and praising any small child approach behaviors such as "Nice job staying in the room with the big dog." The live-coaching during in-session exposures provides therapists with systematic opportunities to identify and provide feedback to parents on how they may be inadvertently providing attention to anxiety- and avoidance-based child behaviors and failing to attend to important kernels of brave child behavior. As such, the CALM Program provides parents with specific skills to promote brave child behavior and allows therapists to shape and reduce family accommodation of symptoms in real-time, putting parents in a strong position to continue to practice out-of-session exposures without therapist input in between sessions and after treatment has concluded.

Comer and colleagues tested the preliminary efficacy of the CALM Program in a multiple-baseline evaluation for anxious youth ages 3–8 presenting with a range of child anxiety disorders (Comer et al. 2012). An ethnically diverse sample of nine children was included in the initial pilot sample. Following completion of the 12-session (weekly, 60-min sessions) CALM protocol, 86 % of treatment completers no longer met diagnostic criteria for an anxiety disorder, although one child still met criteria for a principal specific phobia diagnosis at post-treatment. All participating children demonstrated reductions in their CGI-Severity score from pre-treatment to post-treatment (for completers) or the time of treatment dropout (for

non-completers). Moreover, among treatment completers, the mean posttreatment score on the Children's Global Assessment Scale (Shaffer et al. 1983) improved from 61.4 to 82.1, which falls at post-treatment in the category of "No more than slight impairments in functioning at home, at school, or with peers." These outcomes suggest that the CALM program may be a feasible and promising method of intervention for young anxious children.

Importantly, the CALM Program does not include teaching and coaching of PDI, which is a core component of standard PCIT for youth with behavior problems. PDI was not included in the CALM Program to maximize the number of sessions in which families are engaged in exposure-based tasks, which research suggests is critical for response in the treatment of child anxiety (see Kendall et al. 2005). In contrast, the earlier PCIT modifications of Pincus and colleagues for early separation anxiety do include PDI sessions. The extent to which it is necessary to systematically incorporate effective parental discipline into intervention for early anxiety remains unclear. Building on the promise of modularized therapies supported for older youth (Chorpita et al. 2013), future work may do well to evaluate a modularized program in the treatment of early anxiety, whereby training in effective parental discipline practices is included only when the child presents with formal co-occurring disruptive behavior problems.

Moreover, given the encouraging success of PCIT adapted for SAD and the preliminary success of the CALM Program, current efforts are underway to merge the two programs. This integration, being referred to as the PCIT-CALM Program, incorporates the DADS steps into an expanded BDI module, building on the successes and perceived strengths of both of these overlapping programs.

Group PCIT for Behavioral Inhibition

In addition to children with diagnosed anxiety disorders, PCIT extensions may also offer benefits to behaviorally inhibited children, who make up approximately 15–20 % of infants (Fox et al. 2005). There is evidence that children with behaviorally inhibited temperaments, characterized by social wariness and a tendency to withdrawal from unfamiliar people and situations, are at an elevated risk of developing clinical anxiety later on in development (Chronis-Tuscano et al. 2009). Further, among young children with stable behavioral inhibition, those whose mothers show overcontroling behaviors are at greatest risk of subsequently developing social anxiety in adolescents (Lewis-Morrarty et al. 2012), underscoring the potential utility that training parents in how to manage early behavioral inhibition without excessively accommodating symptoms may offer. Moreover, group treatment formats may offer parents of behaviorally inhibited youth critical opportunities for modeling and support.

