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Parent-Child Interaction Therapy for Middle Childhood (PCIT-MC):
A Transdiagnostic Treatment for Comorbid Internalizing and Externalizing Symptoms

by
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To the Graduate Faculty:

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Dedications

This thesis is dedicated to caregivers doing the important (and often times challenging) work of raising future generations; may our children be marked by unabashed joy, kindness, and hope because of their persistent and loving labor.

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Table of Contents

List of Figures	vii
List of Tables	viii
List of Abbreviations	xi
Abstract	x
Chapter I: Literature Review	1
Rising Behavioral Health Needs Among Youth: Externalizing and Internalizing Problems.....	1
Cross-Domain Comorbidity and Transdiagnostic Treatments.....	1
Parent-Child Interaction Therapy (PCIT).....	3
Adaptations of PCIT for Internalizing Problems.....	4
Middle Childhood.....	5
PCIT in Middle Childhood.....	8
PCIT-MC.....	9
Study Aims and Hypotheses.....	17
Chapter II: Methods	19
Participants.....	19
Measures.....	20
Procedures.....	23
Analytic Plan.....	24
Chapter III: Results	27
Pre- to Post-Treatment Changes in Caregiver-Rated Externalizing Problems.....	27
Pre- to Post-Treatment Changes in Caregiver-Rated Internalizing Problems.....	28
Pre- to Post-Treatment Changes in Youth-Rated Internalizing Problems.....	28
Chapter IV: Discussion	29

Pre- to Post-Treatment Reductions in Externalizing Problems.....	30
Pre- to Post-Treatment Reductions in Internalizing Problems.....	31
Transdiagnostic Efficacy of PCIT-MC.....	34
Potential Treatment Mechanisms.....	35
Limitations and Future Directions.....	39
Conclusions.....	44
References	46
Appendix: Study Overview and Detailed Review of Relevant Literature	113

List of Figures

Figure 1 Pre- to Post-Treatment Reductions in Caregiver-Reported Child Externalizing and Internalizing Problems.....	109
Figure 2 Pre- to Post-Treatment Reductions in Self-Reported Depressive Symptoms for Case 6.....	110
Figure 3 Pre- to Post-Treatment Reductions in Self-Reported Depressive Symptoms for Case 10.....	111
Figure 4 Pre- to Post-Treatment Reductions in Self-Reported Depressive Symptoms for Case 7.....	112

List of Tables

Table 1 Internalizing Problem Clinical Outcomes for Standard PCIT and Adapted Protocols.....	98
Table 2 Past Case Studies Adapting PCIT for Children in Middle Childhood: Demographics, Diagnoses, Alterations, and Outcomes	104
Table 3 Pre- to Post-PCIT-MC Reductions in Caregiver-Reported Child Externalizing and Internalizing Problems	106
Table 4 Pre- to Post-PCIT-MC Reductions in Youth-Reported Child Externalizing and Internalizing Problems	108

List of Abbreviations

ADIS	Anxiety Disorders Interview Schedule
BASC	Behavior Assessment System for Children
BDI	Bravery Directed Interaction
BIQ	The Behavioral Inhibition Questionnaire
Brave START	Brave Skills Training and Anxiety Reduction Treatment
CALM	Coaching Approach Behavior and Leading by Modeling
CBCL	Child Behavior Checklist
CBS	Child Behavior Scale
CDI	Child-Direction Interaction
DPICS	Dyadic Parent-Child Interaction Coding System
ECBI	Eyberg Child Behavior Inventory
ERC	Emotion Regulation Checklist
HBQ	Health and Behavior Questionnaire
I-PCIT	Internet PCIT
PAPA	Preschool Age Psychiatric Assessment
PCIT	Parent-Child Interaction Therapy
PCIT Eco	PCIT-Emotion Coaching
PCIT-ED	PCIT-Emotional Development
PCIT-SM	PCIT-Selective Mutism
PDI	Parent-Directed Interaction
PFC	Preschool Feelings Checklist
POS	Play Observation Scale
SDQ	Strengths and Difficulties Questionnaire
SMQ	Selective Mutism Questionnaire

Parent-Child Interaction Therapy for Middle Childhood (PCIT-MC):
A Transdiagnostic Treatment for Comorbid Internalizing and Externalizing Symptoms
Thesis Abstract—Idaho State University (2023)

Research supports PCIT as an effective treatment for younger youth with externalizing and internalizing problems. Yet, support for PCIT for children in middle childhood, remains limited. Recently, an adapted protocol for Middle Childhood (PCIT-MC) was created and a recent pilot trial ($n = 11$) found significant pre- to post-treatment improvements in child disruptive behavior, but no study has examined PCIT-MC's impact on internalizing problems. Thus, the proposed study, using this pilot trial data, examined the efficacy of PCIT-MC to reduce internalizing problems (per caregiver-report) from pre- to post-treatment, and the degree to which these reductions (along with youth-report of 3 children with depressive symptoms) were clinically significant and reliable. Youth had large statistically significant pre- to post-treatment reductions in externalizing ($g = -1.54$) and internalizing symptoms ($g = -1.14$), that were typically clinically significant and reliable across cases and reporters.

Keywords: Parent-Child Interaction Therapy, PCIT, PCIT-MC, transdiagnostic, middle childhood

Chapter I: Literature Review

Rising Behavioral Health Needs Among Youth: Externalizing and Internalizing Problems

Mental health disorders among youth pose significant individual, familial, and societal burdens (Kyu et al., 2016; US Center for Mental Health Services, 2018; Whitney & Peterson, 2019). Perhaps unsurprisingly, the number of families seeking youth mental health services has been rising (Olfson et al., 2014), with the COVID-19 pandemic accelerating these trends (Friedberg, 2021). Among preadolescent youth, the most common reason for referrals to mental health services has been externalizing problems (Tempel et al., 2015), which are the most prevalent disorders in early and mid-childhood, with 8.7%–14.7% of children in the US meeting diagnostic criteria for a related disorder (Danielson et al., 2021). Without appropriate intervention, child externalizing disorders typically lead to harmful lifelong outcomes, both behavioral (e.g., peer and parental conflict, educational and occupational underachievement, violence, and suicide; Masten & Cicchetti, 2010; Obradović et al., 2010) and medical (e.g., chronic disease, obesity; Wertz et al., 2018).

However, child externalizing psychopathologies rarely occur alone, but rather are often comorbid with various internalizing problems (e.g., depression and anxiety; Greene et al., 2002; Papachristou & Flouri, 2020). Indeed, among children with clinical levels of disruptive behavior problems, approximately 40% and 30%–50%, respectively, also meet diagnostic criteria for an anxiety or depressive disorder (Greene et al., 2002). These rates are particularly concerning given that child internalizing problems result in a variety of negative developmental trajectories (Garfin et al., 2018; Jamnik & DiLalla, 2019) as well as negative family relationships (Crocetti et al., 2016; Hein et al., 2018).

Cross-Domain Comorbidity and Transdiagnostic Treatments

Notably, the above costs are significantly increased when youth have both internalizing and externalizing problems, as comorbidity is associated with increased symptom severity in both psychiatric domains (Gnanavel et al., 2019; Mahendran et al., 2021). Beyond increased

symptom intensity, comorbidity also brings unique challenges to effective treatment of youth psychopathology, as youth with comorbid problems are significantly more resistant to treatment and clinicians have difficulty choosing optimal treatment protocols since so many treatment protocols are specific to a singular diagnosis (Hersh et al., 2016; Powell et al., 2013). Indeed, treatments for youth with comorbid, cross-domain disorders have historically had the worst client outcomes. For instance, Weisz et al.'s (2017) meta-analysis of over 50 years of RCTs of youth psychotherapy ($k = 447$ studies, $n = 30,431$ youth) found significant differences in the mean effectiveness of treatments by symptom domain. Namely, aggregated pre- to post-treatment and follow-up treatment effects for youth anxiety were medium ($g_s = 0.61$ and 0.55), with similar effects for conduct problems ($g_s = 0.46$ and 0.44), but typically small, though still clinically significant treatment effects for child depression ($g_s = 0.29$ and 0.23). Yet, in stark contrast to these focal treatments, transdiagnostic treatments typically had trivial, non-significant pre- to post-treatment effect sizes ($g = 0.15$, 95% CI $[-0.14, 0.43]$) and even worse follow-up effects ($g = 0.02$).

Given this need for, yet relative dearth of, efficacious transdiagnostic treatments, growing efforts have been made to develop, validate, and disseminate evidence-based treatments for youth with comorbid externalizing and internalizing disorders. These protocols include the Modular Approach to Treatment of Children with Anxiety, Depression, Traumatic Stress, or Conduct Problems (MATCH-ADTC; Chorpita et al., 2017) and FIRST protocols (Weisz & Bearman, 2020). These protocols have had promising findings in open pilot trials (e.g., Cho et al., 2020; Weisz et al., 2017) and/or yet-to-be-independently replicated RCTs (e.g., Chorpita et al., 2017; Merry et al., 2020; Weisz et al., 2011), but none have yet met the scientific criteria for well-established treatments (see Southam-Gerow & Prinstein, 2014). Moreover, both of these treatment programs are designed for and/or only tested with relatively limited or older age-bands and explicitly exclude youth with common neurodevelopmental comorbidities (e.g., ASD; see Cho et al., 2020; Chorpita et al., 2017; Weisz et al., 2017). In contrast, Parent-Child

Interaction Therapy (PCIT; Funderburk & Eyberg, 2011) has over 50 years of independently replicated clinical research that has increasingly established it as a transdiagnostic treatment for young children with comorbid externalizing, internalizing, and/or neurodevelopmental disorders (Briegel, 2017; Niec, 2018; Thomas et al., 2017).

Parent-Child Interaction Therapy (PCIT)

PCIT is a best-practice parent behavior training program designed to treat disruptive behaviors in youth, that utilizes in-the-moment, therapist coaching of caregiver-child interactions to improve child externalizing problems (California Evidence-Based Clearinghouse, 2021; Niec, 2018; Thomas et al., 2017). PCIT was originally developed for disruptive behavior problems for children ages 2–6, but has been increasingly adapted for other presenting concerns and diagnoses (e.g., Carpenter et al., 2014; Urquiza & McNeil, 1996) and developmental age ranges (e.g., Briegel, 2017; Girard et al., 2018; Kohlhoff & Morgan, 2014; Stokes et al., 2017). Yet, across its myriad of adaptations, PCIT is distinguished by its three core components: (1) assessment-guided treatment, (2) in vivo coaching of caregiver-child interactions, and (3) mastery-based criteria for its treatment phases (Eyberg, 2005; Niec, 2018). Regarding those modular phases, PCIT's standard protocol—consistent with Hanf-based behavioral parenting programs (Kaehler et al., 2016)—contains two distinct, yet related phases: Child-Directed Interaction (CDI) and Parent-Direction Interaction (PDI; see Appendix for more information on PCIT's structure and specific practice elements).

PCIT's efficacy and effectiveness have been robustly demonstrated with over 50 years of supportive research, including dozens of randomized control trials (RCTs; e.g., Bjørseth & Wichstrøm, 2016; Leung et al., 2015; Niec et al., 2016) and several meta-analyses (e.g., Thomas et al., 2017; Thomas & Zimmer-Gembeck, 2007). For instance, a meta-analysis by Thomas et al. (2017) of 23 RCTs and quasi-experimental trials of PCIT with 1,144 participants ($n = 647$ treatment participants, $n = 497$ non-treatment control participants) indicated that PCIT significantly reduces child externalizing problems to a large degree ($d = -0.87$), while also

significantly improving child compliance to parents, also to a large degree ($d = 0.89$).

Importantly, these robust effects have been replicated across diverse ethnoracial, national, and linguistic groups (e.g., Bigfoot & Funderburk, 2011; Danko et al., 2016; Fernandez et al., 2011; Lanier et al., 2011; Matos et al., 2009; McCabe et al., 2012; McCabe & Yeh, 2013; Pearl et al., 2012) and have generalized across various settings (e.g., Fowles et al., 2018; McNeil et al., 1991; Wallace et al., 2018) and to untreated siblings (Brestan et al., 1997; Eyberg & Robinson, 1982).

While such evidence has made PCIT a best practice treatment for externalizing problems for youth in early childhood, growing research suggests PCIT also may be an efficacious treatment for child internalizing symptoms—which is especially relevant given that approximately 76% of children receiving standard PCIT in community settings often have clinically significant levels of internalizing problems (Quincoses et al., 2019). This emergent literature is largely bifurcated between studies examining the degree to which child internalizing symptoms are addressed by (1) PCIT's standard protocol or (2) PCIT protocols adapted to specifically treat child internalizing symptoms (see Comer et al., [2018]; Cotter et al. [2018]; and Danko et al., [2018] for reviews). With regard to the former, results suggest that PCIT's standard protocol can significantly reduce children's externalizing and internalizing symptoms. Overall, PCIT-treated reductions in comorbid internalizing problems have ranged from small ($ds = -0.30$ to -0.40 ; Garcia et al., 2021; Thomas & Zimmer-Gembeck, 2012; Zimmer-Gembeck et al., 2019) to large ($ds = -0.83$ to -1.78 ; Allen et al., 2014; Chase & Eyberg, 2008; Foley et al., 2019; Kaminsky, 2019), with substantially larger effects for samples with subclinical to clinical internalizing problems at baseline. Moreover, results suggest these effects are robust across a variety of delivery formats (see Table 1).

Adaptations of PCIT for Internalizing Problems

Given the above findings, other researchers have recently set out to make and validate diagnostic-specific adaptations to PCIT's standard protocol in order to optimize treatment

outcomes for children with internalizing disorders. These disorder-focused adaptations include the Turtle Program (Chronis-Tuscano et al., 2015), PCIT-Selective Mutism (PCIT-SM; Catchpole et al., 2019), CALM (Puliafico et al., 2013), Brave START (Mazza, 2018), PCIT-Emotional Development (PCIT-ED; Lenze et al., 2011), and PCIT Emotion Coaching (PCIT-ECo; Chronis-Tuscano, 2016). Together, empirical evidence for the efficacy of these adaptations is promising, with reductions in internalizing symptoms ranging in magnitude from medium (g s = 0.50–0.66; Barstead et al., 2018) to large (d s = 0.84–2.17; Chronis-Tuscano et al., 2015; Lenze et al., 2011; Luby et al., 2012; Philips and Mychailyszyn, 2021; see Table 1). Additionally, the majority of these treatments have shown notable diagnostic response among participants and/or reductions of mean internalizing scores from subclinical to normal ranges (as well as clinically significant reductions using samples with more severe internalizing symptoms; Chronis-Tuscano et al., 2015; Comer et al., 2012; Cooper-Vince et al., 2016; Luby et al., 2018; Mazza, 2018). Taken together, research provides support for the capacity of modular adaptations of PCIT to target both broad and diagnostic-specific internalizing problems in young children.

Yet, despite this robust, growing body of research supporting both the effectiveness of standard and adapted PCIT to target internalizing problems, these treatments have largely been developed and validated for early childhood. Moreover, the vast majority of developmental PCIT adaptations have been created and validated for younger children (e.g., infants, toddlers; Bagner et al., 2013, 2016; Blizzard et al., 2017; Girard et al., 2018) leaving a relative lack of developmentally appropriate and empirically validated PCIT protocols for children who present with externalizing—much less comorbid externalizing and internalizing problems—in middle childhood (see below).

Middle Childhood: Development, Vulnerabilities, and Treatment Considerations

Middle childhood is a developmental period spanning from the end of early childhood to the beginning of puberty/adolescence (i.e., typically defined as ages 7–11 years), that is marked

by distinct physical, cognitive, and social development, as well as unique risks for psychopathology (Del Giudice & Belsky, 2010; Del Giudice, 2018; DelGuidice et al., 2009; Ghandour et al., 2019; 7; Korell & Peer, 2019). In terms of physical development, middle childhood is marked by increases in muscle mass and BMI, as well as notable increases in both gross and fine motor skills (Del Giudice, 2018; Hochberg, 2008). Overall, much of the physical development observed in middle childhood can be understood as the onset of changes that present themselves with greater magnitude in adolescence (Rogol et al., 2018; Swayer et al., 2018; Vijayakumar et al., 2018). However, marked neurological development that occurs during adolescence has yet to occur (or may be in its early stages) during middle childhood (Del Guidice, 2018; Steinberg, 2010).

Related to this neurological development, middle childhood also is a time of significant cognitive development. Specifically, there is an increase in reasoning, problem-solving skills, use of concrete operations (Bjorklund, 2011) and working memory (Piccardi et al., 2014). Prominent changes occur in children's executive function during this time period, such that children's capacity to inhibit inappropriate or unwanted behavior increases, as well as their ability to make and follow-through with plans and maintain sustained attention (Best et al. 2009; Weisner, 1996). At the same time, middle childhood, when compared to adolescence, is marked by significant deficits in abstract reasoning, increases in futuristic and philosophical concerns, long-term personal goal orientation, and establishment of personal values and ethics (apart from those of an individual's family of origin) that occur during adolescence (Del Guidice, 2018; Lansford & Banati, 2018; Lehalle, 2020).

Outside of physical and cognitive development, children in middle childhood also experience notable social development. Youth in middle childhood develop distinct roles and identities in their peer relationships, gender socialization, and families (Del Guidice, 2018). In the context of the family, middle childhood is an age where children are far more capable of assisting in domestic tasks, and because of the aforementioned physical and cognitive

development in middle childhood, youth may be trusted to do certain tasks or activities without adult supervision (Del Giudice, 2018). Further, attachment styles that are developed in the caregiver-child relationship in early childhood are associated with emotional competencies (or lack thereof) in middle childhood (Colle & Del Giudice et al., 2011).

Related to the development described above, middle childhood also signifies unique risks for overall mental health and psychopathology. During middle childhood, anxiety disorders (specifically social phobias), ADHD, and perhaps most notably, child conduct problems all peak (Del Giudice et al., 2009; Del Giudice et al., 2011, Ghandour et al., 2019). Additionally, externalizing problems in middle childhood predict high concurrent and future levels of comorbid internalizing problems (Moilanen et al., 2010). Indeed, untreated externalizing problems in middle childhood (e.g., ODD) typically develop into more severe externalizing problems (e.g., conduct disorder) and criminality in adolescence (Fairchild et al., 2019; Beaudry et al., 2021). Similarly, untreated internalizing problems in middle childhood also typically worsen (e.g., increased severity of depression and anxiety; Young et al., 2019), consequently increasing the risk of suicidality in adolescence (Scardera et al., 2020). Finally, comorbid externalizing and internalizing problems (e.g., aggression and social anxiety) in middle childhood put individuals at much greater risk for alcohol and substance use disorders in adolescence (Dyer et al., 2019; Kumpfer et al., 2002).

In light of the unique development and risks that differentiate middle childhood from early childhood and adolescence, careful consideration should be given to how to best treat psychological problems for children during this period. Bennet and Gibbons (2000) conducted a meta-analysis of 30 studies using CBT to treat conduct problems in both elementary school-aged children (including middle childhood) and adolescents; finding of this meta-analysis suggested that the effectiveness of CBT correlated positively with age (i.e., CBT was more effective with adolescents than it was elementary school-aged children; $r = .33$). Similarly, McCart et al.'s (2006) meta-analysis of 41 treatment studies of child and adolescent conduct

problems found that the effects for BPTs ($d = 0.45$, 95% CI [0.28, 0.60]) were significantly greater than the effects of CBT ($d = 0.23$, 95% CI [0.11, 0.32]) for treating conduct problems in children ages 6–12, and reinforced the findings of Bennet and Gibbons (2000) that the effect sizes of CBT for treating conduct problems was significantly associated with child age ($\beta = .37$, $p < .01$). Specific to internalizing problems, Eckshtain et al. (2017) found that a Hanf-based BPT (namely, an adapted *Defiant Child*; Barkley, 1997) caused large pre- to post-treatment reductions in MDD diagnoses ($g = -3.04$) in a sample of 15 youth ages 7–13, with this diagnostic response similar to CBT's effect among a gender- and age-matched control group ($n = 15$; $g = -2.73$). Moreover, BPT-treated youth had a medium-to-large pre- to post-treatment decrease in self- and parent-reported depressive symptoms ($gs = -0.75$ and -1.12), which was statistically noninferior to CBT outcomes ($gs = -0.99$ and -1.15 , respectively). Thus, the collective empirical evidence supports the comparative use of BPTs over CBT for treatment of externalizing problems in middle childhood, with more nascent research also supporting the efficacy of BPTs for internalizing symptoms—particularly when comorbid with conduct problems—during this developmental period.

PCIT In Middle Childhood

Given previously discussed empirical support for PCIT as a best-practice BPT, use of PCIT—particularly when developmentally tailored and/or adapted—could be an efficacious treatment for child conduct problems in middle childhood. A few PCIT studies have included children above the target age-group for the standard protocol (e.g., Barnett et al., 2015; Chaffin et al., 2004; Kaminsky et al., 2019), but these studies did not report individual case scores and/or compare treatment effects by age. Similarly, some of the previously discussed adaptations of PCIT for internalizing problems included older children (i.e., PCIT-SM, CALM, and iCALM; Catchpole et al. 2019; Comer et al., 2012; Comer et al., 2021; Cornacchio et al., 2019), but these studies also failed to compare treatment effects by age (or even list the exact number of youth aged 7+; c.f., Comer et al., 2012; $n = 2$ [22%]). Consequently, the efficacy of

these treatments in middle childhood, or the degree to which age moderates their efficacy, is unknown.

Recognizing the potential efficacy of PCIT for middle childhood, but also unique developmental needs for these older youth, McNeil & Hembree-Kigin (2010) outlined specific recommendations for tailoring and adapting PCIT for older children. This adapted protocol, referred hitherto as PCIT for Older Children (PCIT-OC), includes significant adaptations to both CDI and PDI phases (a more detailed overview of PCIT-OC can be found in the Appendix). Yet, only one case study has empirically examined PCIT-OC's efficacy (Stokes et al., 2017), and the empirical literature of PCIT's effectiveness in middle childhood, with either its standard or adapted form, remains scant. Rather, the only published empirical literature explicitly reporting PCIT outcomes with youth in middle childhood comes from three single-case case studies (i.e., Briegel et al., 2017; Cohen et al., 2012; Stokes et al., 2017). However, all three of these single case studies utilized different developmental adaptations rather than the same protocol (see Table 2 and Appendix for further elaboration). The generalizability of these 3 case studies is severely limited by their single case design, lack of standardized effects sizes (which stymies cross-group and cross-protocol comparisons), and relative heterogeneity (i.e., all three case studies were with non-Latino White boys). Most salient to the latter point, all three case studies differed in how they tailored or adapted PCIT (e.g., homework duration, mastery criteria, use or nature of timeout, etc.; see Table 2 and Appendix for a comparative review). Thus, there is need for a standardized, developmentally adapted PCIT protocol for children in middle childhood that has been empirically validated with multiple youth. Out of this need, Parent-Child Interaction Therapy For Middle Childhood (PCIT-MC; Peer et al., 2019) was created.

PCIT-MC

Structure of PCIT-MC

In terms of structure, PCIT-MC is similar to PCIT's standard protocol. It consists of a tailored CDI phase and a developmentally adapted PDI phase, with the majority of adaptations

being made to the PDI phase. Saliently, all of PCIT's core components (i.e., in-vivo coaching of caregiver-child interactions, assessment-based treatment, and mastery-based criteria; Eyberg, 2005) remain consistent throughout PCIT-MC.

CDI in PCIT-MC: In regard to CDI-specific tailoring, changes are made with consideration of developmental preferences and sensitivities to choice of play activities and toys, caregiver verbalizations, and the rationale provided to caregivers for PRIDE skills during the CDI Teach session. PCIT-MC has therapists mindfully consider the developmental preferences of toys used during CDI Coach sessions and Special Time, which is didactically taught during the CDI Teach session.

Additionally, during the CDI Teach session, parents are taught to be mindful of the developmental age of their children when using verbalizations, particularly reflections and behavior descriptions, since children in middle childhood (by and large) are typically further along in their social-cognitive development than younger children (see Middle Childhood section). Relatedly, caregivers are also trained to make summative reflections, since children in middle childhood tend to be more talkative than children in early childhood. Similarly, when giving behavior descriptions in PCIT-MC, caregivers are typically trained to use more advanced or complicated vocabulary and/or to describe more complex operant behavior. Lastly, parents are taught to provide labeled praises for behaviors that are more comprehensive and/or advanced (at least compared to toddlers' abilities), and thus better suit a child's zone of proximal development.

In addition to developmentally tailoring caregiver verbalizations, the rationale described behind PRIDE skills is largely consistent with the standard protocol, but certain rationales are more likely to be emphasized (or deemphasized) for children in middle childhood, and developmental age is considered when communicating the treatment process directly to youth. The mastery criteria for graduation from the CDI phase of PCIT-MC is the same for that of the standard protocol (in contrast to other developmental adaptations), and is coded using the

DPICS with no changes to protocol or coding criteria. As with standard PCIT, after graduation from the CDI, caregivers move on to the PDI phase.

PDI in PCIT-MC. In contrast to CDI, significant adaptations are made to the PDI module for PCIT-MC, given the aforementioned developmental differences between standard PCIT-aged youth and those in middle childhood (see Barkley and Robin, 2014). These developmental adaptations are made using the theoretical and empirical support of a token economy, which is a behavior modification component that utilizes principles of operant conditioning to modify behavior, with strong empirical support for its efficacy across treatment contexts and populations (see Kazdin, [2012]). Due to this robust support and relative avoidance of physical seclusion, restraint, and/or timeout (with the latter being the crux of standard PCIT's PDI phase), token economies are incorporated in PCIT-MC's PDI phase. PDI in PCIT-MC consists of two sequential subphases that progressively incorporate a token economy: Token Economy (TE) and Response Cost (RC), each with their own teach sessions. During the TE Teach session, PCIT-MC therapists helps caregivers to understand the difference between child rights, responsibilities, and privileges—and how a token economy can create a better contingency between child responsibilities and privileges and improve child behavior. This TE Teach session has therapists lead caregivers to understand that child rights are unconditional (i.e., not dependent on child behavior), and include things such as food, clothes, love, protection, and shelter. In contrast, privileges are material rewards or activities that optimally should be earned (e.g., screen time, dessert after dinner) by completion of responsibilities or expectations (e.g., completing specific morning routines, chores).