Chronis-Tuscano and colleagues recently developed a group treatment program adapted from PCIT and completed an RCT evaluating this program relative to a waitlist control (Chronis-Tuscano et al., under review). Specifically, Chronis-Tuscano and colleagues developed an 8-week multimodal early intervention program consisting of parallel parent and child groups, which occurred simultaneously. The parent component consisted of a group-based adaptation of Pincus and colleagues' PCIT for Separation Anxiety protocol (Pincus et al. 2005), and the child component was derived from the Social Skills Facilitated Play intervention (Coplan and Schneider 2005; Coplan et al. 2010). The parent and child programs are collectively known as the "Turtle Program" as its primary goal is to help bring children out of their "shells." The Turtle Program combines the benefits of in vivo parent coaching with the practicing of the skills in a peer setting. Similar to the CALM Program (Comer et al. 2012), live coaching is conducted during exposure tasks, with the group format affording parents opportunities for peer modeling and support. Like the PCIT for SAD protocol described earlier, the intervention consists of three modules: CDI, BDI, and PDI. However, the Turtle Program protocol is unique in that clinicians coach parents in the context of the child group format to enable practice of parenting strategies in real-life situations such as play groups, which can be particularly salient in helping anxious youth learn how to engage with peers. The program is also unique in that while one parent is being coached, the other participating parents have the opportunity to observe the coaching via a television monitor from another room to enable vicarious learning. Preliminary work has been highly promising, with the Turtle Program showing significant effects among young behaviorally inhibited children on parent-reported behavioral inhibition, teacher-rated school anxiety symptoms, and observed maternal positive affect and sensitivity, relative to waitlist control youth (Chronis-Tuscano et al. under review).

PCIT-ED for Depression in Preschool-Aged Children

In recent years, Luby and colleagues have made promising advances examining the preliminary efficacy of adapted PCIT for early-onset depression in young children. Well-articulated psychosocial treatments for depression in elementary school-aged children, let alone preschool populations, are only just beginning to be understood, more often in the context of family-based approaches (Tompson et al. 2007) and CBT (Eckshtain and Gaynor 2012; Weisz et al. 1997). In fact, the simple phenomenology of depression in

very young children is a relatively unexamined domain (Luby and Belden 2012), and therefore, effective interventions for very young children are unsurprisingly lagging. Building on the benefits of PCIT for young children with externalizing disorders, and early work on adapted PCIT for young anxiety, Luby and colleagues (Lenze et al. 2011; Luby et al. 2012) considered whether an adaptation of PCIT for depression could demonstrate success with young children lacking metacognitive abilities required for success with CBTs and related programs supported with older populations of depressed youth. Specifically, Luby and colleagues developed a PCIT-based intervention that included an Emotion Development (ED) module specific to very young children with depression, referred to as PCIT-ED.

As with Pincus and colleagues' adaptation of PCIT for SAD, the PCIT-ED intervention includes CDI and PDI modules, but also incorporates a third module specific to the diagnostic question at hand. This third module—the Emotion Development module—is delivered after CDI and PDI. Together, these three modules are delivered over 14 sessions (all but one are 60 min each, one session is 90 min long), with 6 sessions allocated to CDI and PDI, and 8 sessions allocated to ED. The aim of the ED module is to increase the child's ability to identify, understand, label, and regulate emotions. The module includes a parent-only teach session, as in CDI and PDI, to discuss not only the ED module itself but also the parent's own history of emotion regulation patterns. This is particularly relevant as depression runs in families (Goodman et al. 2011; Maughan et al. 2013; Weissman et al. 2005), and even in the absence of parental history of depression, parents can inadvertently model ineffective emotion regulation strategies or react critically in ways that are contributing to a child's depressive symptoms (Sheeber et al. 2001). The ED module also includes relaxation training to manage the child's intense emotions, helps the child recognize depression "triggers" (stressors related to their depressive symptoms), and helps the child label those triggers as a means of externalizing precipitating stressors. An emphasis is also placed on teaching the parent to tolerate the child's negative emotions so that the parent is less likely to accommodate, overly attend to, or otherwise inadvertently reinforce symptoms in unhelpful ways during times of child distress. The therapist elicits the child's positive emotions (e.g., blowing bubbles activity) and negative emotions (e.g., asking the child to tell a story about a sad memory) in session, and then, the therapist coaches the parent through identification, labeling, and tolerance of that emotion. In some ways, this is somewhat comparable to the symptom-specific live therapist coaching that occurs in the CALM protocol whereby the therapist coaches the parent through the child's response to negative affect-provoking situations. Parents are therefore provided with the opportunity to both help manage their child's reactions to negative emotions and tolerate their own negative emotions associated with watching their child in distress and letting the child learn to practice coping skills independently.

After a successful pilot study demonstrating reductions in depressive symptoms among eight treated children (Lenze et al. 2011), Luby and colleagues tested the efficacy of PCIT-ED through a randomized controlled trial for 54 children ages 3–6 (Luby et al. 2012). Children were randomized to either PCIT-ED or "DEPI" (Developmental Education and Parenting Intervention). The DEPI condition consisted of a didactic control intervention matched to PCIT-ED for time and length, but the content consisted of information for parents about child development, nutrition, safety, etc. and did not involve any similarities to the live-coaching format of PCIT-ED (for further details, see Luby et al. 2012). After randomization, eight families dropped out of PCIT-ED and 17 families dropped out of DEPI, leaving 19 and 10 completers in the PCIT-ED and DEPI conditions, respectively. Of the 29 treatment completers, PCIT-ED-treated children demonstrated greater reductions in parenting stress, greater improvements in child executive functioning capabilities, and greater improvement in child emotion recognition capabilities. Children who participated in the PCIT-ED condition experienced significant within-group declines in depression scores from pre- to post-treatment although both groups experienced declines in depression scores and so between-groups differences were not found. PCIT-ED-treated mothers' own depression also decreased relative to DEPI-treated mothers, supporting the utility of PCIT-ED for addressing parental stress and broadened family depressive symptoms. Moreover, there were significantly fewer treatment dropouts in the PCIT-ED condition. As such, PCIT-ED appears to be a promising treatment for depression in very young children.

Promising Areas in Need of Further Empirical Evaluation

The emerging evidence supporting the four PCIT modifications reviewed thus far offers tremendous promise for the potential of further adaptations and modifications of PCIT to address even further internalizing problems. In recent years, there have been exciting clinical developments in the use of PCIT-related work to address the problems of young children with selective mutism (SM), which affects approximately 0.5–1 % of young children internationally (Keeton 2013). Onset is typically early, most often by age 3, and children usually present at 5–7 years of age for treatment; implicit in this statistic is a 2- to 4-year lag from onset to presentation for help in clinical samples. Although

symptoms may lessen in frequency in the absence of treatment (Bergman et al. 2002), impairment remains likely and confers increased risk of considerable sequelae similar to other untreated child anxiety disorders (Hirshfeld-Becker and Biederman 2002). As noted above, standard CBT for anxiety requires children to utilize abstract reasoning and engage cognitive abilities associated with older ages. Moreover, standard CBT may actually be contraindicated for most youth with SM given that verbalizing is most often required of these protocols just to participate in treatment. Alternatively, PCIT-SM, a promising treatment program increasingly delivered in clinical settings, utilizes a more purely behavioral intervention, delivered with the help of parents as agents of change.

The baseline parent–child interaction assessment tasks of the PCIT protocol provided the impetus for the SM Behavioral Observation Task (SM-BOT; Kurtz 2008). The PCIT baseline tasks allow standardized, unobtrusive observations of three 5-min sets of parent–child dyadic interactions, varying in the degree of parental directiveness, which are coded using the DPICS. For children with SM, unobtrusive observation of their interactions is key since a pathognomonic characteristic of SM is the child not talking to nor in front of others, especially outside of the home, despite verbalizing with parents in their homes (American Psychiatric Association 2013). The SM-BOT assesses the critical role of parent–child interactions among youth with SM in the maintenance of avoidant coping strategies, which has been the source of considerable focus in the child anxiety literature (e.g., Barrett et al. 1996). Based on diagnostic-specific departure from the standard PCIT protocol, the primary behavioral target is verbalizing, as opposed to compliance. Parents are instructed to ask three types of questions of their child (i.e., yes/no, forced choice, and open-ended questions) that were hypothesized to be associated with significantly varying response rates. Empirical work investigating conditional probabilities of child verbal responses given parental solicitations among anxious and non-anxious youth has since found that anxious youth is more likely to respond to direct parental prompts to talk compared with neutral talk (Kurtz et al. 2013). These findings are consistent with other work in this area, which has shown that forced choice and open-ended questions yield the highest odds ratio of prompting child verbalizations among anxious youth (Masty et al. 2009). In this same study, direct commands to talk also yielded significantly increased probability of talking among anxious youth, whereas indirect commands to talk did not. This latter finding regarding direct versus indirect commands is certainly consistent with the PCIT literature. Further, the SM-BOT, which involves the presence and absence of a confederate, is systematically varied to test hypotheses about the impact of the presence of the novel person on the child's rates of verbalizing, gesturing as a substitute for verbalizing, and non-responses. The alternating conditions (i.e., with and without the confederate) are presented in an A–B–A–B design, allowing further hypothesis testing about parents and children potentially habituating to the presence of a confederate over time.