Thereafter, caregivers are taught how to create an effective token economy that is specific, consistent, and feasible. Specifically, each responsibility should be clearly operationalized with minimally sufficient, externally visible, and temporal criteria for completion, such that across all caregivers in a family, (1) each responsibility should be reinforced with its designated tokens/points every time a child completes it, and (2) a child should be allowed to

access any token economy's privilege by spending the required points they have earned—but only then. Once these principles are taught, therapists lead caregivers in drafting a PCIT-MC-adherent token economy and related tracking procedures. To finalize this product and process, therapists and caregivers collaboratively provide a developmentally tailored version of the above psychoeducation to the child client in order to build buy-in, and model developmentally appropriate child-caregiver negotiation and collaboration. Following the TE Teach session, parents typically come in for 1–2 follow-up sessions without their children to review the effectiveness of the token economy and make necessary adjustments with the therapist based on the three criteria discussed above (i.e., feasibility, consistency, and specificity). These TE Review sessions continue until the above discussions and token economy tracking records affirm that the youth is positively engaging in the token economy (i.e., regularly earning and spending points), caregivers are consistently implementing the token economy (awarding and recording points earned and spent), and the youth is only gaining access to the token economy's privileges with earned/spent points.

Once this occurs, PDI's next and last subphase begins: Response Cost (RC). Like TE, it begins with a RC Teach session; wherein, caregivers are taught how to add response costs into their child's token economies. Caregivers are taught how to give effective commands, with the same principles taught during standard PCIT (see Appendix), though examples are developmentally tailored. Likewise, the same 5-second rule is taught to caregivers to assess child compliance to commands, and caregivers are taught to give labeled praise for compliance to commands. However, rather than standard PCIT's timeout warning and timeout protocol, PCIT-MC's RC Teach session teaches caregivers to use a similar verbatim, but RC-specific warning for child non-compliance after the 5-second rule. As with standard PDI, the 5-second rule (with identical strategic ignoring) is implemented after this warning, and compliance is reinforced with a labeled praise (with similar rationale given during the standard PDI Teach session). After this warning, continued non-compliance, however, does not precipitate a

physical time-out procedure (as it does with standard PDI) but rather PCIT-MC's response cost procedure, which entails repeated prompts and loss of points in 1-minute increments (see Appendix).

Additionally, the RC Teach session has therapists teach caregivers to develop and implement House Rules, and augment the child's token economy by adding specific response cost consequences for each violation of these rules. Beyond substituting an immediate physical timeout for a specified point lost, this protocol is identical (and identical in how it is taught to caregivers) to standard PCIT's House Rules system that is taught in PDI Coach 4. Yet, unlike standard PDI, the RC Teach session has caregivers immediately generalize the RC procedure (including 'House Rules') to all contexts in which the caregiver is supervising their child (e.g., playtime, homework, playground, grocery shopping, etc.)—though only once the RC procedure has been coached in-session (similar to standard PCIT's timeout implementation).

Similar to standard PDI Coach sessions, caregivers and their children in PCIT-MC next attend RC Coach sessions, during which the youth is explained the new system and caregivers practice the response cost procedure with in-vivo coaching from the therapist. Similar to standard PDI, RC sessions involve progressively coaching caregivers to learn these skills with progressively more difficult, ideographically salient situations. At the beginning of each session, therapists not only administer the ECBI and complete a qualitative check-in, but also review the caregiver-completed token economy and help problem-solve any issues. Thereafter, each attending caregiver is first coded (for 5 minutes of PDI DPICS coding) and then coached, with RC sessions continuing until graduation criteria are met. PCIT-MC mastery criteria for graduation are consistent with PCIT's standard protocol (e.g., CDI and PDI mastery, ECBI scores below T-score of 55, caregiver confidence in behavior management). For a more elaborate description of PCIT-MC's structure and practice elements, see the Appendix.

Empirical Support for PCIT-MC

Empirical support for PCIT-MC comes from a pilot trial of PCIT-MC to reduce disruptive behavior problems in 11 youth ages 7–11 and related analyses (Bird et al., 2020; Peer et al., 2019; Strauch et al., 2020). Preliminary results from this pilot trial (Peer et al., 2019) involved 4 children between the ages of 8 and 10 years old, all of whom were diagnosed with ODD and comorbid psychiatric problems (e.g., ADHD, avoidant/restrictive food disorder). Using simulation modeling analysis (SMA; Borckardt et al., 2008), large pre- to post-treatment reductions in child disruptive behaviors, as measured by the ECBI, occurred for all four PCIT-MC-treated youth (range_d: -1.62 to -3.53), with the mean pre- to post-treatment effect ($M_d = -2.37$) exceeding that of best-practice treatments for behavior problems in middle childhood (i.e., Collaborative Problem Solving [$d = -0.72$] and Defiant Child [$d = -0.87$]; Ollendick et al., 2016). Additionally, all four children experienced clinically significant pre- to post-treatment reductions in disruptive behavior (i.e., ECBI scores), with these reductions sustained at 2–3-month follow-ups. Finally, this study also found significant incremental improvements for all four youth across each PCIT-MC phase and subphase (i.e., CDI, TE, and RC), similar to that of standard PCIT, indicating that each treatment module uniquely contributed to PCIT-MC'S overall treatment outcomes.

Using the same data, Strauch et al. (2020) set out to understand whether PCIT-MC resulted in improvements in caregiver skills during CDI (i.e., increases in “do skills” and decreases in “don’t skills” as measured by the DPICS-IV) from pre- to post-treatment. Notably, there were large increases in caregiver “do skills” from pre- to post-treatment ($d = 4.89$), as well as reductions in caregiver don’t skills ($d = -1.25$). Similarly, Bird and colleagues (2020) found that cross-session improvements in caregivers’ CDI skills significantly predicted subsequent cross-session decreases in child disruptive behavior (as measured by the ECBI), for all PCIT-MC-treated youth. Together, these findings provide preliminary evidence that (similar to standard PCIT) the observed effectiveness of PCIT-MC for treating child disruptive behavior problems is largely predicated by changing parenting behaviors, and more specifically, that the effectiveness of in-vivo coaching of caregiver behaviors (a core component of standard PCIT),

is maintained when developmentally tailored for older children during CDI. Yet, despite these findings, the efficacy of PCIT-MC to treat internalizing problems, especially with comorbid externalizing problems, remains unknown.

PCIT-MC's Alignment with Theoretical Models of Internalizing Disorders

Notwithstanding PCIT-MC's lack of empirical validation for internalizing symptoms, PCIT-MC's treatment components and putative mechanisms of change align well with multiple etiological models for internalizing symptoms, specifically anxiety and depression. Specifically, PCIT-MC likely targets internalizing problems via evidence-based mechanisms identified across cognitive, behavioral, and interpersonal frameworks (Beck, 1976, 1985, 1979; Dimidjan et al., 2011; Dymond, 2019; Dygdon & Dienes, 2014).

From a cognitive perspective, PCIT-MC is likely to successfully target the etiology and maintenance of depressive and anxious symptoms theorized by Beck's cognitive model of depression and anxiety (1967, 1985). More specifically, Beck's (1979) "negative cognitive triad" theorized that depressive schemas can be categorized by views about oneself being inadequate or worthless (i.e., self-schemas), the world as being unfair or mean, and the future as being hopeless; whereas, anxiolytic schemas are differentiated by views of the world as scary and dangerous and the future as uncertain (Beck et al., 1979). PCIT-MC might therapeutically counteract these schemas through establishment of self-efficacy and self-esteem through labeled praises and completion of responsibilities, fairness and justice through consistent reinforcement through the token economy, and a greater sense of certainty about the future through a consistent schedule of reinforcement for target behaviors.

From a behavioral perspective, practice elements of PCIT-MC are likely to remediate depressive symptoms through behavioral activation (Dimidjan et al., 2011). Specifically, PCIT-MC may target depressive symptoms caused by relative lack of positive reinforcement for adaptive behaviors by implementing alternative forms of reinforcement (i.e., tokens and respective rewards) for target behaviors (i.e., responsibilities), with the intention of differentially

reinforcing adaptive versus maladaptive/avoidant operants. Similarly, the development of maladaptive anxiety can be understood using Mowrer's (1951) 2-factor model of learning, in which (1) anxious symptoms arise as a result of classical conditioning—through generalization of conditioned fear responses to non-threatening stimuli, and (2) these fear responses are maintained by operant conditioning—when the punitive properties of a conditioned fear response are removed (in the short-term) by emitted negatively reinforcing avoidant behaviors (Dymond, 2019; Dygdon & Dienes, 2014). PCIT-MC is likely to remedy anxious symptoms by differentially reinforcing brave behaviors (i.e., behaviors in pursuit of non-threatening feared stimuli [or non-avoidant behaviors]) through positive reinforcement (i.e., PRIDE skills and the token economy), and consequently weakening maladaptive conditioned fear responses to neutral stimuli over time. Namely, PCIT-MC is likely to promote initiation and maintenance of brave behaviors by providing alternative forms of positive reinforcement for brave behaviors at a greater magnitude of reinforcement than the negative reinforcement provided by avoidance behaviors, specifically by tailoring rewards (both in CDI and PDI) to be maximally reinforcing to each individual child.

Finally, from an interpersonal lens, PCIT-MC is likely to promote prosociality (e.g., being kind, active listening, consoling, sharing, using polite manners; Eisenerg et al., 2006; Gross et al., 2017; Ross & Peer, 2022) by modeling and incentivizing prosocial behaviors that can be generalized to other social relationships in a child's life, both intra-familial (e.g., sibling interactions) and extra-familial (youth behavior with peers, therapist, teachers, etc.). These healthy interpersonal behaviors are first didactically taught during Teach sessions and subsequently modeled by the therapist to the caregiver through in-vivo coaching, with caregivers then directly modeling these prosocial behaviors to their child during sessions, at-home practice, and throughout other interactions. This system of teaching and modeling prosociality is likely to promote healthy caregiver-child attachment (Gross et al., 2017), equip children with adaptive interpersonal skills generalizable to other relationships, and thus create protective versus negative developmental cascades otherwise associated with anxious and

depressive interpersonal deficits in middle childhood, adolescence, and beyond (Bubić & Ivanišević, 2016; Papachristou & Flouri, 2020).

Altogether, the treatment components of PCIT-MC correspond well to cognitive, behavioral, and interpersonal etiological frameworks of anxious and depressive symptoms (see Appendix for further elaboration and examples). Consequently, these components, particularly in aggregate, are likely to transdiagnostically remediate anxious and depressive symptoms for children in middle childhood. However, no known study has yet tested this assumption, which leads to the proposed study's aims.

Study Aims and Hypotheses

Given the previously discussed abundance of psychiatric comorbidities in childhood (Greene et al., 2002; Mahendran et al., 2021; McRae et al., 2020; Papachristou & Flouri, 2020), and the relative lack of well-established transdiagnostic treatments to address these cross-externalizing-internalizing comorbidities (Dagleish et al., 2020), validated transdiagnostic protocols are increasingly relevant for clinical practice with children in middle childhood (Fairchild et al., 2019; Beaudry et al., 2021). Notably, given previously discussed evidence that BPTs are more effective for conduct problems in middle childhood than CBT (Bennet and Gibbons, 2000; McCart et al., 2006), and potentially as effective as CBT for depressive symptoms during middle childhood (Eckshtain et al., 2017), developmentally adapted BPTs like PCIT-MC might effectively treat comorbid internalizing and externalizing problems for children in middle childhood.

Indeed, the results of PCIT-MC's pilot study support its benefits to youth's externalizing behavior (Peer et al., 2019) and caregiver's parenting (Bird et al., 2020; Strauch et al., 2020), with preliminary effect sizes equal to if not greater than those achieved by standard PCIT and other BPTs for middle childhood (Strauch et al., 2021). However, no published study has yet assessed PCIT-MC's efficacy for ameliorating *internalizing* symptoms in middle childhood, either with or without comorbid externalizing symptoms. Such an examination might be

particularly worthwhile given PCIT-MC's aforementioned alignment with prominent models of depression and anxiety as well as the growing empirical literature on both standard PCIT's and its adaptations' ability to reduce internalizing problems among preschoolers (see Table 1).

Thus, this study was the first to examine whether PCIT-MC causes significant pre- to post- reductions in internalizing problems, particularly those comorbid with externalizing symptoms, as well as the potential clinical significance of these findings. To do this, archival data (i.e., caregiver reports of child internalizing and externalizing problems) from the PCIT-MC pilot trial was analyzed at both pre- and post-treatment time points to determine the relative overall transdiagnostic efficacy of PCIT-MC. Pursuant to these aims, the following hypotheses were tested by the current study:

- **H₁:** Overall child externalizing problems (i.e., disruptive behavior problems), per caregiver-report, will decrease, pre- to post-treatment, such that hypothesized reductions will be:
 - **H_{1a}:** Statistically significant,
 - **H_{1b}:** Clinically significant (i.e., the percentage of youth with clinically significant levels of externalizing problems [i.e., $T = .60+$] will significantly decrease, pre- to post-treatment), and
 - **H_{1c}:** Reliable (i.e., a statistically significant percentage of youth will have reliable pre- to post-treatment reductions in caregiver-rated externalizing problems, per reliable change index [RCI] scores; Jacobson & Traux, 1991).
- **H₂:** Overall child internalizing problems (i.e., anxiety and depression symptoms), per caregiver-report, will significantly decrease, pre- to post-treatment, such that hypothesized reductions will be:
 - **H_{2a}:** Statistically significant,

- **H_{2b}**: Clinically significant (i.e., the percentage of youth with clinically significant levels of internalizing problems [i.e., $T = .60+$] will significantly decrease, pre- to post-treatment), and
- **H_{2c}**: Reliable (i.e., a statistically significant percentage of youth will have reliable pre- to post-treatment reductions in caregiver-rated internalizing problems, per RCI scores).
- **H₃**: For each of the three youth administered self-report measures of internalizing problems (see Methods), self-reported internalizing problems will decrease from pre- to post-treatment to a reliable degree, per RCI scores.

Chapter II: Methods

Participants

In order to test the above hypotheses, the present study used de-identified archival data from 11 families who (a) presented for treatment of child disruptive behavior and/or internalizing problems at the Idaho State University Psychology Clinic and (b) subsequently received PCIT-MC for at least one child aged 7–11 years. Eight of the 11 cases (72.7%) had two caregivers participate during treatment, including reporting on child symptomology. However, in order to ensure independence of data (see Analytic Plan), only data from the primary caregiver were used for the current study. Of those primary caregivers, 100% were women, with the majority being non-Latina White biological mothers (81.8%, $n = 9$), while the remaining were either a non-Latina Black foster home staff ($n = 1$) or Middle Eastern/North African adoptive mother ($n = 1$).

A total of 13 youth were treated with PCIT-MC. However, two families had two siblings who were both treated during the pilot trial. For those two families, only data on the child with the higher pre-treatment internalizing problems (as rated by primary caregiver-report) were used, in order to ensure independence of data, and to best assess the efficacy of PCIT-MC for internalizing problems. Of those 11 youth, eight were boys (72.7%), and the other three were

girls (27.3%). Ethno-racially, most were non-Latinx White (81.8%, $n = 9$), while the remaining were Latino (9.1%) or non-Latino Black (9.1%). All youth were between the ages of 7.4 and 10.5 years ($M = 9.0$, $SD = 1.0$). Diagnostically, most youth at pre-treatment had more than one psychiatric diagnosis (range: 0–4, $M = 2.7$, $SD = 1.2$). These disorders including both externalizing (i.e., ADHD [54.5%], CD [9.1%], ODD [81.8%]); internalizing (i.e., MDD [36.4%], post-traumatic stress disorder [9.1%]); or other psychiatric disorders (ASD [18.2%], avoidant/restrictive food intake disorder [27.3%], enuresis [18.2%]).

Measures

Child Externalizing Problems

To assess child externalizing problems, the current study used archival data from the Eyberg Child Behavior Inventory (ECBI; Eyberg & Pincus, 1999), a 36-item normed caregiver-report measure of disruptive behavior in children ages 2–16 years. Its two scales, Intensity and Problem, respectively assess the frequency and perceived caregiver burden or stress of child conduct problems over the past week. The Intensity scale measures the frequency of disruptive behavior problems using 7-point Likert scales (1 = Never, 7 = Always); item scores are summed together to provide the Intensity scale score, which can range from 36 to 252. On the Problem scale, caregivers circle Yes (1) or No (0) for each item/behavior in response to the question “Is this behavior a problem for you?” These individual responses are summed to create the Problem scale score, which ranges 0–36. The clinical threshold for the Intensity scale is 132 [i.e., T -score 60]; whereas, a score of 13 or above [i.e., T -score 60+] on the Problem Scale indicates clinically significant caregiver concerns for disruptive behavior.

Research on the ECBI’s psychometrics indicate excellent internal consistency (Intensity: $\alpha = .95$, Problem: $\alpha = .93$; Eyberg & Pincus, 1999), 10-month test-retest reliability (Intensity: $r = .75$, Problem: $r = .75$; Funderburk et al., 2003), and convergent criterion and construct validity with other measures of child disruptive behavior problems (Abrahamse et al., 2015; Axberg et al., 2008; Gross et al., 2007). Research also supports the ECBI’s ability to distinguish between

children with and without clinically significant levels of disruptive behavior problems (i.e., known-groups validity; sensitivity: .96, specificity: .87, negative predictive power: .87, positive predictive power: .88; Abrahamse et al., 2015; Eyberg & Ross, 1978; Rich & Eyberg, 2001; Robinson et al., 1980; Weis et al., 2005).

Child Internalizing Problems

Caregiver-report. To assess caregiver-reported internalizing problems of youth at pre- and post-treatment, data from one of the following broadband behavioral rating scales were used for each case.

Child Behavior Checklist (CBCL). The CBCL (Achenbach & Rescorla, 2001) is a 113-item normed caregiver-report broadband measure of emotional and behavioral problems in children ages 6–18 years. The CBCL asks caregivers to assess descriptions of their child with a 3-point Likert scale (0 = Not True, 2 = Very True). Responses are then used to calculate several scale scores (which use norm-referenced *T*-scores), including its Total Problems scale, two broadband scales (i.e., Externalizing and Internalizing Problems scales), and eight narrowband syndrome subscales (i.e., Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule-Breaking Behavior, and Aggressive Behavior). However, for the current study, only data from its Internalizing Problems scale were used. Research on the this scale's psychometrics indicate excellent internal consistency (e.g., $\alpha = .90$; Achenbach & Rescorla, 2001), 1-year test-retest reliability ($ICC = .87$; Bitencourt Frizzo et al., 2015), structural validity (Achenbach et al., 2003), treatment sensitivity (Leve et al., 2005; Swenson et al., 2010), inter-rater reliability across maternal and paternal caregivers, and concurrent criterion validity with the BASC-2's Internalizing Problems scale ($r = .85$; Achenbach & Rescorla, 2001).

Behavior Assessment System for Children, Second Edition (BASC-2)–Parent Rating Scale. Like the CBCL, the BASC-2 Parent Rating Scale (Reynolds & Kamphaus, 2004) is another best-practice broadband measure of externalizing and internalizing problems in youth

and young adults ages 2–25. Similarly, its items ($N = 160$) are used to calculate multiple norm-referenced scales and subscales, including an overall Internalizing Problems scale (with T -scores), with only the latter being used by the current study. Like the CBCL, the BASC-2 has multiple forms for different age-bands; for the current study, the form for children ages 6–11 was used. The BASC-2 uses a 4-point Likert scale to describe the frequency of observed behaviors in a child (i.e., 0 = Never, 3 = Almost Always). In terms of the BASC-2's psychometrics, its Internalizing Problems scale for the parent rating scale for children (ages 6–11) has demonstrated excellent internal consistency ($\alpha = .90$), 1–8-week test-retest reliability ($r = .78$), inter-rater reliability ($r_s = .70$), and convergent construct and concurrent criterion validity (e.g., $r_s = .70$ s–.80s; Conners, 2008; Kamphaus et al., 2007; Reynolds & Kamphaus, 2004).

Behavior Assessment System for Children, Third Edition (BASC-3)–Parent Rating Scale. Recently, the BASC published its 3rd edition (Reynolds & Kamphaus, 2015), as an update to the BASC-2, with enhanced scale reliability and score validity, as well as new executive functioning indices. The BASC-3 Parent Rating Scale consists of 175 items with 14 primary scales and 4 composite scales (including its Internalizing Problems scale—which, as above, will be the only scale used from the BASC-3 by the proposed study). The BASC-3 uses the same 4-point Likert scale as the BASC-2 and different forms for youth ages (e.g., ages 6–11 years). In terms of psychometrics, the BASC-3 PRS has shown excellent internal consistency for children on the Internalizing Problems scale ($\alpha = .93$). Similarly, the BASC-3 has demonstrated excellent test-retest reliability for children on this scale ($r = .91$), with intervals between assessment ranging 7–68 days ($M = 22.2$), and has also demonstrated acceptable inter-rater reliability ($r = .60$; Reynolds & Kamphaus, 2015).

Self-report. To assess self-reported internalizing problems of youth at pre- and post-treatment, data from one of the two following narrowband self-report scales were used for each of the three cases where such a measure was administered.

Short Mood and Feelings Questionnaire (SMFQ)–Child Form. The SMFQ (Angold et al., 1995) is a 13-item narrowband measure of depressive symptoms (over the past 2 weeks) in youth ages 7–18 years. The SMFQ has two versions: child- and caregiver-report. For both versions, SMFQ items are rated on a 3-point Likert scale (i.e., 0 = Not True, 2 = True). A total SMFQ score (range: 0–26) is calculated by summing all item responses, with a score of 8+ on the child-report form indicating clinically significant depression (no cutoff exists for caregiver-report only scores; Angold & Costello, 1995; Espeleta et al., 2021; Wood et al., 1995). The SMFQ has been shown to have good internal consistency (e.g., $\alpha = .87$; Cheng et al., 2009; Espeleta et al., 2021; Rhew et al., 2010; Sharp et al., 2006) and concurrent criterion validity with other youth depression measures ($r_s = .67-.95$; Kuo et al., 2005). Moreover, the SMFQ has demonstrated excellent treatment sensitivity (i.e., responsiveness; Espeleta et al., 2021), as well as strong 4-week test re-test reliability ($r = 0.84$; Cheng et al., 2009).

Revised Children’s Anxiety and Depression Scale (RCADS)–Self-Report Form. The RCADS is a 25-item self-report narrowband scale of anxiety and depression symptoms in children ages 8–18 years. Items use a 4-point Likert scale (i.e., 0 = Never, 3 = Always). Although the RCADS has several scales/subscales, the present study only used data from its 10-item MDD scale (as that was completed at both pre- and post-treatment by one PCIT-MC-treated). The RCADS has been validated in 25 countries and 18 different languages (Bouvard et al., 2015; Mathyssek et al., 2013; Piqueras et al., 2017; Sandin et al., 2010). In terms of psychometrics, the RCADS MDD scale has been shown to have excellent internal consistency ($\alpha = .87$), and has demonstrated strong convergent validity with the Child Depression Inventory (CDI; $r = 0.70$; Chorpita et al., 2005). Additionally, the RCADS has demonstrated strong 1-week test re-test reliability ($r = 0.77$; Chorpita et al., 2000).

Procedures

The current study used archival data from PCIT-MC’s first and only pilot trial (Peer et al., 2019). All caregiver-child dyads received PCIT-MC at the ISU Psychology Clinic by graduate

student trainees. All of these clinicians received training consistent with PCIT International's (2020) training standards; namely, all clinicians received 40+ hours of didactic instruction in PCIT, demonstrated mastery of CDI skills in a child-led play observation, had 80+% agreement on DPICS coding with a certified PCIT therapist, achieved 90+% fidelity during didactic CDI and PDI Teach sessions (as assessed using PCIT protocol's fidelity checklists; Eyberg & Funderburk, 2011), and received in-vivo and out-of-session supervision (approximately 3–5 hours per week) from a clinical psychologist who was also a certified PCIT therapist (as well as PCIT-MC's treatment developer). The latter also observed all PCIT-MC sessions to ensure all sessions adhered to PCIT-MC's protocol, consistent with PCIT's standardized fidelity checklists (Eyberg & Funderburk, 2011).

Consistent with PCIT's standard protocol (Eyberg & Funderburk, 2011) as well as PCIT-MC, caregivers completed the ECBI at every session (including a pre-treatment intake session and post-treatment graduation session). Additionally, caregiver-reports of child internalizing problems were administered at both pre- and post-treatment. Namely, seven caregivers were administered the CBCL, one caregiver was administered the BASC-2, and two caregivers were administered the BASC-3. Further, standardized self-report of internalizing problems was collected at pre- and post-treatment for three youth who presented (during pre-treatment clinical interviews) as having internalizing problems as their primary treatment concern. Two of these children completed the SMFQ; whereas, the other child completed the RCADS.

Analytic Plan

Preliminary Analyses

Prior to conducting primary analyses (see below), the following preliminary analyses were conducted.

Missing data. No data were missing for any variable of interest for the proposed study.

Outliers. In order to assess for potential outliers on caregiver-report measures of externalizing (i.e., ECBI) and internalizing (i.e., CBCL and BASC) scores, the current study used

the interquartile range (IQR) multiplier approach (Tukey, 1997). In lieu of the traditional 1.5 IQR multiplier, the proposed study used a 2.2 IQR, since research has demonstrated that this multiplier has better accuracy (Hoaglin et al., 1986; Hoaglin & Iglewicz, 1987). Using this parameter, no outliers were identified.

Assumptions of normality. For variables that were used in the study's parametric tests (i.e., dependent samples *t*-tests; see below), overall normality (and skewness and kurtosis, specifically) were assessed via visual and statistical analyses. Regarding the former, histograms with overlapping normal curves were inspected for pre- to post-treatment differences in ECBI Intensity scale and CBCL/BASC Internalizing Problem scale scores. Regarding the latter, Shapiro-Wilk tests (given its superiority over Kolmogorov-Smirnov tests with sample sizes smaller than 20) were computed as an omnibus test of normality for pre- to post-treatment difference scores for each variable (i.e., ECBI Frequency scale score and BASC/CBCL Internalizing Problem scale score), with a threshold of $< .05$ indicating a significant violation of normality. Additionally, z-standardized skewness and kurtosis values were computed for each variable's difference score, with a threshold of $< |2|$ given *t*-tests' relative robustness (Kim, 2013; West et al., 1996). Note that dependent samples *t*-tests, unlike independent samples *t*-tests, do not assume homoscedasticity (McDonald, 2014). Using these thresholds, all assumptions of normality were met for each relevant variable (i.e., internalizing and externalizing *T*-scores).