The DPICS was adapted for use with SM to align with theoretical constructs about the establishing and maintaining variables of SM. The Selective Mutism Interaction Coding System was developed and subsequently revised (SMICS-R; Kurtz et al. 2007) and since has demonstrated good inter-rater reliability. Questions, for example, were subdivided into three types (i.e., yes/no, forced choice, open-ended). Praises were differentiated into praises for verbalizing versus praises for nonverbal behaviors. New variables were added to capture unique SM-related phenomena. For example, "mind reading" (e.g., parent saying "You look like you want the M&Ms") was added as a code because of its putative critical role in negatively reinforcing the avoidance of verbalizing (i.e., enabling). Parent mastery targets were established for the 5-min coding segments of SM-CDI that uniquely align with SM priorities; these include, as examples, <2 mind reading, <10 % missed opportunities to attend to or praise talking, 0 negative talk about verbalizing or lack of verbalizing, and <3 questions or other prompts to talk. Analogous to the PDI phase, parents in SM treatment graduate to the Verbal Directed Interactions (VDI) phase after achieving CDI mastery, which in preliminary work has taken an average of 3.4 coaching sessions to achieve after a 60- to 90-min teaching session.

VDI mastery reflects the diagnostically specific attributes of SM treatment. Parents are taught, then coached live as with PCIT, to provide effective prompts to talk (i.e., only forced choice or open-ended questions, as yes/no questions can be responded to nonverbally), or direct commands to talk, then to wait 5 s, in order to be considered an adequate opportunity for the child to respond. The parent VDI decision tree, analogous to the PCIT PDI flow chart, calls for a labeled praise for verbalizing, a reflection, or their combination to reinforce any audible child verbal response. Parents are taught to follow non-response after 5 s with a representation of the prompt, which typically results in the child verbalizing. Other SM-specific adaptations call for verbal acknowledgment of pointing, gesturing, or nodding after valid prompts along with representation of the prompt. A sample valid sequence while playing with blocks might be:

> Parent: Do you want the blue block next or the green one?
> Child: (points to the green block)
> Parent: I see you're pointing. Do you want the blue one or the green one?

As with PCIT, parents are given feedback after each 5-min coding segment that then informs their specific coaching goals for that session, and progress toward both CDI and VDI mastery is reviewed. Importantly, whereas questions are eliminated in both phases of PCIT, they are specifically included in the VDI phase of PCIT-SM.

PCIT-SM is a data-driven intervention utilizing extensive live coaching of the parents to shape progressively more child verbal behavior, decrease avoidant strategies, and decrease parental accommodation of nonverbalizations. Parents work toward mastery of both components of treatment (i.e., CDI and VDI), combined with copious amounts of contingent secondary reinforcement to shape desired child behaviors. Mele and Kurtz (2013) tested the efficacy of the PCIT-SM paradigm and protocol in a single-case design (Barlow and Nock 2009) with a mother and her 5-year-old daughter with a principal diagnosis of SM in a brief, six-session pilot study. Treatment was largely successful in increasing the child's verbalizations, thus providing preliminary evidence for the efficacy of the PCIT-SM intervention. The efficacy of the PCIT-SM has been examined as well in the Brave Buddies^{SM} program, an intensive group treatment for 3- to 8-year-old children with SM where counselors utilize the same CDI and VDI skills as the parents. The Brave Buddies^{SM} program is notable in that the format provides a forum for children to practice with speaking with other same-aged peers in a setting that resembles school or day camp, two settings that are often very challenging for children with SM due to their anxiety about speaking to others and participating in group activities. Preliminary evidence has been quite positive in this application (Kurtz 2012) as well as in replications of the program (Furr et al. 2012; Lynas et al. 2012). That said, controlled evaluations are needed to more meaningfully examine the efficacy of PCIT-SM for addressing the serious problems of young children who refuse to speak in certain situations despite the ability to speak in comfortable situations with no difficulty.