Power analyses. All power analyses were conducted using G*Power (Faul et al., 2007), with the parameters of $\alpha = .05$ and power = .80 (Cohen, 1988), as well as estimated effect sizes based on prior literature. Namely, prior research on PCIT's pre- to post-treatment reductions in externalizing problems have been large ($d = -2.37$; Peer et al., 2019). Using this benchmark, power analyses indicated that the dependent samples *t*-test required for hypothesis H_{1a} would require a sample size of three. Similarly, the meta-analytic effect size of PCIT's pre- to post-treatment reductions in caregiver-reported child internalizing symptoms (specifically anxiety) is also large ($g = -0.96$; Philips & Mychailyszyn, 2021); thus, the sample size needed to find this

magnitude of effect for internalizing problems in the proposed study (i.e., H_{2a}) is nine. Given the current study's archival sample size ($N = 11$), power analyses indicated that all of the study's proposed analyses, including McNemar's tests (i.e., H_{1b} and H_{2b} ; see below) with their expected effects (e.g., $ORs = 1.33$ – 3.00 ; Comer et al., 2011; Espeleta et al., 2021), had sufficient statistical power.

Primary Analyses

Beyond reporting descriptive statistics (e.g., Ms , SDs) on variables of interest at each time-point (i.e., pre- and post-treatment), the following inferential statistics were computed to test the proposed study's hypotheses.

Hypotheses 1_a and 2_a. To assess whether there were statistically significant pre- to post-treatment reductions in caregiver-reported child externalizing (H_{1a}) and internalizing problems (H_{2a}), two dependent samples t -tests were conducted. To ensure standardization of measurement, T -scores were used for all data in primary analyses. Effect sizes were calculated using the standardized Hedge's g , as this has been shown to be a more conservative estimate of effects with smaller samples (Hedges, 1981).

Hypotheses 1_b and 2_b. To assess the clinical significance (Baer et al., 2019; Evans et al., 1998; Jacobsen et al., 1984; Jacobson & Trux, 1991; Karatzias et al., 2019; Kerns et al., 2021; Robinson et al., 2021) of the hypothesized pre- to post-treatment reductions in caregiver-reported externalizing (H_{1b}) and internalizing problems (H_{2b}), a pair of one-tailed exact McNemar's tests were utilized, using a threshold of T -score = 60+ (i.e., the ECBI's clinical threshold; Eyberg & Pincus, 1999). Odds ratios (as well as pre- and post-treatment percentages of cases above and below these thresholds) were used to evaluate the size of these proportional changes, though for the result that had a cell count of 0, the odds ratio was calculated with the Haldane-Anscombe correction (i.e., 0.5 was added to each cell; Haldane, 1940; Lawson, 2004).

Hypotheses 1_c, 2_c, and 3. As a psychometric criterion, reliable change indices (RCIs) were used to evaluate whether pre- to post-treatment changes in caregiver- and self-report outcome variables (i.e., externalizing and internalizing symptoms) for each PCIT-MC case were statistically significant (i.e., significantly greater than a change that could have occurred due to random measurement alone). From a computational perspective, an RCI is a ratio, where the numerator equals the observed difference score between two measurements (e.g., pre- minus post-treatment ECBI scores), while the denominator is a form of standard error of measurement of the difference (Guhn et al., 2014). For the current study, RCIs were computed using the standard error of measurement surrounding test-retest reliability values (Christensen, 1986; Iverson, 2018; Jacobson et al., 1999; Jacobson & Truax, 1991; Piers & Herzberg, 2002) for each of the measures of interest; i.e., ECBI Intensity scale ($r = .75$), CBCL Internalizing Problems scale ($r = .87$), BASC-2 Internalizing Problems scale ($r = .78$), BASC-3 Internalizing Problems scale ($r = .91$), SMFQ ($r = .84$), and RCADS MDD scale ($r = .77$). Additionally, for hypotheses 1_c and 2_c, binomial sign tests were conducted to assess whether the number of cases that experienced reliable change (1) was significantly greater than the number of cases that did not experience reliable change (0).

Chapter III: Results

Pre- to Post-Treatment Changes in Caregiver-Rated Externalizing Problems

As predicted, there were reliable as well as statistically and clinically significant pre- to post-treatment reductions in youths' caregiver-reported externalizing problems (see Figure 1 and Table 3). Specifically, at pre-treatment, youths' caregiver-rated externalizing problems (i.e., ECBI scores) were typically in the clinical range, ($M_T = 61.7$; $SD = 12.3$), but then decreased to normative levels at post-treatment ($M_T = 43.8$, $SD = 6.3$). This reduction was large ($g = -1.54$) and statistically significant ($t[10] = -5.52$, $p < .001$). Moreover, these reductions also were clinically significant and reliable, such that the proportion of children with clinically elevated externalizing problems, per caregiver-report, significantly decreased from pre- (54.6%) to post-

treatment (0%); $\chi^2(1) = 4.17, p = .02$, such that youth were 27.18 times more likely to *not* have clinically elevated symptoms at post-treatment as they were at pre-treatment. Additionally, the proportion of children who experienced a reliable pre- to post-treatment reduction in caregiver-rated externalizing problems was significant (91.9%, $p = .01$).

Pre- to Post-Treatment Changes in Caregiver-Rated Internalizing Problems

Caregiver-reported internalizing problems also decreased from pre- to post-treatment, and similar to child externalizing problems, these reductions were statistically and clinically significant, as well as reliable (see Figure 1 and Table 3). Specifically, mean caregiver-rated youth internalizing problems (as measured by the CBCL and BASC), on average, decreased from the clinical range at pre-treatment ($M_T = 65.5$; $SD = 11.6$) to the normative range at post-treatment ($M_T = 53.1$; $SD = 10.6$; $t[9] = 3.94, p = .004$), and this reduction was large ($g = -1.14$). Also consistent with externalizing problems, these reductions were clinically significant, such that the proportion of youth with clinically elevated internalizing problems significantly decreased from pre- (80.0%) to post-treatment (20.0%; $\chi^2[1] = 3.20, p = .03$), and that youth were 9.33 times more likely to not have clinically elevated internalizing symptoms at post-treatment as they were at pre-treatment. Moreover, a significant proportion of children (90.0%, $p = .02$) had a reliable pre- to post-treatment reduction in caregiver-reported internalizing problems.

Pre- to Post-Treatment Changes in Youth-Rated Internalizing Problems

Consistent with hypothesis 3, all three youth who were administered a standardized self-report measure of internalizing problems (i.e., SMFQ or RCADS) also experienced reliable pre- to post-treatment reductions in their self-reported depressive symptoms (see Table 4). Specifically, For the one boy who was administered the SMFQ (i.e., Case 10), his depressive symptoms went from the clinical range (i.e., raw score of 14) at pre-treatment to the normal range at post-treatment (i.e., 5), and this change was reliable ($RCI = 10.71$). Similarly, his combined SMFQ scores (i.e., an aggregate score of caregiver- and youth-ratings on the SMFQ)

also indicated that her depressive symptoms went from the clinical range (i.e., raw score of 26) to the normal range (i.e., raw score of 10). For the one girl who completed the SMFQ, (i.e., Case 6), her score also was in the clinical range at pre-treatment (i.e., raw score of 13) and reduced substantially at post-treatment to the clinical cutoff score (i.e., 8) to a reliable degree ($RCI = 5.95$). Additionally, her combined SMFQ scores indicated a clinically significant pre- to post-treatment decrease in depressive symptoms (i.e., 20 to 10, respectively). Finally, for the one boy who completed the RCADS (i.e., Case 7), his score went from the clinical range at pre-treatment ($T = 71$) to the normal range post-treatment ($T = 58$), and this change was reliable ($RCI = 16.88$; see Table 4).

Chapter IV: Discussion

Extensive literature supports PCIT as an efficacious treatment for youth ages 2–6 with externalizing problems (Thomas et al., 2017; Thomas & Zimmer-Gembeck, 2007; Ward et al., 2016; Zimmer-Gembeck et al., 2019), with growing evidence also supporting its efficacy for comorbid internalizing problems (Allen et al., 2014; Chase & Eyberg, 2008; Kaminsky, 2019; Thomas & Zimmer-Gembeck, 2012). Yet, until recently, there has been limited research on PCIT's effectiveness with older children, specifically children in middle childhood—a developmental period with unique risks for internalizing and externalizing problems, including peak emergence of and referrals for disruptive behavior problems (Del Giudice et al., 2009, 2011; Ghandour et al., 2019; Korell & Peer, 2019). Recently, a standardized, developmentally adapted protocol of PCIT was developed for children in middle childhood (i.e., PCIT-MC; Peer et al., 2019), and preliminary results from its first pilot trial supports its effectiveness in improving child disruptive behavior problems and related parental behaviors (Bird et al., 2020; Peer et al., 2019; Strauch et al., 2020). However, no study has yet assessed the potential of PCIT-MC—or any other PCIT protocol—to reduce child internalizing problems (e.g., depression and anxiety) during middle childhood. To address this gap, this study examined data from 11 families who participated in PCIT-MC's first pilot trial. Pre- to post-treatment reductions (and related clinical

significance) of caregiver- and youth-reported externalizing and internalizing problems were examined to determine the overall transdiagnostic efficacy of PCIT-MC. Notably, results supported all study hypotheses, such that youth treated with PCIT-MC typically experienced large, reliable, and statistically and clinically significant pre- to post-treatment reductions in both externalizing and internalizing symptoms. These results, as well as posited implications and limitations, are elaborated below.

Pre- to Post-Treatment Reductions in Externalizing Problems

In terms of clinical significance, 100% of this sample's youth with clinically significant externalizing problems at pre-treatment improved to normal levels by post-treatment, per ECBI cutoffs. Overall, these clinically significant reductions in reported externalizing symptoms are similar to those reported by the three previously published case studies of PCIT adaptations for older children (see Table 2; Briegel et al., 2017; Cohen et al., 2012; Stokes et al., 2017) and preliminary analyses of PCIT-MC's pilot trial (Peer et al., 2019). However, this study, due to its multiple-case design and related analyses, is the first to report a standardized effect size for changes in externalizing symptoms in middle childhood, both for PCIT-MC specifically and for PCIT overall. Indeed, in terms of magnitude, PCIT-MC-related reductions in caregiver-reported externalizing problems ($g = -1.54$) outperformed not only 50-year-meta-analytic treatment effects for youth conduct problems overall ($g = -0.46$; Weisz et al., 2017), but also PCIT's overall meta-analytic effects (Thomas et al., 2017; $g = -1.09$, 95% CI [-1.44, -0.73]). Specific to middle childhood, PCIT-MC's effect on youth's caregiver-rated externalizing problems was also substantively better than meta-analytic effects for CBT ($d = 0.23$, 95% CI [0.11, 0.32]; McCart et al., 2006), BPTs (McCart et al.'s (2006; $d = 0.45$, 95% CI [0.28, 0.60])), and specific evidence-based protocols for middle childhood externalizing symptoms (e.g., $ds = 0.72$ – 0.87 ; Ollendick et al., 2016). Collectively, these findings suggest PCIT-MC may be not only an efficacious treatment for externalizing problems in middle childhood, but that it may produce superior outcomes compared to other extant alternatives for this category of symptoms.

A validated, best-practice treatment for this age-band and set of symptoms is particularly needed given that conduct problems peak in middle childhood (Del Giudice et al., 2009; Del Giudice et al., 2011, Ghandour et al., 2019; Korell & Peer, 2019) and, if untreated, often develop into more severe externalizing disorders (e.g., conduct disorder) in adolescence and beyond (Fairchild et al., 2019; Beaudry et al., 2021). Further, externalizing problems are the most common reason for referrals to youth mental health services (Boylan et al., 2007; Campbell et al., 2000; Erath et al., 2009; Kazdin, 2011; Loeber et al., 2000; Merikangas et al., 2009; Rushton et al., 2002; Steiner et al., 2007; Tempel et al., 2015), and if untreated typically result in a variety of negative developmental trajectories (e.g., substance use disorders, peer and parental conflict, educational and occupational underachievement, violence, and suicide; Burke et al., 2014; Dodge et al., 2008; Fergusson et al., 2005; Masten & Cicchetti, 2010; Murray & Farrington, 2010; Nock et al., 2007; Obradović et al., 2010; van Lier & Koot, 2010). Lastly, untreated externalizing problems have been shown to result in substantial societal costs and utilization of social welfare and healthcare infrastructure (Rivenbark et al., 2018). Thus, the potential validation of PCIT-MC for externalizing problems during middle childhood has significant implications both on a personal and societal level, especially when current results suggest PCIT-MC may outperform common treatments for externalizing problems during this developmental period—and also significantly reduce internalizing problems.

Pre- to Post-Treatment Reductions in Internalizing Problems

Indeed, beyond the above improvements in externalizing behavior, caregiver- and youth-ratings both indicated that PCIT-MC also efficaciously treats internalizing symptoms in middle childhood. Namely, youth treated with PCIT-MC typically experienced large, statistically significant pre- to post-treatment reductions in overall internalizing symptoms, per caregiver-ratings ($g = -1.14$). Notably, this effect exceeded historical metanalytic effects of focal treatments for youth depression ($g = -0.29$) and anxiety ($g = -0.61$; Weisz et al., 2017). Further, the magnitude of PCIT-MC's effect on caregiver-ratings of child internalizing problems was

similar to meta-analytic effects of PCIT's standard protocol with standard age youth ($g = -1.07$, 95% CI [-1.46, 0.67]) as well as PCIT protocols specifically adapted to treat internalizing symptoms ($g = -1.04$, 95% CI [-1.47, 0.61]; Phillips & Mychailyszyn, 2021). That PCIT-MC performed as well as most of these latter adaptations is particularly notable, as PCIT-MC was adapted for developmental levels, not internalizing symptoms. Perhaps even more impressive, however, is the fact that PCIT-MC's effect on caregiver-ratings of youth internalizing symptoms (as well as externalizing symptoms) was significantly higher than (i.e., almost double) the meta-analytic effect of PCIT for youth with *comorbid* internalizing and externalizing symptoms ($g = -0.66$, 95% CI [-0.95, 0.37]; Phillips & Mychailyszyn, 2021). Additionally, PCIT-related reductions in overall internalizing symptoms (per caregiver-report) were, similar to externalizing symptoms, typically clinically significant (i.e., 63% of youth with clinical levels of internalizing at baseline had normative levels of internalizing symptoms at post-treatment, per caregiver-report) and reliable (i.e., 90%). Pre- to post-treatment caregiver-reported changes in clinical classifications of internalizing problems were largely consistent with PCIT studies that reported clinical levels of internalizing problems at pre-treatment (i.e., $M_T \geq 60$; see Table 1), especially so for studies that assessed internalizing problems using the CBCL and BASCs (e.g., Abrahamse et al., 2016; Aggazi et al., 2017; Kaminsky, 2019). But notably, these studies did not statistically analyze the proportion of youth that experienced categorical changes in internalizing problems from clinical to normal levels from pre- to post-treatment, and thus were relatively limited in their analysis of clinical changes compared to the present study.

Furthermore, current results indicated that treatment-related changes in caregiver-ratings of child internalizing symptoms largely converged with changes in youths' self-reports. Specifically, all three youth who were administered self-report measures of their depressive symptoms experienced reliable pre- to post-treatment reductions in these symptoms. These findings are especially salient given research indicating that youth in middle childhood (as opposed to younger children), are able to reliably report on their own internalizing symptoms,

often with greater validity than caregiver reports (Curhan et al., 2020; Muris et al., 2004; Yeh & Wiesz, 2001). Additionally, two of the youth experienced clinically significant pre- to post-treatment change in their self-reported depressive symptoms; whereas, the third youth's depressive symptoms, per his self-report, decreased from well above the clinical cutoff to the cutoff score (or below the cutoff if using a cutoff of 11 or 12, as growing research supports; e.g., Eyre et al., 2021; Thabrew et al., 2018; Turner et al., 2014). These findings further bolster evidence for the potential of PCIT-MC to reduce child internalizing problems. Additionally, no previously published study of PCIT; regardless of targeted age, symptoms, or protocol; has examined youth-report of internalizing problems. Collectively, these results provide preliminary evidence that PCIT-MC can efficaciously reduce child internalizing symptoms during middle childhood, based on best practice convergence of multi-informant ratings (de Los Reyes et al., 2017).

These findings are particularly salient since anxiety disorders, like conduct problems, peak in middle childhood (Del Giudice et al., 2009). Similarly, untreated internalizing problems (e.g., depression and anxiety) also tend to worsen across middle childhood, putting youth at greater risk for suicidality (Young et al., 2019) and other negative cognitive (Papachristou & Flouri, 2020), social (Bubić & Ivanišević, 2016; Martínez-Martí & Ruch, 2017; Salavera et al., 2019; Trickey et al., 2012), academic (Deighton et al., 2018), and physical health outcomes throughout childhood, adolescence, and adulthood (Garfin et al., 2018; Jamnik & DiLalla, 2019). Lastly, treatment of internalizing problems (particularly youth internalizing problems) account for substantial national health care costs, with recent increases in youth health care referrals increasing the costs all the more (König et al., 2020; Konnopka & König, 2020). Thus, the observed PCIT-MC-related reductions in both caregiver- and youth-reported internalizing problems might relieve burden to both youth and society at large—especially since results suggest PCIT-MC significantly reduced those internalizing symptoms that were comorbid with externalizing symptoms.

Transdiagnostic Efficacy of PCIT-MC

Indeed, the present results preliminarily evince PCIT-MC as a transdiagnostic protocol for treatment of comorbid externalizing and internalizing problems in middle childhood. Importantly, the magnitude of pre- to post-treatment effects of the current study not only outperformed previously discussed metanalytic treatment effects for focal psychiatric problems (e.g., disruptive behavior problems, depression, anxiety) but also far exceeded historical meta-analytic effects for psychosocial treatments targeting comorbid psychiatric issues, almost tenfold ($g = -0.15$; Weisz et al., 2018). The potential for PCIT-MC to be validated for transdiagnostic treatment of cross-domain psychiatric problems is especially impactful given the wealth of literature citing the common cooccurrence of internalizing mental health disorders with externalizing disorders (Greene et al., 2002; Mahendran et al., 2021; McRae et al., 2020; Papachristou & Flouri, 2020), related increases in symptom severity due to these comorbidities (Gnanavel et al., 2019; Mahendran et al., 2021), and clinician-reported difficulties treating comorbid mental health concerns (Hersh et al., 2016; Powell et al., 2013). Moreover, in contrast to other emerging transdiagnostic treatments for comorbid externalizing and internalizing problems (e.g., MATCH-ADTC and FIRST; Chorpita et al., 2017; Weisz & Bearman, 2020), PCIT-MC—including this first pilot trial—does not exclude children with neurodevelopmental comorbidities such as autism (see Cho et al., 2020; Chorpita et al., 2017; Weisz et al., 2017).

Furthermore, PCIT-MC aligns with recent recommendations for shrinking the effectiveness gap for depression treatments (as the former tend to perform significantly worse than all treatment foci, save transdiagnostic treatments; Weisz et al., 2017; 2023). Namely, PCIT-MC (1) includes modular transdiagnostic treatments (i.e., CDI, TE, RC modules), (2) focuses on empirically supported principles of change (both in general and those specifically validated in PCIT's empirical base), (3) integrates family members into treatment, and uses shared decision-making to inform treatment and increase client engagement (e.g., token economy creation, graduation criteria; Weisz et al., 2023). Therefore, PCIT-MC may be effective

in not only ameliorating comorbid internalizing and externalizing psychopathology in middle childhood, but particularly with currently treatment-resistant youth depression. This promise is supported by previous research supporting the comparative use of BPTs (such as PCIT) over CBT for conduct problems (Bennet & Gibbons, 2000; McCart et al., 2006) and depressive symptoms, specifically during middle childhood (Eckshtain et al., 2017).

Potential Treatment Mechanisms

While empirical investigation of explanatory mechanisms of change was beyond the scope of this study, several mechanisms could potentially explain observed reductions in reported externalizing and internalizing problems. Namely, a wealth of research has shown that authoritative parenting styles (i.e., parenting styles characterized by high warmth and high control; Baumrind, 1966, 1967) prevents and/or ameliorates child externalizing problems (Akhter et al., 2011; Buschgens et al., 2010; Hancock Hoskins, 2014; Ruiz-Hernandez et al., 2018) and internalizing problems (Akhter et al., 2011; Konopka et al., 2018; Kopala-Sibley et al., 2017). Consistent with PCIT's standard protocol and overall treatment program (see Niec [2018]) as well as preliminary studies of PCIT-MC (Strauch et al., 2020) PCIT-MC cultivates caregiver-child relationships characterized by high warmth—specifically during CDI, in which parents engage in enthusiastic child-directed play while differentially reinforcing prosocial behaviors. Additionally, caregiver control is increased during the PDI phase of PCIT (including PCIT-MC), where caregivers positively reinforce target behaviors (e.g., compliance, prosociality, responsibilities) using the token economy—and conversely, negatively punish disruptive behaviors (e.g., defiance, aggression) using the Response Cost system through removal of tokens in the token economy. These behavioral mechanisms may also indirectly contribute to more adaptive cognitions in youth regarding their role within their family, understandings of rights and responsibilities, and consequences of their own behaviors.

Further, from an interpersonal lens, PCIT-MC-related increases in reinforcement of prosocial behaviors and related reduction of maladaptive interpersonal behaviors are likely to

increase prosociality not only within a child's familial setting but also across other contexts through reciprocal prosocial interactions with others (e.g., peer relationships at school). This likely increases the reinforcement of prosocial behaviors all the more outside of direct PCIT-MC practice elements (Aknin et al., 2018; Ellis et al., 2016; Mertens et al., 2021). Indeed, researchers have found significant pre- to post-PCIT increases in youth's prosocial behavior (Briegel et al., 2018; Niec, 2018), and these increases were also observed during PCIT-MC's pilot trial (Ross & Peer, 2023).

Related to reductions in externalizing problems, observed reductions in internalizing problems may be explained by a variety of theoretical models that cultivate authoritative parenting styles. From a behavioral perspective, depressive symptoms may occur because of (1) insufficient response-contingent positive reinforcement to previously adaptive or pleasurable behaviors, consequently leading to the extinction of these behaviors (Ferster, 1973; Lewinsohn, 1974; Jacobson et al., 2001), (2) overgeneralization of avoidant behavior due to negative reinforcement (Lewinsohn et al., 1973; Sigmon & Nelson-Gray, 1992), and/or (3) learned helplessness (Klein & Fencil-Morse, 1976; Miller & Seligman, 1975; Miller et al., 1977; Rehm, 1977; Seligman, 1972). Because of this, effective treatments for depression typically focus on behavioral activation (Dimidjian et al., 2011; Lejuez et al., 2001). Specifically, behavioral activation involves increasing access to and reinforcement of adaptive behaviors (and thus those behaviors themselves) while also decreasing depressogenic avoidance related to aversive control and learned helplessness (Dimidjian et al., 2011; Hopko et al., 2003). Consistent with this approach, PCIT-MC targets depressive symptoms caused by relative lack of positive reinforcement for adaptive behaviors by implementing alternative forms of reinforcement (i.e., tokens and respective rewards) for target behaviors (i.e., responsibilities), with the intention of differentially reinforcing adaptive versus maladaptive/avoidant operants.

Similarly, the development of maladaptive anxiety may be understood using Mowrer's (1951) 2-factor model of learning. Namely, anxious symptoms are theorized to first arise via

classical conditioning. Specifically, aversive unconditioned stimuli that elicit unconditioned responses (e.g., nervous feelings, restlessness, physiological responses) become associated with neutral or non-threatening stimuli, and elicit similar conditioned fear responses to previously neutral stimuli (thus becoming conditioned stimuli), even in the absence of aversive stimuli (McSweeney et al., 1984; Mineka & Oehlberg, 2008; Prokasy & Kumpfer, 1973). Secondly, the maintenance of anxious symptoms can be understood through operant conditioning (Skinner, 1971)—specifically, the short-term removal of the punitive properties of a conditioned fear response to neutral (or non-threatening) stimuli through emitted negatively reinforcing avoidant behaviors (Dymond, 2019; Dygdon & Dienes, 2014; Ollendick & Vasey, 2001). PCIT-MC likely remedied anxious symptoms by differentially reinforcing brave behaviors through positive reinforcement (i.e., PRIDE skills and the token economy), and consequently weakening maladaptive conditioned fear responses to neutral stimuli over time; thus, both increasing the likelihood of emission of brave behaviors and reducing conditioned fear responses to neutral (i.e., non-threatening) stimuli. PCIT-MC likely promoted initiation and maintenance of brave behaviors by providing alternative forms of positive reinforcement for brave behaviors at a greater magnitude of reinforcement than the negative reinforcement provided by avoidance behaviors, specifically by tailoring rewards (both in CDI and PDI) to be maximally reinforcing to each individual child.

Interrelated with these behavioral mechanisms, PCIT-MC also may have altered youth's maladaptive depressogenic and anxiolytic cognitive schemas. More specifically, Beck's (1979) "negative cognitive triad" theorized that depressive schemas can be categorized by views about oneself being inadequate or worthless (i.e., self-schemas), the world as being unfair or mean, and the future as being hopeless; whereas, anxiolytic schemas are differentiated by views of the world as scary and/or dangerous and the future as uncertain. PCIT-MC might have therapeutically addressed these triads in both of its main phases. First, caregivers' increased use of PRIDE skills (e.g., labeled praises) to their child during CDI (and then throughout PDI)

could over time have countered a youth's negative self-schemas (e.g., feelings of inadequacy and/or worthlessness) and views that the world is mean or scary (via more positive caregiver-child interactions and attachment; Strauch et al., 2020). Second, PCIT-MC's PDI phase might have further ameliorated youths' depressive and/or anxiolytic cognitions about the world being cruel or unfair and/or the future being hopeless or uncertain via its token economy, which when implemented correctly and consistently, would have granted the youth greater autonomy with more fair, consistent, and positive consequences to their actions. Moreover, caregivers' cross-phase use of PRIDE skills during PCIT-MC (Strauch et al., 2020) would have modeled more adaptive cognitions and schemas to their youth (e.g., pointing out the direct, fair, and consistent relation between a child's positive action and a positive consequence, offering labeled praises about a child's ability to reliably and adaptively change their environment and related positive self-attributes) and thereafter amplified (via reflections, praises, etc.) any time a youth verbalized more adaptive cognitions about themselves, the world, or the future.

Finally, both externalizing and internalizing symptoms can arise in part due to maladaptive interpersonal functioning. For instance, insecure attachment styles have been shown to be associated with depressive symptoms in youth (Spruit et al., 2019), and youth with depressive symptoms have been shown to engage in excessive reassurance-seeking and negative feedback-seeking from family members (Evraire et al., 2014). PCIT-MC addresses these maladaptive interpersonal patterns by cultivating caregiver warmth during CDI through the use of PRIDE skills, and instructing caregivers to further provide appropriate negative and positive feedback to their youth via PDI's token economy (e.g., PDI's 5-second rule and related strategic ignoring likely prevent caregivers from providing excessive reassurance). Relatedly, relational uncertainty and overaccommodation by family members (i.e., "helicopter parenting") are theorized to cause anxious symptoms in youth (Bertelsen et al., 2022; Dadds et al., 2001). PCIT-MC addresses these interpersonal problems by cultivating a warm caregiver-child relationship through CDI, while also encouraging and incentivizing child agency and

independence through PDI's token economy and CDI's general principle of allowing youth to lead play interactions (Eyberg & Funderburk, 2011). Collectively, these principles and practice elements likely explain the significant, reliable, and large pre- to post-PCT-MC improvements in child internalizing and externalizing symptoms found by this study. Indeed, preliminary evidence supports these mechanisms at least for changes in externalizing problems (Bird et al, 2020), though future study is needed to better validate these mechanisms, particularly in regards to PCIT-MC-related changes in internalizing problems.

Limitations and Future Directions

The above findings indicate notable potential for PCIT-MC to efficaciously treat child externalizing and internalizing problems, but current results are not without limitations. Namely, this study is limited by its sample's demographics, measurement methods, and lack of experimental controls and treatment mechanism analysis.

Sample Demographics

Concerning sample demographics, most of this sample were non-Latina White mothers of non-Latine White youth (81.8%). While this ethno-racial breakdown represents the regional demographics of this sample's population (i.e., Idaho; U.S. Census Bureau, 2021), study findings may not generalize to non-White ethno-racial groups. Notably, PCIT's standard-age applications have been validated extensively across ethnoracial and national identities (see Niec [2018] and Lieneman et al. [2017]), and meta-analyses indicate that PCIT's treatment effects do not vary significantly across ethnoracial groups with these ages (Thomas et al., 2017). In contrast, all three previously published case studies of PCIT during middle childhood (i.e., Briegel, 2017; Cohen et al., 2012; Stokes et al., 2017) exclusively involved non-Latino White boys. Thus, this study is the first to report on PCIT outcomes in middle childhood with a Black and Latino boy—and the first to find clinically significant, reliable improvements, both for PCIT and specifically for PCIT-MC. Still, future research should test PCIT-MC with more

ethnoracially diverse groups and assess whether ethnoracial identity affects outcomes of PCIT (PCIT-MC or otherwise) during middle childhood.

Similarly, this sample's caregiver-child dyads had relatively homogenous genders. That is, despite 8 of the 11 (72.7%) PCIT-MC cases having both paternal and maternal caregivers actively participate in PCIT-MC (a rate substantively higher than usual for PCIT; Klein et al., 2022), this study only analyzed caregiver data from primary caregivers—all of whom were maternal caregivers. Although this practice is consistent with most PCIT research and typical clients (e.g., Bagner & Eyberg, 2007; Lieneman et al., 2020; McCabe et al., 2012; Schuhmann et al., 2010; Tempel et al., 2013; Thomas & Zimmer-Gembeck, 2011; Thomas et al., 2017; Webb et al., 2016), future research should examine paternal reports of youth symptoms to better gauge PCIT-MC's treatment efficacy, as fathers, compared to mothers, generally report comparatively fewer positive and negative child behaviors, including externalizing and internalizing problems (Achenbach et al., 1991; Briegel et al., 2019).

Relatedly, the majority of PCIT-MC treated youth were boys (72.7%). Although this is typical of most PCIT cases (see literature above), girls and other gender-diverse youth remain largely underrepresented in this sample and past PCIT research with older youth. Indeed, of the three prior case studies of PCIT during middle childhood (i.e., Briegel, 2017; Cohen et al., 2012; Stokes et al., 2017), all three only involved boys. Thus, this study is the first to report on PCIT's effects on girls in middle childhood—and most outcomes indicated clinical and/or reliable improvements. Still further research is needed, especially with this developmental period, as physical sex differences emerge in middle childhood, burgeoning an increased sense of gender identity for many youth (Del Giudice et al., 2009). Concurrent with these emerging sex and gender differences, boys in middle childhood typically display higher levels of aggressive behaviors than do girls, just as girls compared to boys become more prone to internalizing problems (Ara, 2016; Del Giudice et al., 2009; Demmer et al., 2017; Gutman & Codioli McMaster, 2020; Jellesma & Vingerhoets, 2012). These comparative differences in the

presentation of psychopathology between boys and girls highlight both (1) a potential explanation for the especially high ratio of boys in the current study and (2) the need for further research on the efficacy of PCIT-MC for girls. Moreover, girls, transgender, and non-binary children are vulnerable to unique psychosocial risks compared to boys (Bor et al., 2014; Connolly et al., 2016; Lipari et al., 2016), and yet are largely underrepresented in both behavioral health care settings and clinical research (Alonzi et al., 2020; Dalsgaard et al., 2020; Hawke et al., 2021). Thus, despite the current results suggesting promising cross-gender effects for PCIT, future studies should directly examine PCIT-MC's relative efficacy with girls and gender-diverse youth.

Measurement of Youth Internalizing Problems

Beyond sample demographics, this study also has limitations concerning its measurement of internalizing symptoms. Namely, due to PCIT-MC's pilot trial being designed primarily to assess changes in child externalizing problems, measures of internalizing problems varied across cases. First, caregiver-ratings of youths' overall internalizing problems involved different broadband measures (i.e., the BASC-2, BASC-3 and CBCL). Although each of these gold standard measures has adequate convergent construct validity with one another (Achenbach & Rescorla, 2001; Kaphaus et al., 2007; Reynolds & Kamphaus, 2004), each measure has its own cutoffs for normative, at-risk, and/or clinical levels. To ameliorate these differences, the current study used only *T*-scores from these measures and analyzed their data using only one cutoff score across measures, consistent with the externalizing behavior measure. Second, only three youth in the sample (i.e., all three who had depressive symptoms as a primary presenting concern) were administered self-report measures, and similar to caregiver-reports, these self-reports were inconsistent across cases (i.e., one used the RCADS; two used the SMFQ). Despite this inconsistency, this was still the first known PCIT study to include standardized self-report data (for internalizing symptoms or otherwise) and thus evinces reliable, significant improvements in self-reported depressive symptoms during a PCIT protocol.

This is particularly notable (and needed) since youth in middle childhood tend to be better reporters of their internalizing symptoms than their caregivers (Curhan et al., 2020; Muris et al., 2004; Yeh & Wiesz, 2001). Regardless, future PCIT-MC studies should use consistent, multi-informant measurement of symptoms, particularly ones that allow analysis of diagnosis-specific symptoms (e.g., depression versus anxiety), as this would better clarify which symptoms, or clusters of symptoms, PCIT-MC best treats.

Additionally, this study relied solely on standardized caregiver- and self-rating scales, unlike prior PCIT studies which also used validated interview schedules (e.g., PAPA, ADIS-IV) in order to assure consistency of diagnostic methodology for all youth (e.g., Choate et al., 2005; Comer et al., 2012; Cooper-Vince et al., 2016; Cornachhio et al., 2019; Mazza, 2018; Pincus et al., 2008). For PCIT-MC's pilot trial, standardized rating scales were used since they, compared to structured diagnostic interviews, pragmatically reduce assessor burden while maintaining diagnostic accuracy (Espallargues et al., 2000; Osterber et al., 2009; Youngstrom et al., 2017). Still, future studies of PCIT-MC might also integrate structured interviews into pre- and post-treatment assessments—particularly by blind assessors—to better assess youth's baseline diagnoses as well as diagnostic treatment responses.

Relatedly, in terms of internalizing problems represented in the sample, five youth had a baseline diagnosis of MDD (see Table 3), yet no youth had a baseline anxiety disorder (e.g., GAD, SAD, SM). Although the internalizing scales of the CBCL and BASCs include items that assess for anxiety (e.g., "Is fearful", "Worries about things that cannot be changed", "Worries about what other children think", "Is nervous" [for the BASCs]; "Nervous, highstrung, or tense", "Too fearful or anxious", "Can't get his/her mind off certain thoughts; obsessions" [for the CBCL]), the efficacy of PCIT-MC to treat clinically significant anxious symptoms is relatively unknown compared to its efficacy to treat depressive symptoms—especially since narrowband measures of depressive, but not anxiety, symptoms were used. Given this limitation, future studies of PCIT-MC could recruit children with both clinically significant levels of depression and

anxiety, thoroughly assess both symptom domains at pre- and post-treatment and evaluate PCIT-MC's relative efficacy at treating both types of mood disorders.

Treatment Mechanisms and Experimental Replication

As previously mentioned, preliminary research has tested PCIT-MC's treatment mechanisms for externalizing symptoms (e.g., changes in caregiver CDI skills; Bird et al., 2020; Strauch et al., 2020). However, empirical validation of PCIT-MC's treatment mechanisms for internalizing symptom change was beyond the scope of this study. Relatedly, this study only analyzed data from pre- and post-treatment, which did not permit analysis of phasic improvements in internalizing problems (unlike prior phasic studies of PCIT-MC's effects on externalizing symptoms; Peer et al., 2019). Thus, future studies also should assess internalizing symptoms at mid-treatment (i.e., between CDI and PDI) in order to assess which phases of PCIT-MC—and relatedly which phase-specific skills (e.g., CDI do skills, PDI commands)—contribute most to reductions in child internalizing problems. This would be particularly helpful to know given PCIT-MC's significant adaptations made to the PDI phase compared to its relatively minor tailoring to CDI. Further, future research could examine dosage gradients via microtrials (Leijten et al., 2015) to precisely examine how many sessions and which practice elements are necessary for optimal PCIT-MC treatment outcomes.

Perhaps most saliently, this study lacked an experimental control. Granted, this study did assess whether changes in symptoms were reliable, and these RCI analyses indicated that observed reductions in internalizing and externalizing problems exceeded what would be expected from assessment of symptoms at separate time points without intervention (i.e., test-retest reliability). Still, PCIT-MC's pilot trial did not incorporate randomize assignment or control conditions into its study design. Previous PCIT studies with standard age youth have included both non-treatment waitlist control groups (e.g., Barstead et al., 2018; Chronis-Tuscano et al., 2015; Comer et al., 2021; Cornachio et al., 2019; Luby et al., 2018; Mersky et al., 2016) and active control groups (e.g., Abrahamse et al., 2016; Chronis-Tuscano et al., 2022; Foley et al.,

2016; Garcia et al., 2021; Luby et al., 2012). Thus, a randomized control trial of PCIT-MC, with either a passive or active control suitable for middle childhood (e.g., PCIT-OC or another transdiagnostic treatment like MATCH-ADTC or FIRST), would be an essential step in establishing PCIT-MC as a well-established treatment for comorbid internalizing and externalizing problems, as would independent replication (Southam-Gerow and Prinstein, 2014). Yet, even if multiple RCTs supports PCIT-MC's efficacy, additional research would be needed to assess its effectiveness, feasibility, and cost-benefit in community settings with ecologically valid clinicians, supervisors, and related contextual factors (Weisz & Kazdin, 2017).

Finally, this study did not assess long-term sustainment of treatment effects. A large body of research supports the maintenance of treatment effects on disruptive behavior problems with PCIT's standard protocol (Boggs et al., 2005; Eyberg et al., 2001; Hood & Eyberg, 2003; Nixon et al., 2003; Valero Aguayo et al., 2021), and more recently, research has shown sustainment of remission of depressive symptoms at 18-week follow-ups for PCIT-ED (Luby et al., 2020). Thus, exploration of the potential sustainment of treatment effects of PCIT-MC should be assessed by collecting follow-up data on outcome variables (e.g., internalizing and externalizing symptoms).

Conclusions

Notwithstanding the above limitations, the current study significantly advances the scientific literature on treatment of internalizing and externalizing problems in middle childhood, particularly via PCIT. Namely, in contrast to the three single case studies that each used different PCIT protocols (i.e., Briegel, 2017; Cohen et al., 2012; Stokes et al., 2017), this is the first study to specifically report on PCIT outcomes with multiple youth in middle childhood using a standardized age-adapted protocol (i.e., PCIT-MC). Relatedly, this study is the first to report on these outcomes with inferential statistics and standardized effect sizes, as well as the first to examine PCIT outcomes in middle childhood with multiple child genders and ethnoracial identities (versus just White, non-Latino boys). Additionally, this is the first PCIT study (during

middle childhood or otherwise) to examine pre- to post-treatment changes in standardized youth-report of depressive symptoms. Overall, results from PCIT-MC's first pilot trial indicated statistically and clinically significant, reliable, and large pre- to post-treatment reductions in both child externalizing and internalizing problems across reporters. Moreover, these improvements were notably better than that of most multi-problem treatments for youth, particularly for those in middle childhood (e.g., MATCH-ADTC and FIRST; Chorpita et al., 2017; Weisz & Bearman, 2020). Although future research needs to replicate this study's findings with diverse populations in controlled experimental and community settings, these preliminary findings suggest PCIT-MC may be an efficacious transdiagnostic intervention for cross-domain comorbidities in middle childhood—which is especially salient given the prevalence of comorbid cross-domain psychiatric concerns (Greene et al., 2002; Mahendran et al., 2021; McRae et al., 2020; Moilanen et al., 2010; Papachristou & Flouri, 2020), their associated negative developmental cascades (Gnanavel et al., 2019; Mahendran et al., 2021; Young et al., 2019), and the relative lack of validated transdiagnostic treatments for youth in middle childhood (Hersh et al., 2016; Powell et al., 2013).

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Table 1*Internalizing Problem Clinical Outcomes for Standard PCIT and Adapted Protocols*

Standard PCIT Protocol							
Study	Design	N	Age (Years)	Baseline Clinical Characteristics	Salient Measures	Effect Sizes	Treatment/Diagnostic Response
Zimmer-Gembeck et al. (2019)	Pre-Post	136	2.0–6.9	Subclinical internalizing problems ($M_T\text{-score} = 62.0$)	BASC-2 Internalizing Problems	$d = -0.39^*$ (pre- to post-treatment Δ)	N/A
Choate et al. (2005)	Pre-Post	3	4.0–8.0	SAD (100%)	ADIS-IV-C/P	None provided	100% of children no longer met SAD criteria at post-treatment
Aggazi et al. (2017)	Case studies	3	3.0–7.9	ASD (100%), Subclinical internalizing problems ($M_T = 66.7$)	CBCL Internalizing Problems	None provided	Pre-treatment to 3-month follow-up T s: • Case 1: 68–54 • Case 2: 69–59 • Case 3: 63–60
Abrahamse et al. (2016)	RCT (control: Family Creative Therapy)	45	2.0–8.9	Subclinical internalizing problems ($M_T = 63.5$)	CBCL Internalizing Problems	$d = -1.38$ (pre-treatment to 6-month follow-up Δ) $d = -0.83$ (treatment comparison)	Pre-treatment: $M_T = 63.5$ (subclinical) Post-treatment: $M_T = 54.4$ (normal) 6-month follow-up: $M_T = 49.3$ (normal)

Thomas & Zimmer-Gembeck (2012)	Pre-Post	151	3.0–7.9	Average internalizing problems ($M_T = 54.6$)	CBCL Internalizing Problems	$d = -0.30^*$ (pre- to post-treatment Δ)	Pre-treatment: $M_T = 54.6$ (normal) Post-treatment: $M_T = 49.8$ (normal)
Kaminsky (2019)	Pre-Post	110	4.0–12.9	Average internalizing problems ($M_T = 52.9$)	BASC-3 Internalizing Symptoms	$d = -0.87^*$ (pre- to post-treatment Δ)	Pre-treatment: $M_T = 52.9$ (normal) Post-treatment: $M_T = 49.0$ (normal)
Allen et al. (2014)	Pre-Post	85	2.0–7.9	Clinical levels of internalizing problems (39.2%)	CBCL Internalizing Problems	$d = -1.45^*$ (pre- to post-treatment Δ)	Pre-treatment: $M_T = 60.1$ (subclinical) Post-treatment: $M_T = 52.9$ (normal) 18.9% had clinical internalizing problems post-treatment
Chase & Eyberg (2008)	Pre-Post	64	3.0–6.9	SAD (23.4%)	CBCL Internalizing Problems	$d = -1.78^*$ (pre- to post-treatment Δ)	Post-treatment, 73% of SAD-diagnosed youth no longer met SAD criteria

Adapted PCIT Protocols

Protocol	Study	Design	N	Age	Baseline Clinical Characteristics	Measure(s)	Effect Sizes	Treatment/Diagnostic Response
Group PCIT	Mersky et al. (2016)	RCT (control: waitlist)	68	3.0–6.9	Clinical levels of internalizing problems ($M_{\text{raw CBCL scores}} = 17.3\text{--}20.9$)	CBCL Internalizing Problems Scale	$r^2 = .08^*$ (contrast to non-treatment waitlist control)	Pre- to post-treatment, mean CBCL scores decreased from clinical to normal for PCIT groups (brief and extended).

	Foley et al. (2016)	RCT (control: TAU)	44	1.0–12.9	Families reported, or at high risk, for child abuse and/or neglect, with subclinical internalizing symptoms ($M_T = 63.1$)	CBCL Internalizing Problems Sale	$d = -0.83^*$ (pre- to post-treatment Δ)	Pre-treatment: $M_T = 63.1$ (subclinical) Post-treatment: $M_T = 54.7$ (normal)
I-PCIT	Garcia et al. (2021)	RCT (control: in-person PCIT)	86	2.0–8.9	Normal internalizing symptoms ($M_T = 58.6$)	BASC-3	$g = -0.40^*$ (pre- to post-treatment Δ)	N/A
BDI	Pincus et al. (2008)	Pre-post	10	4.0–8.9	SAD (100%)	ADIS-IV-CP (CSR)	N/A	Pre-treatment: $M_{raw} = 5.5$ (clinical) Post-treatment: $M_{raw} = 2.8$ (normal) At 3-mo follow-up, 73% no longer met SAD criteria.
Turtle Program	Chronis-Tuscano et al. (2015)	RCT (control: waitlist)	40	3.5–5.9	Elevated BI (100%) Social anxiety disorder (72%)	BIQ	$g = -0.93^*$ (contrast to waitlist control)	Pre-treatment $M_T = 60.8$ (subclinical) Post-treatment: $M_T = 51.0$ (normal) Post-treatment, only 5% still had social anxiety disorder
	Barstead et al. (2018)	RCT (control: waitlist)	40	3.5–5.9	See above	POS, CBS	$g_s = 0.66^*$, 0.50^* & -0.57^*	N/A

							(pre- to post-treatment Δ in group play, play initiation, and anxiety)	
	Chronis-Tuscano et al. (2022)	RCT (control: Cool Little Kids; Rapee et al., 2005)	151	3.5–5.9	85+ percentile on the BIQ.	BIQ	None reported	Compared to control group, caregivers in Turtle Program had greater pre- to post-treatment (a) gains in engagement and positive affect and (b) decreases in negative controlling behaviors with their children*
PCIT-SM	Catchpole et al. (2019)	Pre-post	31	4.0–9.8	SM (100%) Clinical internalizing symptoms ($M_{raw} = 29.1$)	SMQ, SCARED	$d_s = 1.80^*, 1.47^*, 1.77^*, 1.09^*$ (pre- to post-treatment Δ in speaking across environments)	SM treatment response (86.2%) Pre-treatment: $M_{raw} = 29.1$ (clinical) Post-treatment: $M_{raw} = 21.5$ (normal)
	Cornachhio et al. (2019)	RCT (control: waitlist)	29	5.0–9.9	SM (100%) Clinical internalizing symptoms ($M_T = 65.7$)	ADIS-IV-C/P, SMQ, CBCL Internalizing Problems Scale	$d_s = -0.50^*, -0.58^*, * 0.73^*$ (contrast to non-treatment control group in SM severity, social issues, and global functioning)	Pre-treatment: $M_T = 65.7$ (clinical) Post-treatment: $M_{raw} = 61.6$ (subclinical)
CALM	Comer et al. (2012)	Pre-Post	5.4	4.0–8.9	Anxiety disorder(s) (100%)	ADIS-C/P	N/A	Diagnostic remission of anxiety disorder(s) (85.7%)

	Cooper-Vince et al. (2016)	Case Study	1	6.0	GAD and SAD (100%) Clinical anxiety ($M_{raw} = 5.0$)	ADIS-IV-P	N/A	Pre-treatment: $M_{raw} = 5.0$ (clinical) Post-treatment: $M_{raw} = 2.0$ (normal)
	Comer et al. (2021)	RCT (control: waitlist)	40	3.0–8.9	Social anxiety disorder (100%) Clinical internalizing symptoms ($M_T = 68.4$)	CBCL, CBQ	$ds = -0.31^*$, -0.89^* , & 0.66^* (contrast to control in anxiety, discomfort, & soothability)	For iCALM group: Pre-treatment: $M_T = 68.4$ (clinical) Post-treatment: $M_T = 64.0$ (subclinical)
Brave START	Mazza (2018)	Pre-post	7	3.0–7.9	Anxiety disorder (100%)	ADIS-5	N/A	Pre- to post-treatment diagnostic remission (85.7%)
PCIT-ED	Lenze et al. (2011)	Pre-post	7	3.0–6.9	MDD (100%)	HBQ, PAPA	$ds = -0.88^*$ & -1.28^* (pre- to post-treatment Δ in internalizing and MDD severity)	Pre- to post-treatment diagnostic remission (71%)
	Luby et al. (2012)	RCT (control: psychoed on child emotion)	54	3.0–7.9	MDD (100%)	PFC-S	$ds = -2.17^*$ (pre- to post-treatment Δ in internalizing symptoms)	Post-treatment diagnosis rates were not reported.
	Luby et al. (2018)	RCT (control: waitlist)	229	3.0–6.9	MDD (100%)	K-SADS-EC, PFC-S, PECFAS	$ds = -1.01^*$, -1.04^* , 0.78^* (waitlist comparison on MDD and internalizing)	Post-treatment diagnostic remission (78%)

							symptoms and psychosocial functioning)	
PCIT-EC _o	Chronis-Tuscano et al. (2016)	Pre-post	3	3.5–5.5	Not reported	ERC	N/A	Clinically significant pre- to post-treatment reductions in emotion regulation problems (100%)

Note. PCIT = Parent-Child Interaction Therapy; I-PCIT = Internet PCIT; BDI = Bravery Directed Interaction; PCIT-SM = PCIT-Selective Mutism; CALM = Coaching Approach Behavior and Leading by Modeling; Brave START = Brave Skills Training and Anxiety Reduction Treatment; PCIT-ED = PCIT-Emotional Development; PCIT ECo = PCIT-Emotion Coaching. BASC = Behavior Assessment System for Children; ADIS = Anxiety Disorders Interview Schedule; CBCL = Child Behavior Checklist; BIQ = The Behavioral Inhibition Questionnaire; POS = Play Observation Scale; CBS = Child Behavior Scale; SMQ = Selective Mutism Questionnaire; HBQ = Health and Behavior Questionnaire; PAPA = Preschool Age Psychiatric Assessment; PFC = Preschool Feelings Checklist; ERC = Emotion Regulation Checklist; TAU = treatment-as-usual.

* $p < .05$

Table 2

Past Case Studies Adapting PCIT for Children in Middle Childhood: Demographics, Diagnoses, Alterations, and Outcomes

Study	Child Demographics and Baseline Diagnoses	CDI Alterations	PDI Alterations	Treatment Outcomes
Cohen et al., 2012	11-year-old boy with a traumatic brain injury ADHD diagnosis BASC-2 Internalizing Problems: $T = 63$ (subclinical) ECBI Intensity raw score = 133 (clinical)	Use of behavioral descriptions not required for mastery	Swoop and go technique replaced standard time-out procedure	Post-treatment: ECBI Intensity: raw = 21 (normal) Internalizing symptoms not assessed post-treatment
Briegel et al., 2017	10-year-old boy ODD and ADHD diagnoses SDQ Emotional Symptoms: raw = 24 (clinical) SDQ Conduct Problems: raw = 6 (clinical)	Use of construction games for CDI Paraphrasing reflections as opposed to verbatim repetition 10-min homework assignments	N/A	At 17-mo follow-up: SDQ Emotional Symptoms: raw = 12 (normal) SDQ Conduct Problems: raw = 2 (normal)

Stokes et al., 2017	8-year-old boy ODD diagnosis ECBI Intensity: Maternal rating $T = 67$ (clinical) Paternal rating $T = 68$ (clinical) CBCL Externalizing Problems: Maternal rating $T = 77$ (clinical) Paternal rating $T = 76$ (clinical) CBCL Internalizing Problems: Maternal rating $T = 68$ (clinical) Paternal rating $T = 68$ (clinical)	PCIT-OC adaptations, including: Reduced CDI mastery criteria (7 LPs, 7 BDs, 7 RFs, informational descriptions count as BDs) 10-min homework duration	Incentive chart and response cost for timeout compliance	Post-treatment: ECBI Intensity: Maternal rating $T = 43$ (normal) Paternal rating $T = 49$ (normal) CBCL Externalizing: Maternal rating $T = 61$ (subclinical) CBCL Internalizing Maternal rating $T = 45$ (normal)
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Note. CDI = Child-Direction Interaction, PDI = Parent-Directed Interaction, ADHD = attention-deficit/hyperactivity disorder, ODD = oppositional defiant disorder, BASC = Behavioral Assessment System for Children, ECBI = Eyberg Child Behavior Inventory, SDQ = Strengths and Difficulties Questionnaire, CBCL = Child Behavior Checklist.