Discussion

While the novel PCIT modifications and extensions for mood and anxiety disorders detailed in the present review vary in format, duration, and focus, they each demonstrate promise. Specifically, they demonstrate potential for utilizing creative approaches to family involvement and parent training for a serious population of youth historically underserved by research. Preliminary data suggest that these treatments can be effective in improving both children's symptoms and overall child functioning as well as increasing maternal positive affect and reducing parenting stress and depressive symptoms. However, continued research with larger samples of youth evaluating these programs against active treatment comparisons is very much needed. As such, at present conclusions are limited. Several other limitations of work in this area also merit comment. For example, some of these interventions only reported on outcomes of completers rather than the intent-to-treat group, which is common among smaller pilot feasibility studies, but it makes comparisons across studies difficult. Also, there was a 20 % attrition rate in Comer et al.'s (2012) study, which is relatively common yet still raises questions about the feasibility of the intervention, particularly for complex cases considering as the two families who dropped out of treatment in their examination had the most severe clinical severity ratings on their baseline diagnoses.

Another limitation of the studies reviewed is that the majority of them used diagnostic interviews and parent reports of child symptoms to assess changes in symptoms and functioning. While such an approach is common, additional assessment methods, such as behavioral observations, offer improved opportunities to comprehensively evaluate efficacy. Multimodal assessment incorporating behavioral observations is particularly critical when evaluating treatment for younger children who are not able to contribute valid self-reports of symptoms and whose target behaviors are relevant across multiple domains. Behavioral observations also offer additional windows into how a child may approach a distressing real-life situations, such as talking to a stranger in the waiting room of the clinic. The anxiety-focused adaptation of the DPICS assessment paradigm developed by Pincus et al. (2008) may prove particularly useful in future research in this area. The DPICS format could also allow the evaluator to observe and code responses to commands that are symptom specific (e.g., "Please pet the dog" for a child with specific phobia) versus non-symptom specific (e.g., "Please hand me the blue block").

Efforts are currently underway to rigorously evaluate these interventions and mediators and moderators of treatment response in larger controlled trials, which can help elucidate mechanisms underlying treatment effects as well as identify which youth may benefit most from these programs. Comparisons against other active treatments showing support are needed not only to clarify relative main effects in treatment response, but also to identify key moderators that can inform clinical decision and optimize treatment selection across youth. Luby and colleagues are currently conducting a larger trial evaluating the efficacy of PCIT-ED. Future initiatives would do well to consider comparing these adapted PCIT interventions to both general psychosocial interventions for anxiety and depression (e.g., family-based CBT for anxiety and depression in young children) and extensions of PCIT that specifically

include the parent-coaching component delivered through the bug-in-the-ear device (e.g., CALM). These efforts are needed to clarify which elements of the parent-coaching format and content are most potent in eliciting symptom reductions.

At present, it is not clear whether the merging of the PCIT format and evidence-based content for internalizing problems is specifically responsible for positive outcomes. Future work would do well to evaluate the extent to which incorporating the PCIT format for the delivery of evidence-based content offers a unique contribution to symptom remission. At this early stage of research, it may well be that the evidence-based content for internalizing problems (e.g., exposures) is fully responsible for observed gains. However, as has been argued elsewhere (Puliafico et al. 2012), the bug-in-the-ear PCIT format offers an unparalleled opportunity for real-time, unobtrusive parent feedback and coaching during naturalistic parent–child interactions that may augment the generalizability of changes.

In order to clarify the maintenance of acute treatment gains associated with modified PCIT programs for internalizing problems, there is a critical need for long-term follow-up data, which have unfortunately not been reported in published studies in this area. One of the most powerful benefits of traditional PCIT for externalizing problems is its ability to yield substantial reductions in problem behaviors that are maintained over time and the treatment's ability to serve as a secondary prevention for the development of other comorbid conditions in childhood or adolescence. Given the established relationships between inadequately treated internalizing problems and subsequent substance abuse, among other negative outcomes (e.g., Kendall and Kessler 2002; Kendall et al. 2004), long-term follow-up evaluations will be essential for informing the broad utility of these programs.