Table 3*Pre- to Post-PCIT-MC Reductions in Caregiver-Reported Child Externalizing and Internalizing Problems*

Externalizing Problems								
Case	Demographics	Pre-Tx Diagnoses	Measure	Pre-Tx <i>T</i>	Post-Tx <i>T</i>	Clinical Δ	RCI	Reliable Δ
1†	8.0-yr-old Latino boy	ODD, PTSD, enuresis, & ARFID	ECBI	60*	36	✓	32.00	✓
2	8.9-yr-old White girl	ODD, ADHD, & ARFID	ECBI	52	37	NA	20.00	✓
3	8.4-yr-old White boy	ODD & ADHD	ECBI	61*	40	✓	28.00	✓
4	9.6-yr-old White boy	ADHD & ODD	ECBI	57	43	NA	18.67	✓
5	9.4-yr-old White girl	None	ECBI	49	35	NA	18.67	✓
6	8.2-yr-old White girl	MDD	ECBI	46	48	NA	-2.67	
7	9.2-yr-old White boy	ADHD & MDD	ECBI	55	47	NA	10.67	✓
8	10.4-yr-old White boy	ODD, CD, MDD, & ARFID	ECBI	88*	50	✓	50.67	✓
9	10.5-yr-old White boy	ASD, ADHD, & MDD	ECBI	67*	49	✓	24.00	✓
10	7.4-yr-old Black boy	ODD, ADHD, & MDD	ECBI	70*	54	✓	21.33	✓
11	8.7-yr-old White boy	ASD, ADHD, ODD, enuresis	ECBI	74*	43	✓	41.33	✓
Internalizing Problems								
Case	Demographics	Pre-Tx Diagnoses	Measure	Pre-Tx <i>T</i>	Post-Tx <i>T</i>	Clinical Δ	RCI	Reliable Δ
2	8.9-yr-old White girl	ODD, ADHD, & ARFID	BASC-2	39	35	NA	5.12	✓
3	8.4-yr-old White boy	ODD & ADHD	CBCL	65*	48	✓	19.54	✓
4	9.6-yr-old White boy	ADHD & ODD	CBCL	65*	67*		-2.29	
5	9.4-yr-old White girl	None	CBCL	59	46	NA	14.94	✓
6	8.2-yr-old White girl	MDD	CBCL	72*	65*		8.04	✓
7	9.2-yr-old White boy	ADHD & MDD	CBCL	63*	52	✓	12.64	✓
8	10.4-yr-old White boy	ODD, CD, MDD, & ARFID	CBCL	74*	48	✓	29.88	✓
9	10.5-yr-old White boy	ASD, ADHD, & MDD	CBCL	71*	68		3.44	✓
10	7.4-yr-old Black boy	ODD, ADHD, & MDD	BASC-3	83*	54	✓	31.86	✓
11	8.7-yr-old White boy	ASD, ADHD, ODD, enuresis	BASC-3	64*	48	✓	17.58	✓

Note. ECBI = Eyberg Child Behavior Inventory (Intensity Scale), BASC = Behavioral Assessment Inventory System for Children (Internalizing Scale), CBCL = Child Behavior Checklist (Internalizing Scale), RCI = Reliable Change Index. ODD = oppositional defiant disorder, PTSD = post-traumatic stress disorder, ARFID = avoidant/restrictive food intake disorder, ADHD = attention-deficit/hyperactivity disorder, CD = conduct disorder, ASD = autism spectrum disorder. **T*-scores ≥ 60 indicated clinically elevated externalizing and internalizing problems. RCIs ≥ 1.96 indicated reliable change. NA = Not applicable due to pre-treatment score being below clinical cutoff. † = Case 1 originally had pre- and post-treatment BASC scores, but data were lost due to a software corruption error.

Table 4

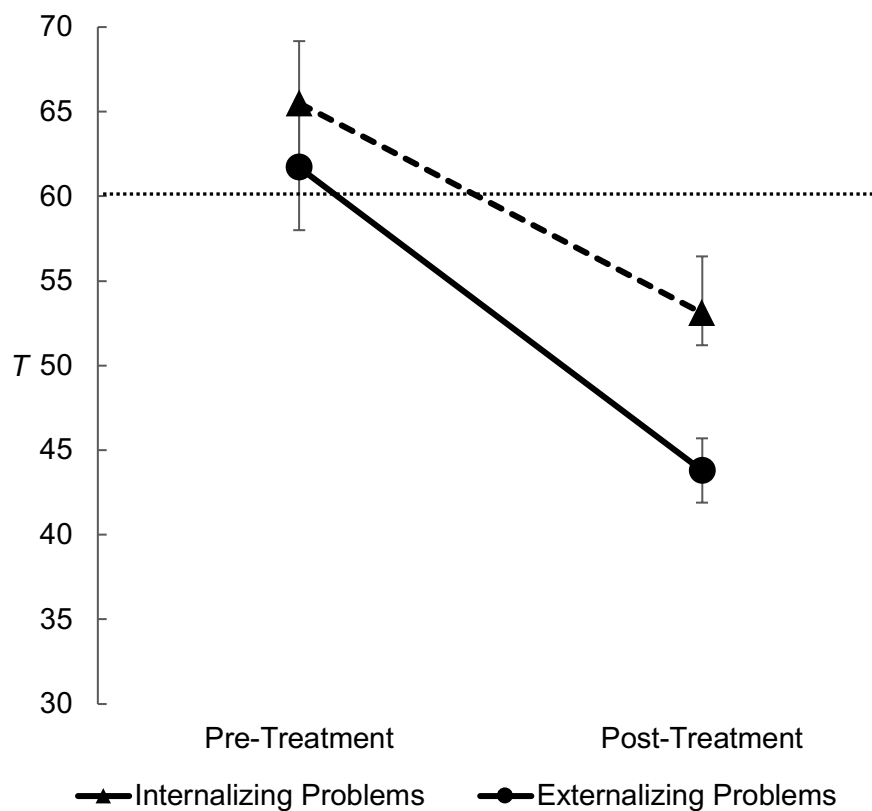
Pre- to Post-PCIT-MC Reductions in Youth-Reported Child Externalizing and Internalizing Problems

Case	Demographics	Pre-Tx Diagnoses	Measure	Pre-Tx	Post-Tx	Clinical Δ	RCI	Reliable Δ
6	8.2-year-old White girl	MDD	SMFQ (raw)	13*	8*		5.95	✓
10	7.4-year-old Black boy	MDD, ODD, & ADHD	SMFQ (raw)	14*	4	✓	10.71	✓
7	9.2-year-old White boy	MDD & ADHD	RCADS (<i>T</i>)	71*	58	✓	16.88	✓

Note. ADHD = attention-deficit/hyperactivity disorder, MDD = major depressive disorder, ODD = oppositional defiant disorder, SMFQ = Short Mood and Feelings Questionnaire (self-report form), RCADS = Revised Children's Anxiety and Depression Scale (Depression subscale), RCI = reliable change index. * = clinically elevated depressive symptoms (i.e., SMFQ raw scores ≥ 8 , RCADS *T*-score ≥ 60 on the RCADS). RCIs ≥ 1.96 indicated reliable change.

Figure 1

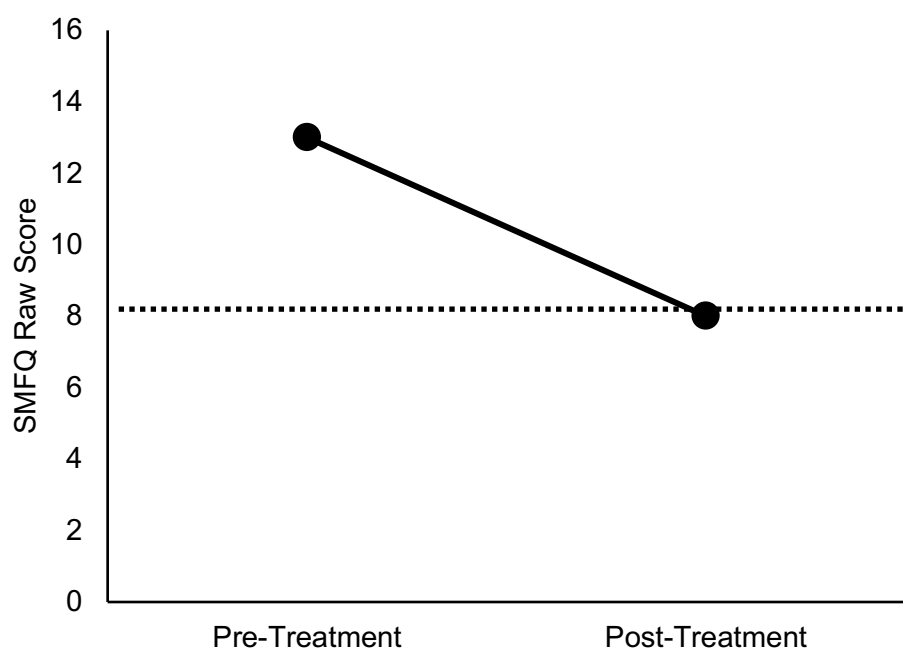
Pre- to Post-Treatment Reductions in Caregiver-Reported Child Externalizing and Internalizing Problems



Note. $N = 11$. Externalizing $n = 10$. Internalizing $n = 11$. Error bars represent standard errors of the mean.

Figure 2

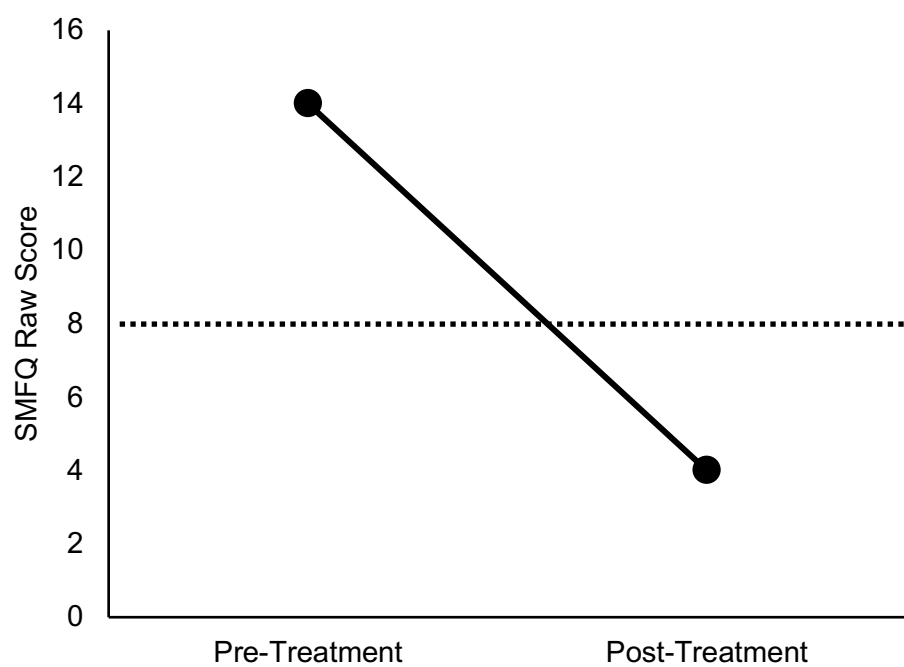
Pre- to Post-Treatment Reductions in Self-Reported Depressive Symptoms for Case 6



Note. Dotted line indicates clinical cutoff.

Figure 3

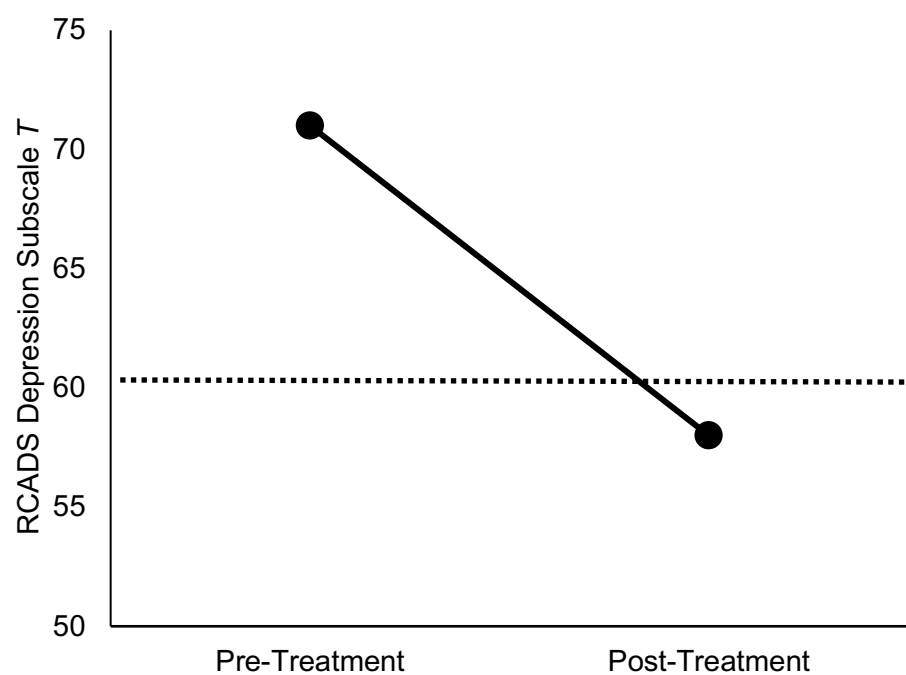
Pre- to Post-Treatment Reductions in Self-Reported Depressive Symptoms for Case 10



Note. Dotted line indicates clinical cutoff.

Figure 4

Pre- to Post-Treatment Reductions in Self-Reported Depressive Symptoms for Case 7



Note. Dotted line indicates clinical cutoff.

Appendix

Study Overview and Detailed Review of Relevant Literature

The prevalence of mental health problems among youth has been rising in recent years, with rates accelerated during the COVID-19 pandemic, and expected to rise all the more in coming years (Whitney & Peterson, 2019; Friedberg, 2021; Shambraw et al., 2021). The majority of referrals for youth mental health services are for externalizing problems (e.g., disruptive behavior, hyperactivity, aggression; Tempel et al., 2015; Kazdin, 2011; Erath et al., 2009); however, externalizing problems rarely occur on their own in childhood but are rather frequently comorbid with internalizing problems (e.g., depression, anxiety; Mahendran et al., 2021; McRae et al., 2020). These comorbidities are especially salient to child mental health treatment because both internalizing and externalizing problems, if not effectively treated, lead to dysfunctional developmental cascades that negatively impact functional, emotional, and occupational domains throughout childhood and into adulthood, and these impairments and outcomes typically worsen when internalizing and externalizing problems are comorbid (Bubic & Ivanisevic, 2016; Cho et al., 2019, 2020; Deighton et al., 2018; Garfin et al., 2018; Jamnik & DiLalla, 2019; Martínez-Martí & Ruch, 2017; Papachristou & Flouri, 2020; Salavera et al., 2019; Trickey et al., 2012). Yet, despite this demonstrated need, the availability of validated transdiagnostic treatments for children is surprisingly limited (Weisz et al., 2017).

To address this service gap, researchers have begun to develop new protocols intended to transdiagnostically target both internalizing and externalizing problems in children (e.g., Chorpita et al., 2017; Wiesz & Bearman, 2020), but these protocols have yet to be validated through independent replication and/or are limited in the developmental span of children that they are designed to treat. In contrast, Parent-Child Interaction Therapy (PCIT; Eyberg & Funderburk, 2011) is a gold-standard treatment for childhood disruptive behavior problems for children ages 2–7 years, with over 50 years of independently replicated research supporting its effectiveness in treating young children with comorbid externalizing and internalizing problems

(Costello et al., 2011; Eyberg & Bussing, 2010; Lineman et al., 2017; Mersky et al., 2016; Thomas et al., 2017). In recent years, a variety of diagnostic adaptations have been made to PCIT to focally target internalizing challenges in young children (Catchpole et al., 2019; Chronis-Tuscano et al., 2015; Chronis-Tuscano, 2016; Lenze et al., 2011; Mazza, 2018; Puliafico et al., 2013). Notwithstanding this robust evidence, PCIT's standard protocol and its internalizing-focused adaptations are primarily intended for—and have been almost exclusively validated with—children in the age range of PCIT's standard protocol (i.e., 2.50–6.11 years). In contrast, few studies have included older children, particularly those in middle childhood (ages 7–11 years), and results specific to this age range have rarely been reported. For instance, only three published single case studies have examined PCIT's efficacy for disruptive behavior in middle childhood (i.e., Briegel et al., 2017; Cohen et al., 2012; Stokes et al., 2017), but the generalizability of these findings remains limited by these study's single case designs, lack of standardized effects sizes (which stymies cross-group and cross-protocol comparisons), relative heterogeneity, and inconsistency in the protocol adaptations that were made. Thus, there continues to be an unmet need for a developmentally adapted, empirically validated PCIT protocol for children in middle childhood—which is a time of unique biopsychosocial competencies, risks, and needs that is distinct both from early childhood and adolescence (Colle & Del Giudice, 2011; Del Giudice, 2018, Jambon & Smetna, 2014). Having effective psychosocial treatments for this developmentally period is especially salient given that it is when mental health diagnoses and service referrals peak (Bhana, 2010; Deighton et al., 2018; Wichstrøm et al., 2014).

Out of this need, PCIT for Middle Childhood (PCIT-MC; Peer et al., 2019) was developed. An adaptation of PCIT specifically for middle childhood (i.e., ages 7–11), PCIT-MC has growing, if preliminary empirical support from an initial pilot trial; results from this trial support PCIT-MC's efficacy at reducing child disruptive behavior problems through changes in parenting behaviors, similar to that of PCIT's standard protocol (Bird et al., 2020; Peer et al.,

2019; Strauch et al., 2020). However, no research to date has examined the effectiveness of PCIT-MC to remediate internalizing problems, specifically depressive and anxious symptoms, either with or without comorbid externalizing problem. Thus, the present study—using archival data from the aforementioned PCIT-MC pilot trial—examined (1) the efficacy of PCIT-MC to significantly reduce internalizing and externalizing problems from pre- to post-treatment, and (2) the degree to which these hypothesized reductions (along with youth-reported depressive symptoms from 3 children) were clinically significant (i.e., whether PCIT-MC causes reductions from the clinical and subclinical range to the normal range from pre- to post-treatment), and reliable (i.e., whether reductions were greater than would be expected by the test-retest reliability of corresponding measure). Consistent with these hypotheses, internalizing and externalizing symptoms reduced to a reliable, and statistically and clinically significant degree across reporters. The following sections will further outline the above literature, both theoretical and empirical.

Rising Behavioral Health Needs Among Youth

Mental health disorders among youth pose significant individual, familial, and societal burdens, imperiling developmental trajectories across the lifespan and creating significant socioeconomic costs (Kyu et al., 2016; US Center for Mental Health Services, 2018; Whitney & Peterson, 2019). These burdens are particularly severe given the high rates of children and adolescents with mental health disorders and related functional impairment (Kyu et al., 2016; Williams et al., 2018). Indeed, approximately 16.5% of youth in the United States have at least one diagnosed mental disorder (Whitney & Peterson, 2019), with meta-analytic epidemiology studies indicating similar global prevalence rates (13.4%–20.1%; Polanczyk et al., 2015; Vasileva et al., 2021). Moreover, rates of youth with functionally impairing psychiatric disorders; including depression and anxiety (Bitsko et al., 2018), attention-deficit/hyperactivity disorder (ADHD; CAHMI, 2020), and autism spectrum disorder (ASD; Knopf, 2020; Kogan et al., 2018); have been rising during recent decades (Williams et al., 2018). These and related child mental

health problems (e.g., disruptive behavior, suicidality) are expected to further surge during COVID-19's peri- and post-pandemic periods (Friedberg, 2021; Golberstein et al., 2020; Gruber et al., 2021; Holmes et al., 2020; Shamblaw et al., 2021; Simon et al., 2020).

Perhaps unsurprisingly, the number of families seeking youth mental health services also has been rising (Olfson et al., 2014), with the pandemic alarmingly accelerating these trends (Huang & Ougrin, 2021; Friedberg, 2021). For instance, ER visits in some regions have risen 24%–34% for youth anxiety and 100%–250% for suicide-related behavior in the past year (Kalb et al., 2019; Leeb et al., 2020; Ridout et al., 2021). Moreover, the overall demand for behavioral healthcare services has risen 800% since the COVID-pandemic (Siegel & Mallow, 2021).

Child Externalizing Problems: Prevalence, Sequelae, & Costs

Among youth—and particularly preadolescent children—the most common reason for referrals to mental health services has been externalizing problems (e.g., disruptive behavior, hyperactivity, aggression, oppositionality; Boylan et al., 2007; Campbell et al., 2000; Erath et al., 2009; Kazdin, 2011; Loeber et al., 2000; Merikangas et al., 2009; Rushton et al., 2002; Steiner et al., 2007; Tempel et al., 2015). Furthermore, externalizing problems are the most prevalent disorders in early and mid-childhood, with 8.7%–14.7% of children in the US meeting diagnostic criteria for a related disorder (e.g., conduct disorder [CD], oppositional defiant disorder [ODD], attention-deficit/hyperactivity disorder [ADHD]; Danielson et al., 2021). If untreated, these child externalizing problems (and related disorders) often persist and intensify in adolescence and young adulthood (Rivenbark et al., 2018; Fergusson et al., 2005; Sanders & Mazzucchelli, 2018; Merikangas et al., 2010; Wilens & Spencer, 2010).

Relatedly, without appropriate intervention, child externalizing disorders typically lead to harmful lifelong outcomes, both behavioral (e.g., criminality, depression substance abuse, peer and parental conflict, educational and occupational underachievement, incarceration, violence, and suicide; Burke et al., 2014; Dodge et al., 2008; Fergusson et al., 2005; Masten & Cicchetti,

2010; Murray & Farrington, 2010; Nock et al., 2007; Obradović et al., 2010; van Lier & Koot, 2010) and medical (e.g., inflammation, chronic disease, obesity; Slopen et al., 2013; Wertz et al., 2018). For example, Fergusson et al. (2005) conducted a 25-year longitudinal study of conduct problems in middle childhood (i.e., 7–9-year-olds) and resulting psychosocial outcomes and adjustment in young adulthood (i.e., 21–25-year-olds). Their results indicated that children with most severe conduct problems in middle childhood (i.e., top 5%) were, compared to peers with normative levels of conduct problems, 10 times more likely to be arrested, convicted, or imprisoned; 2.5 times more likely to use nicotine; 3.8 times more likely to use illicit drugs, and 2–5 times more likely to experience negative partner relationship or sexual outcomes (e.g., domestic violence, teenage pregnancy and parenthood, multiple sexual partnerships) by young adulthood. Similarly, a birth cohort of adults up to age 38 showed that adults who had externalizing problems in childhood (9% of the birth cohort) had over 50% of all criminal convictions, almost 25% of social welfare months, 20% of prescription fills, and 15% of emergency room visits (Rivenbark et al., 2018).

This relative overutilization of expensive community resources (e.g., social services, criminal justice, injury claims, health care systems, prescriptions) highlights the significant social as well as personal costs of child externalizing problems (Gyllenberg et al., 2010, 2011, 2012; Sanders & Mazzucchelli, 2018; Rissanen et al., 2021; Rivenbark et al., 2018; Sourander et al., 2006, 2007). Within the US, 18-year-olds with externalizing behaviors used an average of \$14,000 for such services during childhood and adolescence (Foster & Jones, 2005), while children diagnosed with CD required approximately \$70,000 more of public services annually across adolescence than their undiagnosed peers did (Foster & Jones, 2005). Thus, addressing pre-adolescent externalizing problems in the US might likely save \$2.6–4.4 million every year (Cohen & Pique, 2009) and even more worldwide (see Sanders and Mazzucchelli [2018] and Rissanen et al. [2021]).

Child Internalizing Problems: Prevalence, Sequelae, and Costs

However, externalizing psychopathologies rarely occur on their own in childhood, but rather are often comorbid with various internalizing problems (e.g., depression and anxiety; Greene et al., 2002; Mahendran et al., 2021; McRae et al., 2020; Papachristou & Flouri, 2020). Indeed, among children with clinical levels of externalizing behavior—specifically those with a disruptive behavior disorder—approximately 40% also meet diagnostic criteria for an anxiety disorder, and 30%–50% meet criteria for major depressive disorder (Greene et al., 2002). Additionally, comorbid clinical levels of externalizing and internalizing problems are particularly common among children with other psychiatric concerns; (e.g., ADHD, ASD, maltreatment; Bailey & Finn, 2020; McRae et al., 2020; Duprey et al., 2020).

These already high comorbidity rates are likely to increase, as child internalizing problems have been rising, both pre- and especially peri-pandemic (Bitsko et al., 2018; Kalb et al., 2019; Leeb et al., 2020; Ridout et al., 2021; Racine et al., 2021). Namely, the national prevalence of internalizing disorders among youth, pre-pandemic, was estimated to be between 10%–14.7%, with anxiety disorder estimates being between 8.9%–11.2%, and depressive disorder estimates ranging 2%–3.7% (Danielson et al., 2021). Pre-pandemic global rates of internalizing behaviors were similar, with estimates being between 6.5%–8.5% for anxiety disorders and 1.1%–2.6% for depressive disorders (Polanczyk et al., 2015; Vasileva et al., 2021). However, a recent meta-analysis by Racine et al. (2021) suggests the COVID-19 pandemic has caused global prevalence of internalizing disorders among children and adolescents to have increased drastically, with current estimates being around 25.9%.

These rates are particularly concerning given that child internalizing problems, even if not comorbid with externalizing problems, result in a variety of negative cognitive (Papachristou & Flouri, 2020), academic (Deighton et al., 2018), and physical health outcomes in childhood and into adulthood (Garfin et al., 2018; Jamnik & DiLalla, 2019). They also contribute to maladaptive social development (e.g., poor social skills and emotional intelligence; Bubić & Ivanišević, 2016; Martínez-Martí & Ruch, 2017; Salavera et al., 2019; Trickey et al., 2012) as

well as negative family relationships (e.g., maternal rejection and dysfunctional parenting; Crocetti et al., 2016; Hein et al., 2018). Societally, child internalizing problems also create significant economic costs (Christensen et al., 2020), with anxiety disorders accounting for 2.1% of all national healthcare costs (Konnopka & König, 2020) and depression-related costs totaling more than \$210 billion dollars in 2010 (a 21.5% increase from 2005)—with the highest economic costs coming from youth versus adults (König et al., 2020).

Transdiagnostic Treatment of Child Internalizing and Externalizing Behaviors

Notably, the above costs, both personal and societal, are significantly increased when youth have both internalizing and externalizing problems, as comorbidity is associated with increased symptom severity in both psychiatric domains (Gnanavel et al., 2019; Mahendran et al., 2021). Beyond increased symptom intensity, comorbidity brings unique challenges to effective assessment and treatment of youth psychopathology, as youth with comorbid problems are significantly more resistant to treatment and clinicians have difficulty differentiating between one or more diagnosis and/or choosing optimal treatment protocols (Caspi et al., 2020; Roy-Byrne, 2017; Ociskova et al., 2016; Powell et al., 2013). Specifically, many child clinicians report challenges using evidence-based treatments (EBTs) with clients with multiple presenting concerns because so many treatment protocols are specific to a singular diagnosis (Hersh et al., 2016; Powell et al., 2013)—despite the fact that comorbidity is typically the rule versus the exception in child mental healthcare (Mahendran et al., 2021; Papachristou & Flouri, 2020). Additionally, child clinicians frequently fail to properly adhere to treatment protocols (Aarons & Sawitzky, 2006; Proctor & Rosen, 2008), and have trouble properly assessing progress during the course of treatment (Garland et al., 2010)—with both concerns exacerbated by comorbidity (Cho et al., 2021; Hersh et al., 2016).

Perhaps unsurprisingly then, treatment outcomes for youth with comorbid, cross-domain disorders have historically been poor. For instance, Weisz et al.'s (2017) recent meta-analysis of over 50 years of RCTs of youth psychotherapy ($k = 447$ studies, $n = 30,431$ youth) found

significant differences in the mean effectiveness of treatments by symptom domain. Namely, aggregated pre- to post-treatment and follow-up effects for youth anxiety were medium ($g_s = 0.61$ and 0.55), with similar effects for conduct problems ($g_s = 0.46$ and 0.44), but typically small, though still clinically significant treatment effects for child depression ($g_s = 0.29$ and 0.23). Yet, in stark contrast to these focal treatments (i.e., treatments targeting a single disorder or single domain of disorders), transdiagnostic treatments (i.e., treatments targeting multiple, cross-domain disorders such as internalizing and externalizing problems) typically had trivial, non-significant pre- to post-treatment effect sizes ($g = 0.15$, 95% CI $[-0.14, 0.43]$) and even worse follow-up effects ($g = 0.02$).

Given this need for, yet relative dearth of, efficacious transdiagnostic treatments, growing efforts have been made to develop, validate, and disseminate evidence-based transdiagnostic modular treatments (Dagleish et al., 2020), particularly for youth with comorbid externalizing and/or internalizing disorders (e.g., Cho et al., 2021; Chorpita et al., 2016, 2017; Sherman et al., 2018; Hersh et al., 2016; Merry et al., 2020; Weisz et al., 2017; Weisz & Bearman, 2020). Some of these new protocols target only comorbid *internalizing* disorders (e.g., depression and anxiety), such as downward developmentally adapted Unified Protocol for Transdiagnostic Treatment of Emotional Disorders in Children (UP-C) and Adolescents (UP-A; Sherman et al. (2018). However, others have been developed and evaluated for children with comorbid internalizing and externalizing problems (e.g., conduct problems and depression and/or anxiety). This comparatively rare category includes the Modular Approach to Treatment of Children with Anxiety, Depression, Traumatic Stress, or Conduct Problems (MATCH-ADTC; Chorpita et al., 2017) and FIRST protocols (Weisz & Bearman, 2020). Notably, these latter protocols have had promising findings in open pilot trials (e.g., Cho et al., 2020; Weisz et al., 2017) and/or yet-to-be-independently replicated RCTs (e.g., Chorpita et al., 2017; Merry et al., 2020; Weisz et al., 2011), but none have yet met the scientific criteria for well-established treatments (see Southam-Gerow & Prinstein, 2014). Moreover, both of these treatment

programs are designed for and/or only tested with relatively limited or older agebands (e.g., FIRST and MATCH have typically been evaluated only with youth ages 7+) and explicitly exclude youth with common neurodevelopmental comorbidities (e.g., ASD; see Cho et al., 2020; Chorpita et al., 2017; Weisz et al., 2017). In contrast, Parent-Child Interaction Therapy (PCIT; Funderburk & Eyberg, 2011) has over 50 years of independently replicated clinical research that has increasingly established it a transdiagnostic treatment for young children with comorbid externalizing, internalizing, and/or neurodevelopmental disorders (Briegel, 2017; Niec, 2018).

Parent-Child Interaction Therapy (PCIT)

PCIT is a best-practice parent behavior training program whose standard protocol (Eyberg & Funderburk, 2011) is designed to treat disruptive behaviors in children ages 2.5–6 years and 11 months which utilizes in-the-moment, therapist coaching of caregiver-child interactions to improve child externalizing problems. PCIT is based off of the behavioral parent training model, and incorporates theory from social learning and developmental theories (Borrego & Urquiza, 1998; Brinkmeyer & Eyberg, 2003; McNeil & Hembree-Kigin, 2010), along with procedural underpinnings from Hanf's (1969) 2-stage model. Based primarily in attachment theory, an underlying premise of PCIT is that a healthy parent-child relationship is critical for child development (Lewis et al., 1984; Sroufe, 2000; Urban et al., 1991; Bowlby, 1982), and given the critical nature of these relationships, PCIT incorporates social interaction learning theory to improve these relationships (Bandura, 1977; Dishion & Patterson, 2016; Eyberg & Funderburk, 2011; McNeil & Hembree-Kigin, 2010; Niec, 2018).

PCIT was originally developed specifically for disruptive behavior problems for children ages 2–6, but has been increasingly adapted for other presenting concerns and diagnoses (e.g., anxiety, depression, autism and developmental disorders, trauma, and selective mutism; e.g., Carpenter et al., 2014; Chaffin et al., 2004; Chronis-Tuscano et al., 2015; Urquiza & McNeil, 1996) and developmental age ranges (e.g. infants, toddlers, middle childhood; Bagner et al., 2013; 2016; Blizzard et al., 2017; Briegel, 2017; Girard et al., 2018; Kohlhoff & Morgan, 2014;

Stokes et al., 2017). Yet, across its myriad of adaptations, PCIT is distinguished by its three core components: (1) assessment-guided treatment, (2) in vivo coaching of caregiver-child interactions, and (3) mastery-based criteria for its treatment phases (Eyberg, 2005; Niec, 2018). Regarding those modular phases, PCIT's standard protocol—consistent with Hanf-based behavioral parenting programs (Kaehler et al., 2016)—contains two distinct, yet related phases: Child-Directed Interaction (CDI) and Parent-Direction Interaction (PDI).

CDI

Per PCIT's standard protocol, CDI begins after an intake assessment and has three primary goals: (1) strengthen/repair caregiver-child relationships, (2) increase caregivers' positive parenting skills, and (3) improve children's ability to regulate their affect and behavior (Eyberg & Funderburk, 2011). The CDI phase teaches caregivers child-centered methods for interacting with their children through repeated caregiver-child interactions both in therapy sessions and through at-home practice, which builds positive and mutually reinforcing relationships and enhances child compliance and psychosocial development (Kochanska et al., 2005; Maccoby, 1999; Niec, 2018). Specifically, clinicians teach and coach caregivers to differentially reinforce appropriate child behavior by (a) strategically ignoring harmless and nonviolent negative attention-seeking misbehavior (e.g., whining, temper tantrums), (b) avoiding "Don't Skills" (i.e., questions, commands, and criticisms or negative talk) during play interactions and (c) increasing the use of "Do Skills" (Eyberg & Funderburk, 2011; Niec, 2018). These Do Skills are also known by the acronym PRIDE, which stands for:

- **Praise** (particularly labeled praise, which gives a positive verbal evaluation of a child's prosocial behavior),
- **Reflect** (reflections are declarative, non-evaluative verbalizations that paraphrase or repeat a child's recent prosocial vocalization),
- **Imitate** (caregivers imitate their child's appropriate play behavior),

- **Describe** (behavior descriptions are declarative, non-evaluative descriptions of a child's current or recently completed behavior), and
- **Enjoy** (a caregiver's nonverbal and verbal displays of enjoyment and enthusiasm during caregiver-child interactions)

Although other behavioral parent training (BPT) programs teach caregivers child-centered skills similar to CDI PRIDE skills (Kaehler et al., 2016), PCIT largely differs in how and how long it teaches these skills. Namely, these phase-specific, child-centered interaction skills are first taught didactically to caregivers in an initial CDI session, called the CDI Teach session, but are then continued to be taught and reinforced during subsequent CDI Coach sessions. In CDI Coach sessions, each caregiver's CDI skills are assessed during a 5-minute caregiver-child play interaction that are observed and coded using a standardized behavioral observation measure: i.e., the Dyadic Parent-Child Interaction Coding System (DPICS; Eyberg et al., 2013). Thereafter, each caregiver receives in vivo feedback or coaching (either in-home or via a bug-in-the-ear receiver) as they practice CDI skills while interacting with the PCIT-participating child, with the therapist using a variety of coaching verbalizations, including socially mediated differential reinforcement, modeling of skills, and related antecedent and consequent conditioning techniques (Borrego & Urquiza, 1998; McNeil & Hembree-Kigin, 2010; Barnett et al., 2014, 2015, 2018). Between sessions, daily 5-minute CDI skill practice assignments are given. CDI Coach sessions continue until caregivers meet phase-specific, standardized mastery criteria. For CDI, graduation occurs when a caregiver, per the 5-minute DPICS assessment, uses 10 or more reflections, behavior descriptions, and labeled praises, each; fewer than three total questions, commands, and criticisms; and sufficient strategic ignoring. Caregivers who learn and use these CDI mastery skills typically report significant improvements in their children's behavior; however, CDI-related decreases in child conduct behaviors are typically below clinical significance (e.g., Eisenstadt et al., 1993; Danko et al., 2016; Lanier et al., 2011). Therefore, PCIT's standard protocol dictates that families receive not only CDI but also PDI to

extinguish clinically significant disruptive behavior problems and achieve optimal treatment outcome.

PDI

PDI begins after successful mastery of the CDI skills, and these PRIDE skills as well as strategic ignoring skills are used simultaneously alongside novel PDI-specific skills and procedures. These PDI-specific procedures focus on improving child compliance, since most child disruptive behaviors tend to be one of two kinds of defiance: (1) noncompliance (i.e., refusing to do what is instructed) and (2) disruptiveness (i.e., doing what is prohibited; Barkley, 1997; McNeil & Hembree-Kigin, 2010). Further, having children learn to comply with appropriate caregiver limits is beneficial, if not essential, for healthy child development (e.g., Baumrind, 1967; Masten & Cicchetti, 2010), and children who do not learn how to comply with appropriate rules and directions are at increased risk for peer rejection, childhood anxiety, self-dysregulation, and other psychosocial deficits and problems (Briegel et al., 2018; Huber et al., 2019; McNeil & Hembree-Kigin, 2010; Williams et al., 2009). Consequently, PDI primarily focuses on improving child compliance by directly targeting caregiver discipline practices. More specifically, PDI indirectly reduces child defiance, aggression, and related disruptive behavior by improving caregiver use of consistent, safe, and evidence-based antecedent and operant control strategies (McNeil & Hembree-Kigin, 2010).

In antecedent control, PDI aims to teach caregivers how and when to give “effective commands” in order to minimize the number—while also enhancing the quality or efficacy—of caregiver commands (Eyberg & Funderburk, 2011). Also known as alpha commands (McCabe et al., 2010), this category of caregiver instructions to children are defined by PCIT’s protocol manual and operationalized by DPICS coding manuals (Eyberg & Funderburk, 2011; Eyberg et al., 2013). Namely, PDI teaches caregiver to use commands that are:

- Direct versus indirect (e.g., “Hand me the yellow racecar” versus “Can you hand me the yellow racecar?”),

- Positive versus negative (i.e., telling a child what to do versus what not to do; e.g., “Sit down” versus “Stop running”),
- Specific versus vague (e.g., “Please use your utensils while eating dinner” versus “Behave!”),
- Singular (i.e., given one at a time),
- Necessary (i.e., for child behavior[s] that cannot be managed by use of CDI skills),
- Developmentally appropriate (e.g., telling a 2-year-old child to come closer to a caregiver so the latter can tie their shoelaces versus telling a same-aged child to tie their own shoes [assuming they cannot do so on their own]), and
- Augmented with a reason that is given only before the command and/or after compliance (but never in-between those two timepoints, which can reinforce dawdling and noncompliance).

The effectiveness of these PDI-taught commands, like that of all antecedent control, is also related to the differential consequences that follow children’s responses to said commands (i.e., operant control). As such, PDI teaches caregivers to (1) operationally discriminate between child compliance versus noncompliance to caregiver commands, (2) consistently provide social reinforcement (via labeled praises) for child compliance to a command, and (3) use a protocol-specific, safe, and evidence-based time-out from reinforcement procedures for child noncompliance to a command (i.e., negative punishment). More specifically, compliance according to PCIT’s protocol occurs when a child obeys (or continuously attempts to obey) an instruction within 5 seconds of an effective command. Otherwise, the child’s behavior is defined as noncompliance. As previously mentioned, in the instance of compliance, children are rewarded by caregivers with enthusiastic, labeled praises targeting the compliance (e.g., “Thank you for listening!”, “Great job of doing that the right away”, or “I like it when you follow instructions!”). In the instance of noncompliance, the caregiver is coached not to give the

command again, but instead to give their child a scripted time-out warning (i.e., “If you don’t [repeat of the command], you’re going to have to sit on the time-out chair;” Eyberg & Funderburk, 2011, p. 68). Caregivers once again are coached to wait 5 seconds and determine whether or not the child has complied. Per PCIT’s original and current standard protocol, compliance within 5 seconds of the above warning is to be reinforced with enthusiastic labeled praise.

However, if the child remains noncompliant after this warning, PCIT’s standard protocol has caregivers follow-through with a PDI-taught time-out procedure whose elements are consistent with best-practice, empirically supported time-out procedures (American Academy of Pediatrics, 1998; Centers for Disease Control and Prevention, 2009; Dadds & Tully, 2019; Drayton et al., 2014; Everett et al., 2010; Larzelere et al., 2020; Morawska & Sanders, 2011; PCIT International, 2018; Quetsch et al., 2015; Riley et al., 2017). Because time-out is a temporary restriction of the child’s ability to have stimulation and attention (i.e., time-out from reinforcement, a specific kind of negative punishment), PDI dictates caregivers use a time-out chair that is sturdy (so it cannot be easily scooted, knocked over, or thrown) and not overly stimulating in its structure (e.g., a plain, static, adult-sized chair versus a decorated chair or rocking chair) or location (i.e., not providing line-of-sight for a TV, not within reach of stimulating and/or dangerous objects). Children who do not comply after the time-out warning are then brought to a time-out chair while the caregiver recites the following: “You didn’t do what I told you to do, so you have to sit on the time-out chair” (Eyberg & Funderburk, 2011, p. 68). Per PDI protocol, there are two methods for taking the child “quickly, calmly, and safely” to time-out (Eyberg & Funderburk, 2011, p. 68): (1) taking a willing child by the hand and escorting them to the time-out chair or (2) picking-up an unwilling or resistant child and physically setting them on the time-out chair. In the instance of the latter, caregivers utilize the ‘barrel carry’ technique taught to them in the PDI Teach session; whereby, the caregiver stands behind the child and wraps their arms around them (under the child’s arms and across the chest) as if holding onto a

barrel, to protect both the child and the caregiver as they move safely, quickly, and effectively to the time-out chair (McNeil & Hembree-Kigin, 2010). Once the child is on the chair, the caregiver says with a neutral expression and tone, “Stay on the chair until I say you can get off” (Eyberg & Funderburk, 2011, p. 69). The caregiver then immediately begins timing and moves away from the chair—and otherwise strategically ignores all child behavior—so long as the child remains in the chair—for the entire time-out duration.

Per PCIT’s standard protocol, time-out is 3 minutes with 5 additional seconds of quiet. Namely, once a child remains on the time-out chair for 3 minutes, the caregiver is instructed to wait until their child remains quiet for 5 consecutive seconds (i.e., does not yell, scream, or engage in similarly unquiet behavior). If the caregiver’s mental count is interrupted by unquiet child behavior, the caregiver does not restart the 3-minute time-out, but instead continues to silently count until the child remains quiet for 5 consecutive seconds. When this is achieved, the caregiver quickly moves to the chair and says, “You are sitting quietly in the chair. Are you ready to come back and [repeat the original command] now?” (Eyberg & Funderburk, 2011, p. 69). This phrase, along with the requirement of 5 seconds of quiet, prevents superstitious learning that the child can prematurely end a time-out through misbehavior, and instead teaches the child that being quiet leads to the caregiver ending time-out (and thus reinforces emotional and behavioral self-regulation). The phrase also redirects the child to the instruction they previously disobeyed. At this point, if the child once again does not comply, the time-out protocol restarts. If the child complies, the caregiver provides a brief acknowledgement (e.g., “Okay”) or mild unlabeled praise (e.g., “Thank you”) and issues a new command. Upon compliance to this new command, the child is rewarded with the typical, enthusiastic labeled praise in order to reinforce complying the first time an instruction is given (and to avoid reinforcing the time-out itself).

In instances of more resistant children, where a child might scoot, rock, move, leave, or otherwise remove more than 50% of their body weight from the timeout chair, a back-up time-

out room is utilized that is at least 5 feet by 5 feet, well-lit, and ventilated. During therapy, a clinical back-up room is typically present, but home-based time-out rooms are also discussed and selected for time-out misbehavior that happens in the home. Generally, a bedroom is selected to serve as the back-up time-out room. It is then removed of harmful, stimulating, valuable, and/or potentially destructive or messy items. When children are put into the back-up time-out room, the caregiver actively holds the door closed rather than using a lock, to ensure that the child is safe from an emergency situation, abuse, and/or neglect.

The very first time a child escapes from the time-out chair, they are seated back on the chair and the following time-out room warning is given: "You got off the chair before I said you could. If you get off the chair again, you will have to go to the time-out room" (Eyberg & Funderburk, 2011, p. 69). Before leaving the chair, the caregiver then says, as per the usual protocol, "Stay here until I say you can get off" (Eyberg & Funderburk, 2011, p. 69), and the 3-minute (plus 5 seconds of quiet) time-out period restarts. Once this first time-out room warning is given, it is never reissued. Rather, for all future time-out escapes, the child is taken immediately to the time-out room without a warning while the caregiver calmly says, "You got off the chair before I said you could, so you have to go to the time-out room" (Eyberg & Funderburk, 2011, p. 69). It is suggested that the child is set down and faced away from the door, which allows more time for the caregiver to quickly exit and safely close the door. Once the door is closed, the caregiver waits 1 minute plus 5 seconds of quiet; after which time, the child is escorted and set back on the time-out chair while the caregiver steps back to avoid being hit and once again says "Stay on the chair until I say you can get off." Time-out then begins again for the original duration, and this procedure repeats as often as needed until the child successfully sits on the time-out chair for the full 3 minutes plus 5 seconds of quiet and then obeys the originally disobeyed command. When properly implemented, time-outs that include these elements are an effective, safe discipline for children's misbehavior and have

been endorsed by the Centers for Disease Control and Prevention (2009) and the American Academy of Pediatrics (1998).

Structurally, PDI, just like CDI, begins with a Teach session; wherein, therapists didactically introduce caregivers to the aforementioned features of effective commands and related discipline procedures (Eyberg & Funderburk, 2011). Also similar to the CDI Phase, each subsequent PDI session is a Coach session that involve therapists coaching caregivers as they practice the phase-specific skills (i.e., giving commands to their child and using the discipline procedure). Most coaching segments are preceded by 5-minute coding observations of the caregiver-dyad. Practice of PDI skills (as well as continued practice of CDI skills) occurs in-session and at-home. As caregiver skills and child compliance improve, these practice activities increase in difficulty. Namely, they first start with simple play commands (e.g., “Hand me the blue car,” “Put this yellow block on top of the red block”), move to issuing commands for things the child does not necessarily like to do but that are still embedded in play (e.g., cleaning up one set of toys before moving to another), and lastly involve using commands and the time-out procedure in more complex situations, such as those involving multiple siblings, violation of house rules (e.g., aggression against others, stealing), and/or public settings (e.g. “Hold my hand as we cross the street,” “Stay within arms-length as we go down this aisle”).

Similar to CDI, PDI has phase-specific mastery criteria. Specifically, caregivers must independently (1) give at least four commands during a 5-minute DPICS observation, with at least 75% of those commands being deemed effective commands, and (2) correctly follow-through with PDI’s discipline procedure for at least 75% of those effective commands (e.g., labeled praise for compliance, time-out warning for noncompliance, PDI-correct time-out for continued noncompliance after time-out warning, etc.). Apart from these mastery criteria for both CDI and PDI, successful completion of PCIT (i.e., graduation per protocol) also requires an Eyberg Child Behavior Inventory (ECBI; Eyberg & Pincus, 1999) *T*-score below 55 (which signifies that a child’s level of disruptive behavior, per standardized caregiver-report, is well

within normative levels). Additionally, caregivers should feel ready to graduate and confident with their ability to use treatment skills to manage their child's behaviors across contexts (e.g., at home or in public, with siblings, etc.; Eyberg & Funderburk, 2011).

PCIT Outcome Research

PCIT's efficacy and effectiveness have been robustly demonstrated with over 50 years of supportive research, including numerous single case research designs (e.g., Armstrong et al., 2013; Briegel, 2017; Gordon & Coopers, 2016; Stokes et al., 2017) and large groups studies including dozens of randomized control trials (RCTs; e.g., Bagner et al., 2010; Bjørseth & Wichstrøm, 2016; Leung et al., 2015; Niec et al., 2016; Nixon et al., 2003; Schuhmann et al., 1998; Thomas & Zimmer-Gembeck, 2011). Moreover, multiple meta-analyses and reviews have summarized and further validated PCIT's research base (e.g., Costello et al., 2011; Eyberg & Bussing, 2010; Funderburk & Eyberg, 2011; Lieneman et al., 2017; Thomas et al., 2017; Thomas & Zimmer-Gembeck, 2007). For instance, Thomas and Zimmer-Gembeck's (2007) meta-analyses of 13 PCIT studies (including nine RCTs) found that PCIT demonstrated notable improvements in child disruptive problems with typically large effects; and markedly, these benefits were demonstrated both in clinical observations of positive ($d = 0.94$) and negative ($d = -0.54$) child behaviors, as well as caregiver report of these behaviors ($d = -1.31$ for mothers and $d = -0.83$ for fathers). Further, improvements in child misbehavior and negative parenting behaviors outperformed another evidence-based BPT (i.e., Positive Parent Program; Triple P; Sanders, 1999; Sanders et al., 2002).

More recently, Ward et al. (2016) incorporated 9 years of PCIT research to determine a weighted mean effect size for 12 different PCIT studies with 372 total children ($n = 254$ treated children, $n = 118$ children assigned to non-treatment control groups). There were large pre- to post-treatment reductions in externalizing problems for children diagnosed with disruptive behavior disorders ($d = -1.65$, 95% CI $[-1.90, -1.41]$, $p < .001$). Notably, these effects remained

large even when comparing treatment outcomes with experimental non-treatment controls ($d = -1.39$, 95% CI $[-1.73, -1.05]$, $p < .001$).

The most recent PCIT meta-analytic review (Thomas et al., 2017) of 23 RCTs and quasi-experimental trials of PCIT with 1,144 participants ($n = 647$ treatment participants, $n = 497$ non-treatment control participants) once again revealed robust effects for PCIT. Namely, meta-analytic results indicated PCIT significantly reduces child externalizing problems to a large degree (SMD = -0.87), while also significantly improving child compliance to parents, also to a large degree (SMD = 0.89). The study also found notable meta-analytic reductions in parental stress after delivery of PCIT (MDs = -6.98 to -9.87 MD), per caregiver responses on the Parenting Stress Index (PSI; Abidin, 1995). Importantly, this study also found that studies that required mastery of CDI and PDI skills (consistent with PCIT's standard protocol) showed significantly greater reductions in child externalizing problems ($d = -1.09$, 95% CI $[-1.44, -0.73]$) than trials that did not require mastery ($d = -0.51$, 95% CI $[-0.86, -0.17]$).

Consistent with these meta-analytic results, PCIT's robust effectiveness has been demonstrated across diverse settings, treatment populations, and measurement methods (Lieneman et al., 2017; McNeil et al., 1991; Niec, 2018; Thomas et al., 2017; Zisser & Eyberg, 2010). For instance, multiple studies have found that PCIT can be generalized across home *and* school settings (e.g., Boggs, 1990; Fowles et al., 2018; McNeil et al., 1991; Wallace et al., 2018), and the effects of PCIT have been shown to extend to untreated siblings (Brestan et al., 1997; Eyberg & Robinson, 1982). Further, PCIT has been shown to reduce externalizing problems across a variety of mental health settings (e.g., community mental health centers, university-based clinics, community outreach settings, child welfare agencies, in-home settings, foster homes, state correctional facilities, and domestic violence shelters; Abrahamse et al., 2016; Bjørseth & Wichstrøm, 2016; Timmer et al., 2010; Foley et al., 2016; Lanier et al., 2014; Galanter et al., 2012; Mersky et al., 2016; Scudder et al., 2014; Keeshin et al., 2015). Importantly, PCIT has also been shown to reduce disruptive behavior in children who have been

impacted by abuse and/or maltreatment (Thomas & Zimmer-Gembeck, 2011; Thomas & Zimmer-Gembeck, 2012), as well as children impacted by developmental delays (Bagner & Eyberg, 2009; Bagner et al., 2010; Bertrand, 2009).

Relatedly, research indicates that PCIT's benefits extend beyond children (as described above) but also improve caregiver behavior and well-being (e.g., Eisenstadt et al., 1993; Eyberg et al., 1995; Eyberg and Robinson, 1982; Fowles et al., 2018; Hakman et al., 2009; Niec et al., 2016; Nixon et al., 2003; Schumann et al., 1998; Zimmer-Gembeck et al., 2019; Budd et al., 2011; Danko et al., 2016; Lyon & Budd, 2010; Timmer et al., 2010; Chaffin et al., 2004; Chaffin et al., 2011; Hakman et al., 2009). Consistent with its treatment targets, PCIT has been shown repeatedly to significantly increase positive parenting behaviors (e.g., Eisenstadt et al., 1993; Eyberg et al., 1995; Eyberg & Robinson, 1982; Fowles et al., 2018; Hakman et al., 2009; Niec et al., 2016; Nixon et al., 2003; Shuhmann et al., 1998; Zimmer-Gembeck et al., 2019), and decrease negative parenting behaviors (Budd et al., 2011; Danko et al., 2016; Lyon & Budd, 2010; Timmer et al., 2010; Zimmer-Gembeck et al., 2019). In fact, PCIT has been consistently associated with reductions in child abuse recidivism among physically abusive parents (e.g., Chaffin et al., 2004; Chaffin et al., 2011; Hakman et al., 2009).

With regard to caregiver wellbeing and mental health, research indicates that caregivers who complete PCIT see significant reductions in self-reported stress (Eyberg et al., 2014; Hood & Eyberg, 2003; Niec et al., 2016; Shuhmann et al., 1998) and depressive symptoms (Gardner et al., 2010; Hood & Eyberg, 2003; Timmer et al., 2011). Relatedly, PCIT exhibits increases in caregiver self-efficacy (Hood & Eyberg, 2003) and improved emotion regulation (Woodfield & Cartwright, 2020; Zimmer-Gembeck et al., 2019). Notably, there is a wealth of research supporting the sustained efficacy of PCIT in the long-term for both children and caregivers (e.g., Eyberg et al., 2001; Funderburk et al., 1998; Nixon, 2001; Nixon et al., 2003; Schuhmann et al., 1998); with treatment gains sustained at 6-year follow-ups (Eyberg et al., 2001; Hood & Eyberg, 2003).