Given that PCIT is well established for externalizing problems, the presently reviewed promise of PCIT extensions for internalizing problems suggests that there may a role for PCIT and its adaptations to collectively offer a transdiagnostic approach to early child psychopathology. Transdiagnostic approaches draw on common treatment elements to provide a parsimonious evidence-based approach that can be flexibly implemented across a variety of patient populations. Transdiagnostic approaches are increasingly desirable from a dissemination perspective as they offer trainees the ability to receive comprehensive training in one protocol that will be applicable to a broad spectrum of patients in the trainees' practice. This is also a more cost-effective approach to dissemination since trainees are required to purchase fewer manuals and workbooks and attend fewer formalized trainings. Indeed, the proliferation of distinct single-disorder manuals—while exciting from an interventions science perspective—has hampered dissemination efforts as the number of distinct protocols trainees are expected to master has become unnecessarily burdensome (Comer and Barlow 2014). There may be large-scale benefits to training providers in a single family of protocols such as PCIT that can address a wide range of early child populations in need of services. Although initially developed to treat externalizing problems, it is increasingly clear that PCIT and its extensions may offer one such transdiagnostic approach to a range of early child problems and as such may have an important role in dissemination efforts and the effective training of providers on a broad scale.

Given the diverse range of early child clinical populations that may benefit from PCIT and its extensions, an important question will be how best to select among and order PCIT components that will be most applicable for different youth. There has been support in recent years for modular approaches to evidence-based care, in which supported procedures for specific identified problems are structured as free-standing modules, and decision flowcharts guide module selection and sequencing (Chorpita 2007; Chorpita and Weisz 2009; Harvey et al. 2004; Weisz et al. 2012). Modular approaches individualize treatment regimens to efficiently deliver supported components to each patient using evidence-based algorithms. Treatment is flexibly applied to address complex comorbidities by affording empirically informed sequencing of treatment elements to accommodate a personalized tailoring of intervention for specific problems presenting in each client. Accordingly, modular approaches have the potential to flexibly address the needs of clinicians who carry caseloads marked by complex patterns of comorbidity and shifting clinical needs. Given the high degree of comorbidity among early child problems, as well as the great heterogeneity of presentations across youth, a promising line of research will be to apply adaptive/dynamic treatment regimens and incorporate sequential multiple assignment randomized trials (SMARTs; see Barlow and Comer 2013) into studies evaluating PCIT extensions. In such work, CDI, PDI, BDI, VDI, and ED may each serve as free-standing modules and a SMART could recognize the multiphase nature of the treatment process for the majority of clients in practice settings by systematically evaluating meaningful sequences of treatment modules for different populations. Such work is critical for understanding how PCIT and its adaptations can collectively offer a meaningful family of related programs for a diverse range of early child populations.

On a final note, in addition to better clarifying the efficacy and effectiveness of PCIT extensions for various early populations, there is also a need to improve the availability of such treatments for traditionally underserved families (e.g., rural families). Technology-assisted interventions, such as telemedicine approaches, may eliminate many of these

barriers by overcoming geographic barriers to care (see Comer and Barlow 2014; Comer et al. 2013; Comer et al. 2014; Elkins and Comer 2013). Innovative applications of technology may be particularly well suited for PCIT-based programs given that the therapist is not in the room for the majority of traditional in-clinic PCIT. An exciting emerging area of research has been the application of new technologies for delivering PCIT directly to families in home settings, in which families broadcast home-based parent–child interactions with a webcam and the PCIT therapist remotely provides in-the-moment parent coaching through a parent-worn Bluetooth earpiece (Comer et al. in press). In addition to improving the accessibility of care, such programs may offer incremental gains in the ecological validity of care, as treatment is provided in one of the very contexts in which problems may be most severe and interfering. Future research on the treatment of early internalizing problems would do well to examine the potential benefits of related technology-assisted approaches for modified PCIT programs targeting early mood and anxiety problems.

Acknowledgments Funding for this work was provided, in part, by the National Institutes of Health (K23 MH090247; PI: Comer) and the Charles H. Hood Foundation (PI: Comer).

Conflict of interest Dr. Kurtz is a PCIT master trainer and receives a fee for his training activities and services. Otherwise, the authors declare that they have no conflicts of interest.

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