Given this robust literature, it is likely unsurprising that PCIT consistently has high caregiver acceptability, satisfaction, and support (e.g., Eisenstadt et al., 1993; Schuhmann et al., 1998; Phillips et al., 2008; Tiano et al., 2013; Woodfield & Cartwright, 2020). For example, Woodfield and Cartwright's (2020) qualitative research with PCIT completers in both New Zealand and Australia found that caregivers typically viewed PCIT as an effective treatment that improved caregiver confidence, optimism, and parenting skills, particularly through PCIT's live coaching to support skill acquisition, emphasize existing parenting strengths, build confidence, and improve self-regulation in response to their children (Kohlhoff et al., 2020). Moreover, Tiano and colleagues (2013) found that caregivers who were unfamiliar with treatment options for child externalizing problems reported greater acceptability and perceived efficacy of PCIT compared to alternative treatments.

Lastly, PCIT's effectiveness has generalized across racial, ethnic, and internationally diverse treatment populations (e.g., Bigfoot & Funderburk, 2011; Danko et al., 2016; Fernandez et al., 2011; Lanier et al., 2011; Matos et al., 2009; McCabe et al., 2012; McCabe & Yeh, 2013; Pearl et al., 2012). For instance, culturally tailored or adapted implementations of PCIT have been established for African-American (Lyon & Budd, 2010), Mexican-American (McCabe & Yeh, 2009), Puerto Rican (Matos et al., 2009), Chinese (Leung et al., 2009, 2015, 2017), and American Indian/Native Alaskan families (Bigfoot & Funderburk, 2018). Similarly, PCIT has been successfully implemented across countries and continents, including Australia (Kohlhoff & Morgan, 2014; Nixon et al., 2003, 2004, 2009; Phillips et al., 2008; Thomas & Zimmer-Gembeck, 2011, 2012), the Netherlands (Abrahamse et al., 2012, 2016), Norway (Bjørseth & Wichstrøm, 2016), Taiwan, (Chen & Fortson, 2015), and South Africa (Dawson-Squibb et al., 2022; see Abramse et al. [2018] for a review). In summary, this extensive evidence has collectively made PCIT a well-established best practice treatment for externalizing problems in children ages 2.0–6.11 years (California Evidence-Based Clearinghouse, 2021; Niec, 2018; Thomas et al., 2017). However, growing evidence suggests PCIT also may be an efficacious

treatment for child internalizing symptoms—which is especially relevant given that a recent study found that 76% of children receiving standard PCIT in a community setting had clinically significant levels of internalizing problems (Quincoses et al., 2019).

PCIT and Internalizing Problems

Consistent with PCIT's original target population and the aims of its standard protocol, PCIT outcome research has focused largely on evaluating treatment-related reductions in child externalizing problems. Nevertheless, a burgeoning literature suggests PCIT may also efficaciously reduce child internalizing problems, notably when comorbid with externalizing problems (e.g., Chase & Eyberg, 2008; Lenze et al., 2010; Zimmer-Gembeck et al., 2019; Mersky et al., 2016; Thomas & Zimmer-Gembeck, 2012; Garcia et al., 2021; Allen et al., 2014; Kaminsky, 2019; Foley et al., 2016). This research is largely bifurcated between studies examining the degree to which child internalizing symptoms are addressed by (1) PCIT's standard protocol or (2) adapted PCIT protocols developed to specifically treat child internalizing symptoms (see Carpenter et al. [2014]; Comer et al., [2018]; Cotter et al. [2018]; and Danko et al., [2018] for reviews).

Standard Protocol. As previously mentioned, the standard protocol for PCIT is intended to primarily target externalizing problems, but supplementary research also supports PCIT's ability to concurrently reduce comorbid internalizing problems (Chase & Eyberg 2008; Zimmer-Gembeck et al., 2019; Mersky et al., 2016; Allen et al., 2014; Foley et al., 2014; Thomas & Zimmer-Gembeck, 2012). For instance, Zimmer-Gembeck and colleagues (2019) found small but significant pre- to post-treatment reductions ($d = -0.39$) in child internalizing behaviors (i.e., depression, anxiety, and somatization), per caregiver-report (as measured by the Behavior Assessment Scale for Children-Second Edition [BASC-2; Reynold & Kamphaus, 2004]), after completion of standard PCIT in a sample of 136 Australian children ages 2.0–6.0 years old. Moreover, these changes significantly predicted PCIT-related improvements in caregivers' emotion regulation and reflective functioning—which provides evidence that improvements in

caregiver skills and mental health may be an explanatory mechanism for PCIT's transdiagnostic outcomes. Notwithstanding, this study only reported raw BASC-2 scores (versus *T*-scores), and did not report the percentage of children that had clinically significant elevations in internalizing symptoms, pre- or post-PCIT. Consequently, the clinical significance of these findings (and their potential generalizability) remains unknown.

Further, Choate et al. (2005) conducted a pilot study consisting of three children between ages 4.0–8.0 to examine the efficacy of standard PCIT in treating children with a principal diagnosis of separation anxiety disorder (SAD), as determined by the ADIS-IV-C/P (Silverman & Albano, 1996). Notably, all three participants had pre- to post-PCIT reductions in clinical severity of SAD as measured by the ADIS-IV-C, and these reductions were clinically significant, such that at post-treatment, all three children's SAD symptoms were below clinical cut-offs (i.e., no children met diagnostic criteria for SAD at post-treatment), and these reductions were maintained at a 3-month follow-up. Furthermore, one of the children's overall internalizing problems significantly reduced from clinical levels at pre-treatment to normal levels of post-treatment (per CBCL ratings). Although effect sizes were not provided for this study, these results demonstrated preliminary evidence for the efficacy of standard PCIT to concurrently treat externalizing problems and clinical levels of separation anxiety disorder.

Similarly, a small study by Aggazi et al. (2017) explored the effectiveness of PCIT for children diagnosed with ASD ($N = 3$; ages 3.0–7.9). For two of these children, internalizing problems went from the subclinical range at pre-treatment ($T_s = 68$ and 69) to the normal range at a 3-month follow-up ($T_s = 54$ and 59 , respectively), as measured by caregiver-report on the CBCL. Notably, effect sizes were not provided for this study, and clinically significant reductions in internalizing problems did not occur for one child (i.e., pre-treatment $T = 63$, post-treatment $T = 60$). Therefore, future studies with larger sample sizes and standardized effect sizes are needed to determine the efficacy of standard PCIT to transdiagnostically treat comorbid internalizing and externalizing problems for children with ASD.

A more recent study by Abrahamse et al. (2016) examined the effectiveness of PCIT in a sample of high-risk families (i.e., families with low socioeconomic status and families from minority ethnic backgrounds) in Amsterdam, Netherlands. Participants were children ($N = 45$; ages 2.0–8.9 years) referred to a mental health agency for disruptive behavior problems who were randomly assigned to either a PCIT treatment group or a Family Creative Therapy (FCT; Beelen, 2003) group, the latter of which is an art-based psychotherapy prominent in Dutch mental health services that is intended to improve communication and interaction between families. For the PCIT group, mean internalizing problems T -scores on the CBCL internalizing problem scale went from sub-clinical at pre-treatment ($M = 63.5$) to the normal range at post-treatment ($M = 54.4$), and remained in the normal range at a 6-month follow-up ($M = 49.3$). Further, reductions in internalizing problems were large for the PCIT group from pre-treatment to the 6-month follow-up ($d = -1.38$), and between group differences at follow-up were also large ($d = -0.83$).

Relatedly, Thomas and Zimmer-Gembeck (2012) examined PCIT's effectiveness in reducing both externalizing and internalizing problems in families with a history of, or at risk for, child maltreatment ($N = 151$). Clinicians in the study followed a strict 12-session protocol for PCIT and were not allowed to make dosage modifications to treatment (i.e., doing more or less than 12 sessions). Notably, without case-specific dosage changes (i.e., adding sessions as needed for individual clients), administration of PCIT resulted in small, but statistically significant reductions in both externalizing ($d = -0.38$) and internalizing problems ($d = -0.30$) as measured by the Eyberg Child Behavior Inventory (ECBI, Eyberg & Pincus, 1999) and the Child Behavior Checklist's (CBCL; Achenbach & Rescorla, 2001), respectively. Yet, since internalizing symptoms were not the primary concern of this study, pre- and post-PCIT percentages of children who met clinical levels of internalizing symptomology were not provided. However, sample means of T -scores on the CBCL indicated that, on average, most youth had average levels of internalizing problems at both pre- and post-treatment ($M_s = 54.6$ and 49.8 ,

respectively). Therefore, the clinical significance of these findings are limited, such that they do not indicate whether PCIT can lead to clinically significant improvements in internalizing symptoms among children with clinically significant externalizing and internalizing problems.

Similar to the above findings, and their limitations, Kaminsky (2019) examined transdiagnostic symptom reductions in a PCIT-treated sample of 110 children (ages 4.0–12.0) who had recently experienced parental physical abuse. This sample had significant pre- to post-treatment reductions in overall parent-reported depression and overall internalizing symptoms, as measured by the BASC-2, to a medium-to-large degree (d s = -0.74 and -0.87, respectively). Yet, as with Thomas and Zimmer-Gembeck's (2012) sample, children in this study had mean T -scores in the normal range for both depression ($M = 52.9$) and anxiety ($M = 49.0$) at pre-treatment, and these scores remained in the normal range at post-treatment (M s = 52.0 and 45.4, respectively), which limits the clinical significance of these findings.

Allen et al., (2014) reported similar results with a sample of adopted children ($N = 85$, ages 2.0–7.9, 33% of which had experienced physical abuse) who received standard PCIT. With this sample, child internalizing problems (as measured by the CBCL) significantly reduced pre- to post-treatment, but to a substantially larger degree ($d = -1.45$). Moreover, unlike the above studies, mean T -scores went from the sub-clinical range at pre-treatment ($M = 60.1$) to the normal range at post-treatment ($M = 52.9$). Yet, in terms of clinical significance, just 39.2% of children had clinically elevated internalizing problems at pre-treatment, though this decreased to only 18.9% at post-treatment.

In contrast, Chase and Eyberg (2008) studied the degree to which standard PCIT was transdiagnostically effective in a sample of 64 children diagnosed with comorbid ODD and separation anxiety disorder (SAD). With this sample, they found large significant pre- to post-treatment reductions ($d = -1.78$) in children's broad internalizing symptoms, as measured by caregiver-report on the CBCL's Internalizing Problems scale. Moreover, these reductions were

clinically significant, as 73% of children in the study who completed standard PCIT no longer met diagnostic criteria for SAD, post-PCIT.

Importantly, PCIT—and particularly its standard combination of CDI and PDI phases—has demonstrated similar transdiagnostic efficacy across treatment delivery modalities (i.e., group vs individual format, intensive daily vs weekly sessions, and in-person vs telehealth-delivered). For instance, Mersky et al. (2016) found large but significant reductions in broad internalizing problems as measured by the CBCL in a sample of foster children ($N = 68$) who were assigned to either a non-treatment wait-list group ($n = 25$), or a brief ($n = 29$) or extended ($n = 14$) PCIT group training for foster parents. Both PCIT groups received the standard protocol's CDI and PDI phases, albeit in an intensive 1-week format. As expected, externalizing problems (which on average were in the clinical level at baseline) significantly decreased for both PCIT treatment groups compared to the waitlist control group, per both ECBI ($r^2s = .06-.07$) and CBCL ratings ($r^2 = .09$). Yet, this same trend occurred for internalizing problems (as measured by CBCL scores), such that internalizing problems were only reduced from clinical levels at baseline to normal range for children in the PCIT treatment groups ($r^2 = .08$). Moreover, the extended treatment group saw greater reductions in both internalizing and externalizing symptoms, further demonstrating PCIT's dosage gradient.

Similarly, Foley et al. (2016) compared treatment outcomes of 19 families who received a group-adapted version of PCIT's standard protocol versus a control group ($n = 23$) who received treatment-as-usual (TAU). Results indicated that the PCIT group had significantly greater pre- to post-treatment reductions in internalizing problems, as measured by the CBCL ($d = -0.83$) than did the TAU group ($d = -0.09$). Moreover, for the PCIT group, mean internalizing problem T -scores went from typically the subclinical range at pre-treatment ($M = 63.1$) to the normal range at post treatment ($M = 54.7$), indicating this reduction was clinically significant.

Lastly, Garcia et al. (2021) examined the robustness of PCIT's treatment with a sample of 86 children who received PCIT via an (1) in-person clinic-based or a (2) virtual telehealth

model (i.e., I-PCIT) due to the COVID-19 pandemic. Overall results indicated that treatment outcomes did not significantly vary by delivery format, including PCIT-related reductions in internalizing problems (as measured by the BASC-3; Reynolds & Kamphaus, 2015). Indeed, the overall sample experienced significant, medium pre- to post-treatment reductions in overall internalizing problems ($g = -0.40$). Yet, similar to almost all of the above studies (i.e., Allen et al., 2014; Foley et al., 2016; Kaminsky, 2019; Thomas & Zimmer-Gembeck, 2012; Zimmer-Gembeck et al., 2019), this sample's baseline internalizing symptoms, on average, were below the clinical range.

Collectively, these results suggest that PCIT's standard protocol can significantly reduce children's externalizing and internalizing symptoms (at least per caregiver-report broadband measures such as the CBCL and BASC). Overall, PCIT-related reductions in comorbid internalizing problems have ranged from small ($ds = -0.30$ to $-.40$; Garcia et al., 2021; Thomas & Zimmer-Gembeck, 2012; Zimmer-Gembeck et al., 2019) to large ($ds = -0.83$ to -1.78 ; Allen et al., 2014; Chase & Eyberg, 2008; Foley et al., 2019; Kaminsky, 2019), with substantially larger effects for samples with subclinical to clinical internalizing problems at baseline. Moreover, results suggest these effects are robust across a variety of delivery formats.

Adaptations of PCIT for Internalizing Problems

Given the above findings, other researchers have recently set out to make and validate diagnostic-specific modular adaptations to PCIT's standard protocol in order to optimize treatment outcomes for children with internalizing disorders (either comorbid with or without conduct problems). These disorder-focused adaptations include the Turtle Program, PCIT-Selective Mutism (PCIT-SM), CALM, Brave START, PCIT-Emotional Development (PCIT-ED), and PCIT Emotion Coaching (PCIT-EC; Catchpole et al., 2019; Chronis-Tuscano et al., 2015; Chronis-Tuscano, 2016; Lenze et al., 2011; Mazza, 2018; Puliafico et al., 2013). The majority of these adaptations focus on anxious-avoidant behaviors and related psychiatric disorders (e.g., SAD, selective mutism) as their treatment targets, but recent research has also examined novel

adaptations for depressive symptoms and emotional regulation problems. These treatments and their empirical support are described below.

Bravery-Directed Interaction. One of the first modular adaptations of PCIT to address internalizing problems was an addition of a novel Bravery-Directed Interaction (BDI; Pincus et al., 2010) module to standard PCIT to treat children with SAD (Carpenter et al., 2014). BDI is structurally analogous to CDI and PDI in that it has one “Teach” session that is followed by several “Coach” sessions. The BDI Teach session informs caregivers about anxiety, including its etiology, developmental progression, caregiver factors that may maintain anxiety in children (i.e., reinforcing anxious behaviors, and exerting too much parental control when unnecessary), and how BDI’s Coach sessions will use gradual exposure to help children approach anxiety-provoking situations progressively through a fear and avoidance hierarchy. Moreover, a reward list (or “reward store”) is utilized during BDI Coach in order to reinforce children’s brave behavior, engagement in exposure, and approaching versus avoidant behaviors. Because BDI was originally adapted specifically for SAD, exposure tasks were initially developed and tailored to specific socially anxious scenarios for each child in treatment (e.g., going on a play date with a friend, going to the bathroom on their own, playing in one room of the house with caregivers in another room). Coaching sessions in BDI focus on exposure exercises that can be done in the clinic (e.g., parent walking out of the room for 5 minutes) where parents are coached in vivo (typically via a bug-in-the-ear) to reinforce their child’s brave and approaching behaviors through labeled praise and utilization of the reward list while also strategic ignoring to avoid inadvertently providing excessive, anxiogenic reassurance or related fear modeling.

To evaluate the efficacy of adding BDI to standard PCIT, Pincus and colleagues (2008) conducted a pilot study consisting of 10 children aged 4–8 years with a diagnosis of separation anxiety disorder, as determined by the Anxiety Disorders Interview Schedule—Child and Parent Versions (ADIS-IV-C/P; Silverman & Albano, 1997). Notably, mean scores on the SAD Clinical Severity Rating (CSR) of the ADIS-IV-C/P were reduced from the clinical range (i.e., ≥ 4) at

pretreatment ($M = 5.5$), to nonclinical levels at post-treatment ($M = 2.8$). Moreover, at post-treatment, 73% of participating children no longer met diagnostic criteria for SAD, and these results were maintained at a 3-month follow up.

These promising results not only helped determine the efficacy and feasibility of BDI's addition to CDI and PDI for treating children with SAD, but also paved the way for additional adaptations to standard PCIT (and BDI) to address internalizing problems (see Carpenter et al. [2014]), particularly protocols focused on anxiety-related symptoms, such as the Turtle Program (Chronis-Tuscano et al. 2015), PCIT-SM (Catchpole et al., 2019), CALM (Puliafico et al., 2013), and Brave START (Mazza, 2018).

The Turtle Program. The Turtle Program (Chronis-Tuscano et al., 2015) is an adaptation of PCIT's standard PCIT for children with a behaviorally inhibited (BI) temperament. A well-established endophenotypic risk-factor for anxiety disorders in youth, BI phenotypically manifests as avoidance of novel stimuli, including people and places (Henderson et al., 2015). Structurally, the Turtle Program is an 8-session protocol that includes concurrent child and parent groups that allow for peer group socialization and gradual exposure to BI-related anxiety triggers (Chronis-Tuscano et al., 2015). As with PCIT's standard protocol, each phase/module of the Turtle Program begins with a teach session followed by in-vivo coaching sessions (although its set number of sessions mean that the Turtle Program does not use operationalized mastery criteria for graduating each phase). Regarding phases, this adapted protocol includes (1) CDI, with tailored aims and psychoeducation related to contextualizing BI and anxiety; (2) BDI (as described above); and (3) PDI, which in contrast to PCIT's standard protocol explicitly teaches parents how to distinguish children's anxious versus oppositional behaviors.

Empirical research has considered the efficacy of the Turtle Program across environmental and familial contexts (Barstead et al., 2018; Chronis-Tuscano et al., 2015, 2022). In the first study of the Turtle Program, Chronis-Tuscano et al. (2015) conducted a RCT with 40 children ages 3.5–5 years with elevated BI (as determined by a score ≥ 132 on the Behavioral

Inhibition Questionnaire; BIQ; Bishop et al., 2003) who were randomly assigned to either a Turtle Program treatment group ($n = 18$) or a non-treatment waitlist group ($n = 22$; Chronis-Tuscano et al., 2015). Notably, the treatment group showed significantly greater pre- to post-assessment improvements than the waitlist group in parent-rated BI symptoms, social anxiety symptoms, and broad internalizing problems to a large degree ($gs = -0.93, -0.84, \text{ and } -1.06$, respectively). However, pre- to post-treatment effect sizes for the Turtle Program treatment group were not provided (nor were enough data provided to compute them). Notwithstanding, the authors did provide enough data to contextualize the clinical significance of the above improvements. Namely, overall internalizing symptoms (as measured by the CBCL) for children treated with the Turtle Program decreased, on average, from the subclinical range at pre-treatment ($M = 60.8, SD = 1.2$) to normal range, post-treatment ($M = 51.0, SD = 2.2$). Moreover, in the treatment group, 72% of children were diagnosed with SAD at baseline (as determined by the Preschool Age Psychiatric Assessment [PAPA; Egger et al., 1999]), with only 5% of children still having SAD at post-treatment. Important to the generalization of these findings, the Turtle Program, compared to the wait-list condition, significantly reduced BI and related anxiety symptoms not just per parent-reports, but also per teacher-reports of children's anxious behavior in classroom settings ($g = -0.63$).

Extending these findings, Barstead and colleagues (2018) used the data from the above RCT to better evaluate the generalizability of the Turtle Program by having researchers blind to study conditions code social behavior of the children randomly assigned to the Turtle Program ($n = 18$) or a wait-list condition ($n = 22$). More specifically, children's interactions with peers during free play at each child's preschool were coded at pre- and post-treatment timepoints with the Play Observation Scale (POS; Rubin, 2008). Based on this coding, BI decreased significantly more for children who received the Turtle Program group versus children in the control group, as evidenced by significantly greater pre- to post-treatment increases in group play and initiation to peers, to a medium degree ($gs = 0.66 \text{ and } 0.50$ respectively). Relatedly,

children's anxiety, per teacher-ratings on the Child Behavior Scale (Ladd & Profilet, 1996), decreased pre- to post-treatment for children in the Turtle Program to a medium degree ($d = -0.57$); whereas, it did not substantively change for children in the control group ($g = 0.04$).

More recently, Chronis-Tuscano et al. (2022) conducted another RCT of the Turtle Program with 151 children ages 3.5–5 years who were randomly assigned to the Turtle Program ($n = 76$) or an active control group ($n = 75$) who received a another RCT-validated treatment for children high in BI (Cool Little Kids [CLK]; Rapee et al., 2005) whose sustained effects have been demonstrated up to 3 years after treatment (Rapee et al., 2010) but that most notably differs from the Turtle Program due to its lack of in vivo coaching. Overall, parent-reported BI and anxiety outcomes for the Turtle Program were non-inferior to CLK outcomes. However, changes in observed parent-child interactions, as coded by the Maternal Warmth and Control Scale (Rubin et al., 2016), were significantly different, such that caregivers in the Turtle Program had significantly greater pre- to post-treatment (a) increases in engagement and positive affect and (b) decreases in negative controlling behaviors with their children than did caregivers in the CLK group (though effect sizes for these between- or within-group differences, or the data necessary to compute them, were not provided). Additionally, greater parent anxiety significantly predicted lower post-treatment BI symptom (as measured by the BIQ) in the Turtle Program group; whereas, this association was non-significant in the CLK group. This could indicate that the Turtle Program might be uniquely efficacious in treating children with highly anxious caregivers (Chronis-Tuscano et al., 2022), likely due to its in vivo coaching of caregiver-child interactions (Carpenter et al., 2014).

Altogether, the above research supports the Turtle Program's efficacy in reducing BI and related anxiety symptoms in children ages 3.5–5 years. Amongst such children, multiple (though not independent) RCTs indicate that the Turtle Program outperforms passive controls to a medium-to-large degree ($|g|s = 0.50–1.06$; Barstead et al., 2018; Chronis-Tuscano et al., 2015) and has noninferior if not superior outcomes to other best practice treatments for BI in youth

children (Chronis-Tuscano et al., 2022). Moreover, this relative efficacy has been demonstrated across assessment modalities; including parent-reports ($|g|s = 0.84\text{--}1.06$; Chronis-Tuscano et al., 2015), teacher-reports ($|g|s = 0.57\text{--}0.63$; Bartstead et al., 2018; Chronis-Tuscano et al., 2015), and blind observational coding ($|g|s = 0.50\text{--}0.66$; Barstead et al., 2018); supporting generalization across clinic, home, and classroom settings. These findings also suggest that the Turtle Program may be particularly helpful (and outperform other best-practice treatments of BI for preschool-age children) for families with highly anxious caregivers, potentially due to its in vivo coaching of caregiver-child interactions. However, it remains unknown the degree to which the Turtle Program might work for children older than age 5 and/or youth with more focal anxiety disorders (e.g., selective mutism, specific phobia, social anxiety disorder).

PCIT-SM. While the Turtle Program was designed and validated for BI broadly, PCIT-Selective Mutism (PCIT-SM; Catchpole et al., 2019; Cornacchio et al., 2019) is a PCIT adaptation for a specific form of BI related to language, namely selective mutism (SM). SM is an anxiety disorder in which children persistently do not speak in situations in which speaking is to be expected, despite being able to speak in other situations (especially at home; American Psychiatric Association, 2013). Given the evidence that parental accommodations may play a role in maintaining SM (Roslin, 2013), PCIT-SM was created with the intention of utilizing the caregiver-child relationship to treat SM (Cotter & Brestan-Knight, 2018; Lorenzo et al., 2020). There are notable similarities and differences between standard PCIT and PCIT-SM. For instance, similar to CDI in standard PCIT, CDI in PCIT-SM makes use of PRIDE skills to improve the caregiver-child bond, but these skills focus on the child's speech (e.g., labeled praise for talking). Additionally, CDI in PCIT-SM primarily focuses on reinforcing children's approach behaviors, as opposed to increasing children's compliance and more general prosocial behavior. Relatedly, a family completes CDI not by caregiver attainment of CDI's standard mastery criteria, but rather when a child is able to verbally respond to someone other than their caregiver. Yet, once CDI is completed, families receiving PCIT-SM proceed to a novel

Verbal-Directed Interaction (VDI) module, as opposed to the compliance-focused PDI module in standard PCIT. VDI is analogous to PDI, but focuses on generalization of speech to novel environments and unfamiliar people using exposure tasks, and caregivers use probing questions and commands in order to invoke speech in their children. As a child becomes more comfortable with speech, novel individuals (e.g., other therapists) and environments (e.g., changing therapy rooms) are introduced in order to encourage speech in new and potentially anxiety-provoking situations. Similar to standard PCIT, caregiver skills and child behaviors are coded throughout treatment until mastery is met and families graduate from treatment. For a more in-depth review of PCIT-SM's structure and rationale, see Cotter and Brestan-Knight (2018), Kurtz (2016), and Lorezeno et al. (2020).

Thus far, empirical support for PCIT-SM comes from two independent studies (i.e., Catchpole et al. 2019; Cornacchio et al., 2019). Namely, Catchpole et al. (2019) conducted a pilot trial of PCIT-SM with 31 children ages 4–9.75 years ($M = 6.8$, $SD = 1.7$) who had a primary diagnosis of SM (though most also had at least one other comorbid anxiety disorder; i.e., 63% social anxiety disorder, 36% SAD, 20% specific phobia, 10% GAD). Results were promising, both in terms of statistical and clinical significance. Specifically, children treated with PCIT-SM had significant, large pre- to post-treatment increases ($d = 1.80$) in speaking behaviors (as measured by parent-reports on the Selective Mutism Questionnaire; SMQ; Bergman et al., 2008). Notably, these pre- to post-treatment gains in speech reportedly occurred across settings, including school ($d = 1.47$), community ($d = 1.77$), and home/family settings ($d = 1.09$). Indeed, post-treatment SMQ ratings indicated that “67% of children were rated as speaking ‘often’ or more on average across contexts following treatment” (Catchpole et al., 2019), and 86.2% of children in the study were determined to be treatment responders. Moreover, these large pre- to post-treatment reductions in parent-reported SM symptoms were significantly maintained across all settings at the study's 3-month and 1-year follow-ups, and were more moderated by medication (e.g., fluoxetine). Furthermore, these improvements in SM symptoms

were also evinced by teacher-ratings on the School Speech Questionnaire (Bergman et al., 2002) and observational coding (i.e., Strong's [1998] Narrative Assessment Procedure) of children's speech with a stranger, with both of these methods also indicating large, significant pre- to post-treatment gains ($d = 1.09$). However, it should be noted that although large significant improvements were shown in SM behaviors, the speaking frequency of children in the study, on average, still remained below the typical amount of children who do not have SM (see Bergman et al. [2008]), so further research is needed to better determine the clinical significance of PCIT-SM. Nevertheless, mean anxious symptoms (as measured by the parent-ratings on the Screen for Child Anxiety Related Emotional Disorders [SCARED; Birmaher et al., 1997]) went from the clinical range (i.e., ≥ 25) pre-treatment ($M = 29.1$) to the normal range at post-treatment ($M = 21.5$), and these gains were similarly maintained at 3-month and 1-year follow-ups. Notably, neither children's age nor pre-treatment language competence moderated these treatment benefits. Additionally, caregiver-rated treatment satisfaction was very high (i.e. $M = 3.9$ out of 4 [$SD = 0.3$] on the Client Satisfaction Questionnaire; CSQ-8; Attkisson & Zwick, 1982).

Extending these findings, Cornacchio et al. [2019] conducted an RCT to test an adaption of PCIT-SM as an intensive behavioral group therapy (IBGT) format that lasted five 6–8-hour days. Similar to PCIT-SM, parents were given Teach sessions at the beginning of each day, followed by individual in-vivo Coach sessions with their child where they implemented PCIT-SM skills learned during Teach sessions. Participants were 29 children between the ages of 5 and 9 who met DSM-5 criteria for SM (using the ADIS-C/P; Silverman & Albano, 1996) and were randomly assigned to the PCIT-SM IBGT group ($n = 14$) or a waitlist control group ($n = 15$). Compared to the control group, children receiving PCIT-SM in an IBGT format has significantly greater improvements in (1) social anxiety, as measured by the ADIS-IV-C/P (Silverman & Albano, 1997; $d = -0.50$); (2) social verbal behavior, as measured by the social subscale of the SMQ ($d = 0.58$); and (3) functional impairments, as measured by the Children's Global

Assessment Scale (GCAS; Shaffer et al., 1983; $d = 0.73$). Additionally, results showed that the PCIT-SM IGBT group had significantly more treatment responders (i.e., 50%, $n = 7$), than the non-treatment waitlist group did (i.e., 0%), with this difference being large ($\phi = -.58$). Further, mean anxiety problems as measured by the CBCL went from clinical at pre-treatment ($M = 65.7$, $SD = 8.9$) to sub-clinical at post-treatment ($M = 61.6$, $SD = 7.7$) in the IGBT treatment group, though these differences were not significantly greater than the waitlist group. Markedly, only 7.1% of the treatment group no longer met criteria for SM at a 4-week follow up, and none of the waitlist group had full diagnostic remission), but an assessment administered 8 weeks into the following school year when both groups had gone through IGBT indicated that 46% of children achieved full diagnostic remission of SM. Moreover, significant improvements were seen in parent- and teacher-reported verbal behavior as well academic/social impairment, though effect sizes were not provide for these improvements. Similar to the PCIT-SM pilot trial, this study suggests PCIT-SM may reduce anxiety in preschool-aged children with clinical anxiety and/or SM, though full diagnostic remission of SM appeared to be delayed for the IBGT format.

Overall, both studies outlined above support the efficacy, feasibility, and acceptability of PCIT-SM at improving both focal SM and more broad anxiety symptoms in young children. Specifically, PCIT-SM (especially in its standard format) is linked to large, significant increases in speaking behaviors across settings (e.g., home, community, and family settings; $ds = 1.09$ – 1.80) and assessment modalities (e.g., parent-report, teacher-report, observational coding ($ds = 1.09$ – 1.47)). Additionally, both studies' results suggest PCIT-SM (in either format) can reduce children's broad internalizing symptoms from the clinical to the normal or subclinical range. Finally, both studies indicate that PCIT-SM's treatment benefits are sustained for months, if not years, after treatment concludes. Still, further research is needed to better validate PCIT-SM, as well as other PCIT adaptations that target internalizing problems other than SM.

CALM. In contrast to PCIT-SM and its specific focus on a singular anxiety disorder, the Coaching Approach behavior and Leading by Modeling (CALM; Puliafico et al., 2013) was

adapted from PCIT for children below the age of 7 years who experience a broad range of individual and comorbid anxiety disorders. Notably, this transdiagnostic approach was taken since such comorbidities are abundant in early childhood (Kessler et al., 2005), yet lacking developmentally appropriate, validated treatment protocols (Puliafico et al., 2013). In terms of protocol, CALM consists of 12 sessions divided between two treatments modules: CDI and BDI (both of which are detailed below). Notably, the CALM protocol does not include a PDI module, as it is not intended to address effective parent discipline practices but is rather focused on treating child anxiety (Puliafico et al., 2013).

CDI in CALM is similar to PCIT's standard protocol, but with added didactic and experiential components to prepare caregivers for exposure therapy sessions. Specifically, CALM's CDI Teach session not only teaches CDI's PRIDE skills (as discussed earlier), but also provides caregivers with psychoeducation about child anxiety, explains the rationale for and structure of exposure that will occur in future sessions, and helps caregivers create an individualized fear hierarchy for their child. For this fear hierarchy, caregivers are asked to create a list of situations that invoke anxiety in their child and rank them from least to most challenging—initial exposure sessions typically begin with the least challenging situations and more challenging situations are introduced as treatment progresses. The first exposure occurs on the third CDI Coach session, and parents receive in-vivo coaching on using PRIDE skills to help regulate and soothe their child during a pre-determined low-distress exposure to a situation that will invoke anxiety in the child (e.g., walking to the other side of the room, showing a picture of a dog or spider). In contrast to standard PCIT, specific mastery criteria are not required in CALM's CDI phase, although clinicians are encouraged to use clinical judgment and flexibility and extend treatment as necessary.

Upon completion of CALM's CDI module, families then move on to its BDI module, which, like Pincus et al.'s (2010) BDI phase, includes a Teach session followed by Coach sessions that focus on gradual exposure exercises. Like CDI's PRIDE skills, CALM's BDI phase

has phase-specific skills that are referred to by the acronym of DADS. These skills—which are intended to be sequential and constitute the phase’s protocol-specific name—are as follows:

- **Describe:** The caregiver makes descriptive observations about the feared situation in order to help the child focus on the situation at hand, as opposed to their own fears (e.g., “The dog is small, brown, and wagging its tail.”),
- **Approach:** If the child does not initiate the intended behavior after the Describe step, the caregiver approaches and models the intended behavior (e.g., the caregiver approaches and pets the dog),
- **Direct Command:** If the child does not initiate the intended behavior after the Describe and Approach steps, the caregiver provides a direct command to the child (e.g. “Go pet the dog.”), and
- **Selective Attention:** If the child does not initiate the target behavior after the first three steps, the caregiver should actively ignore all avoidance behaviors and positively attend to approach-oriented behaviors using PRIDE skills.

Caregivers should allow 5 seconds for children to initiate the target behavior after utilization of each of the first three DADS steps. If compliance is not reached after the direct command step, caregivers should loop back to previous steps until the target behavior is initiated. Caregivers are taught DADS skills in the BDI Teach session, followed by several coaching sessions.

Families first begin with moderate-level exposure tasks and conclude the module by completing high-level exposure tasks. As with standard PCIT, families are given homework assignments to practice CDI and BDI skills utilized throughout the course of treatment. Upon completion of this module, families are assessed for treatment progress, and they graduate from treatment.

Research on CALM includes a pilot trial (Comer et al., 2012), a case study exploring the efficacy of a virtually administered version of CALM (iCALM; Comer et al., 2015), and a RCT of iCALM (Comer et al., 2021). The pilot trial for CALM (Comer et al., 2012) consisted of nine

families with a child aged 4–8 years ($M = 5.4$) who met diagnostic criteria for generalized anxiety, social anxiety, and/or specific phobias as assessed by the ADIS-C/P (Silverman & Albano, 1996). Remarkably, 85.7% ($n = 6$) of participants who completed CALM saw full diagnostic response (i.e., they no longer met diagnostic criteria for any anxiety related disorder). Further, all but one of the sample's children showed significant pre- to post-treatment improvements in functioning, as measured by the Children's Global Assessment Scale (CGAS; Shaffer et al., 1983). In fact, mean CGAS scores went from 61.4 pre-treatment (categorized as "variable functioning with sporadic difficulties or symptoms in several but not all areas") to 82.1 post-treatment (categorized as "no more than slight impairments in functioning at home, at school, or with peers"). Further, mean scores on the Clinical Global Impressions scale (CGI; Guy, 1976) revealed that participants went from moderately-to-markedly ill at pre-treatment ($M = 4.7$), to borderline to not ill at all at post-treatment ($M = 1.6$). Unfortunately, because of the smaller sample size and focus on diagnostic response, normed quantitative data for internalizing problems (i.e., T -scores) were not reported for this study, and thus effect sizes of these results are unknown. Still, these findings suggest CALM may adequately treat a wide variety of individual and comorbid child anxiety disorders in early childhood.

Extending these findings, Cooper-Vince et al. (2016) found similar efficacy and feasibility when CALM was administered via video conferencing (i.e., I-CALM; Comer et al., 2015) with a 6-year-old boy diagnosed with generalized anxiety disorder (GAD) and SAD. Notably, after I-CALM, the child no longer met diagnostic criteria for GAD and SAD (as measured by the Anxiety Disorders Interview Schedule for the DSM-IV, Parent Version [ADIS-IV-P; Silverman & Albano, 1997]). More specifically, the severity of the child's anxiety went from the clinical range (i.e., ≥ 4) at pre-treatment to the normal range at post-treatment (i.e., from 5 to 2 on the Clinical Severity Rating of the ADIS-IV-P). Overall, this case study not only further supports CALM's efficacy in treating anxiety disorders in young children, but it also provides preliminary evidence for the possibility of behaviorally intensive interventions like CALM (and potentially other PCIT

diagnostic adaptations) that typically rely on unique clinic infrastructure (e.g., one-way mirrors, microphones, head-sets) to be administered online while still maintaining their effectiveness, which is particularly salient as the field of clinical psychology moves toward wider availability of virtual and teleconferencing modalities for treatment (Friedberg, 2021).

This promising finding—as well as support for iCALM’s efficacy in general—was most recently bolstered by a RCT conducted by Comer et al. (2021). Participants included 40 children who were between 3.0–8.9 years of age who were seeking treatment for child anxiety. At pre-treatment, 100% of the sample met diagnostic criteria for SAD, and comorbid diagnoses of GAD (32%), separation anxiety disorder (20%) and SM (10%) were also present in the sample. Diagnoses were made using the ADIS-C/P (Silverman & Albano, 1996). Participants were separated at random into an iCALM treatment group ($n = 20$) and a non-treatment waitlist group ($n = 20$). Notably, children in the treatment group saw small but significantly greater improvements ($d = 0.31$) in child anxiety problems as measured by caregiver-report on the CBCL than the waitlist group, as well as significantly larger improvements ($d = 0.89$) on the Discomfort scale of the Children’s Behavior Questionnaire (CBQ; Putnam & Rothbart, 2006) and moderately better improvements ($d = -0.66$) on the Falling Reactivity/Soothability scale of the CBQ when compared to the waitlist group. Further, results from the CBCL demonstrated clinical significance, as T -scores in the iCALM group went from the clinical range pre-treatment ($T = 68.4$) to the sub-clinical range post-treatment ($T = 64.0$). Finally, in terms of diagnostic response to treatment, at a 6-month follow-up assessment, 60% of participants who were treated using iCALM were classified as treatment responders as determined by the Clinical Global Impression Improvement Scale (CGI-I; Guy, 1976), and 53.6% of participants showed full diagnostic remission of SAD. Altogether, results from this RCT further support the efficacy of CALM in general, as well as its specific telehealth-based delivery.

Overall, there is a large body of research supporting the preliminary efficacy of CALM in terms of treatment response, reductions in overall anxiety problems, and propensity to cause

diagnostic remission of anxiety and anxiety-related disorders, and these findings have replicated with both in-person as well as telehealth-delivered CALM (i.e., iCALM). Notwithstanding, future research is needed to better establish CALM's efficacy and effectiveness relative to active versus solely passive control groups. Specifically, such research could compare the efficacy of CALM (or iCALM) against other PCIT protocols, particularly those that specifically target comorbid internalizing and externalizing disorders.

Brave START. In contrast to CALM, which does not directly target externalizing problems, Brave Skills Training and Anxiety Reduction Treatment (START; Mazza, 2018) is a transdiagnostic modular adaptation of PCIT intended to treat children with comorbid disruptive behavior problems and anxiety. The Brave START protocol consists of three modules, CDI, PDI, and an adapted BDI. Notably, CDI and PDI in Brave START are similar to standard PCIT, but with specific tailoring and adaptations intended to treat anxious children. Specifically, during the CDI Teach session, caregivers are taught “BRAVE” skills as opposed to “PRIDE” skills in order to reinforce appropriate behaviors in their anxious children. BRAVE is an acronym that stands for:

- **Behavior descriptions:** This is the same as the “Describe” skill in standard PCIT in which caregivers describe their child’s behavior (e.g., “You’re putting the green block on the yellow block”),
- **Reflections:** This is the same as the “Reflect” skill in standard PCIT in which caregivers reflect statements made by their children (e.g., “I am drawing a car!” “You’re drawing a car!”),
- **Affection:** The caregiver offers physical affection (e.g., giving their child a hug) only while (or after) their child behaves respectfully, appropriately, or bravely, so as to avoid the natural tendency of caregivers to unintentionally reinforce avoidant behaviors through physical affection,

- **Validation:** The caregiver clearly communicates that they understand their child's thoughts, behaviors, emotions and desires, regardless of whether or not they agree with them (e.g., "I understand that meeting new people can be really scary."), and
- **Effective Praise:** The caregiver gives an effective praise to their child (e.g., "Thank you for asking me politely for the crayon!"), which can vary in the degree to which they are labeled and/or enthusiastic, in contrast to standard CDI's labeled praise.

In contrast, PDI remains almost entirely consistent with PCIT's standard protocol, with the only difference being that the therapist also codes Affection and Validation skills during PDI Coach sessions.

Finally, Brave START has a novel third module which, like the above protocols' BDI phases, utilizes exposure to target childhood anxiety. This phase, called the Brave MIND module, is similar to other BDI modules in that it begins with a Teach session wherein caregivers are given psychoeducation on treating child anxiety with exposure and work with a therapist to create a fear ladder. Thereafter, coaching sessions and between-session homework focus on teaching caregivers to effectively use phase-specific skills during gradual exposure exercises with their child, similar to BDI, CALM, and PCIT-SM. Yet, unlike CALM (but consistent with standard PCIT), all three of Brave START's modules contain mastery criteria to determine progression to the next phase of treatment. After mastery criteria are met for each module, the client is administered a post-treatment assessment, given maintenance strategies, and graduates from treatment.

In terms of empirical support for Brave START, Mazza's (2018) pilot study involved seven children ages 3–7 with an anxiety diagnosis (primarily represented by social phobias and separation anxiety) and comorbid ODD. Notably, six of the seven children in the study had clinically significant pre- to post-treatment reductions in anxious symptoms, such that they no longer had clinically elevated anxiety, per Anxiety Disorders Interview Schedule for DSM-5 – Parent Version (ADIS-5; Albano & Silverman, 2017). Concurrently, five of these children also no

longer met diagnostic criteria for ODD post-treatment. Additionally, significant improvements were seen in childrens' avoidance reduction, approach behaviors, and anxious symptoms, and every single child had significant reductions in disruptive behavior (as measured by the ECBI), such that all of the post-treatment ECBI scores were not only below the ECBI's clinical cut-off, but also below the graduation criteria for standard PCIT. However, standardized effect sizes were not provided for this study. Nevertheless, these preliminary results suggest Brave START can cause transdiagnostic remission of both externalizing and internalizing problems, or at least internalizing symptoms related to anxiety.

Summarizing the above literature, Philips and Mychailyszyn (2021) conducted a meta-analysis of 15 studies involving 370 children ages 2.0–9.75 to analyze the efficacy of PCIT's standard and adapted protocols in reducing youth anxiety. Overall, PCIT (combining standard and adapted protocols) was linked to significant, large pre- to post-treatment reductions in child anxiety ($g = -0.96$, 95% CI $[-1.22, -0.70]$, $p < .001$), with a fail-safe N of 56. Moreover, PCIT significantly outperformed control groups ($p = .04$), whose meta-analytic effect on child anxiety was small ($g = -0.40$, 95% CI $[-0.87, 0.07]$, $p > .001$). Notably though, two studies used a control group that also received PCIT (i.e., Chase & Eyberg, 2008; Timmer et al., 2010). When those two studies were omitted to better estimate PCIT's comparative meta-analytic effect ($k = 6$), heterogeneity for the control groups' effects was no longer significant. Moreover, the meta-analytic effect of control groups decreased to a trivial, non-significant effect ($g = -0.05$, 95% CI $[-0.34, -0.23]$, $p = .35$), which further highlights the comparative efficacy of PCIT in reducing child anxiety. Secondary analyses indicated that the overall pre- to post-treatment effect of PCIT's anxiety-specific adaptations and standard protocol did not significantly differ ($Z = -0.13$, $p = .90$), with both categories of PCIT protocols associated with large reductions in child anxiety (adapted: $g = -1.04$, 95% CI $[-1.47, 0.61]$, $p < .001$; standard: $g = -1.07$, 95% CI $[-1.46, 0.67]$, $p < .001$). However, follow-up analyses indicated that PCIT-related decreases in child anxiety were larger with studies that only included children with internalizing disorders/problems (i.e., no

externalizing-developmental comorbidity: $k = 7$, $g = -0.90$, 95% CI $[-1.26, 0.54]$, $p < .001$) versus with studies that included children with comorbid internalizing and externalizing disorders/problems ($k = 8$, $g = -0.66$, 95% CI $[-0.95, 0.37]$, $p < .001$). Finally, for studies where PCIT-treated children had at least one anxiety diagnosis ($k = 10$), the summary effect size for pre- to post-treatment reductions in anxiety was large ($g = -1.18$, 95% CI $[-1.45, -0.92]$, $p < .001$); whereas, the meta-analytic effect was medium-to-large for studies where PCIT-treated children did *not* have an anxiety diagnosis (e.g., subclinical levels; $k = 5$, $g = -0.75$, 95% CI $[-1.26, -0.60]$, $p < .001$). Saliently, these effects were significantly different ($Z = 2.72$, $p = .007$).

Overall, these results suggest PCIT's standard and adapted protocols are promising treatments for young children—particularly those aged 3–7—with either subclinical or clinical levels of anxiety. Moreover, PCIT's meta-analytic effects (for both standard and adapted protocols) were large, and significantly better than its direct control groups, but also significantly better than the moderate, 50-year-average effect size for youth treatments for anxiety ($k = 143$, $g = -0.61$, 95% CI $[-0.53, -0.70]$; Weisz et al., 2017). Similarly, this evidence suggests that PCIT also can effectively treat children with anxiety and comorbid disruptive behavior and related disorders, though comorbidity tends to attenuate its efficacy (though still far better most other multi-disorder treatments; $g = -0.15$; Weisz et al., 2017). Despite this growing, consistent literature, it remains unknown the degree to which PCIT's anxiety-focused adaptations (e.g., BDI, Brave START, CALM, Turtle Program) might ameliorate other types of internalizing problems, such as depressive symptoms and related emotional dysregulation. Fortunately, other researchers have begun to develop and test PCIT-adapted protocols focusing on depression and emotional dysregulation.

PCIT-ED. As noted above, the majority of internalizing-focused adaptations for PCIT have focused on anxiety. In contrast, PCIT for Emotional Development (PCIT-ED; Luby et al., 2018) arose in light of the growing number of pre-pubertal children diagnosed with depressive disorders, as well as clinicians having trouble utilizing cognitive-behavioral therapy or other

common treatments for depressive symptoms with preschool-aged children, given developmental barriers associated with these treatments (Lenze et al., 2011). Additionally, PCIT's emphasis of the caregiver-child relationship was deemed well-suited for an adaptation to concurrently reduce child internalizing problems and improve caregiver-child attachment (Lenze et al., 2011).

Structurally, PCIT-ED consists of three treatment modules: CDI, PDI, and an additional novel module designed to reduce depressive symptoms in children called the Emotional Development (ED) module (Luby et al., 2018). The goals and procedures of CDI and PDI remain the same as the standard protocol of PCIT (discussed earlier), but they are limited to six sessions as opposed to being continued until mastery. According to the pilot trial of PCIT-ED, the goal of the ED module "...is to enhance the child's emotional competence by increasing their ability to identify, understand, label and effectively regulate their own emotions" (Lenze et al., 2011).

Similar to CDI and PDI, the ED module consists of a Teach session in which parents are taught the phase-specific skills that they will utilize throughout the module. During this session, caregivers are taught to effectively assist their children in recognizing and managing their emotions—they do this by recognizing what their child's "triggers" are, assisting them in labeling the trigger (or emotion and/or behavior), and maintaining their own emotional balance using a calm voice, while coaching their child through relaxation techniques. An important component of this module is teaching parents to tolerate their child's expression of negative emotion in order to allow them the opportunity to learn to properly regulate them. Relatedly, caregivers are taught skills to use while children are actively emotionally dysregulated (i.e., Support Skills) as well as after such episodes (i.e., Guidance Skills). As with CDI and PDI, the ED Teach session is followed by several Coach sessions in which a target emotion is elicited from the child and the therapist in-vivo coaches the caregiver to assist the child in regulating that emotion using the skills taught during the Teach session. Caregivers are encouraged to use skills learned in each

module at home between sessions, particularly during specific homework assignments provided by the therapist.

Empirical support for PCIT-ED includes a pilot trial and three RCTs, one of which observed the effect of novel components of PCIT-ED on neural responses to reward tasks. First, Lenze et al. (2011) conducted a pilot trial of PCIT-ED with seven children ages 3–6 who met diagnostic criteria for major depressive disorder (MDD). Notably there were significant, large pre- to post-treatment reductions in caregiver-reported externalizing problems ($d = -0.73$) and internalizing problems ($d = -0.88$), as measured by the Health and Behavior Questionnaire (HBQ; Armstrong & Goldstein, 2003), as well as significant, large pre- to post-treatment reductions in MDD severity ($d = -1.28$) as measured by clinician interview with caregivers using the Preschool Age Psychiatric Assessment (PAPA (Egger, 1999). Additionally, 71% of the children ($n = 5$) no longer met diagnostic criteria for MDD, post-treatment.

Given these promising findings, Luby and colleagues (2012) conducted a RCT with 54 children ages 3–7 with MDD (as measured by the PAPA) who were randomly assigned to PCIT-ED or a control group who completed group psychoeducation about child emotional development. Large pre- to post-reductions ($d = -2.17$) were seen in the PCIT-ED treatment group for depression severity, as measured by the Preschool Feelings Checklist–Scale Version (PFC-S; Luby et al., 2004). Yet, clinical cutoffs for this measure were unspecified, and post-treatment diagnosis counts were not provided, so diagnostic response to PCIT-ED is unknown for this study. However, using an intent-to-treat analysis, PCIT-ED was significantly more effective than psychoeducation at improving child emotion regulation skills, as measured by caregiver-ratings on the Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997), and this difference was large ($d = 0.83$), which supports emotional regulation skills as a putative mechanism of change in PCIT-ED.

More recently, Luby and colleagues (2018) conducted a larger RCT with 229 children ages 3.0–6.9 who had MDD; these children were randomly assigned to either PCIT-ED or a

waitlist control group. Presence of MDD symptoms and severity were measured using the Kiddie Schedule for Affective Disorders and Schizophrenia-Early Childhood (K-SADS-EC; Gaffrey & Luby, 2012) and child functional impairment was measured using clinician-ratings on the Preschool and Early Childhood Functional Assessment Scale (PECFAS; Murphy et al., 1999). At post-treatment, children who received PCIT-ED had significantly lower rates of depression, depression severity, and lower functional impairment than those in the waitlist control group, all to a moderate to large degree (d s = -1.01, -1.04, and -0.78 respectively). Not only this, but just 22% of children still met diagnostic criteria for MDD at post-treatment.

Extending the findings from the above study, Luby et al., (2020) examined the contributions of individual components of PCIT-ED. Notably, the PCIT-ED treatment group saw significantly greater reductions in depression, anxiety, internalizing, and externalizing T -scores on the CBCL compared to the waitlist control group (though specific T -scores were not provided for these subscales). Additionally, results indicated that the ED module of PCIT-ED uniquely caused positive changes in children's neural response to reward tasks from pre- to post-ED as measured by event-related potentials (ERPs). These findings indicate that the novel ED module adds to the efficacy of PCIT-ED's CDI and PDI modules in treating young children with depression (Luby et al., 2020).

With consideration to other potential tangential treatment targets for PCIT-ED, Donohue and colleagues (2021) used data from the PCIT-ED RCT conducted by Luby and colleagues (2018, 2019) to examine the effects of PCIT-ED on callous-unemotional (CU) traits. CU traits are characterized by low levels of guilt, empathy, and prosociality (Frick, 1995; Waller et al., 2020), and are a notable precursor to psychopathology, externalizing problems, and criminality later in childhood and into adulthood (Fontaine et al., 2011; Frick et al., 2014; Ray et al., 2016), and thus an important treatment target in clinical child populations. As might be expected, in conjunction with significant ODD symptom improvements, PCIT-ED also led to significant, moderate-to-large reductions in CU traits (d = -0.74), as measured by the CBCL.

A more recent analysis of these RCT data by Donohue et al., (2022) examined if children's pre-treatment maternal representations (i.e., how negatively or positively children view their mother) predicted PCIT-ED-related reductions in MDD severity. Maternal representations were coded using an adapted version of the MacArthur Narrative Coding Manual (Robinson et al., 2002). Results indicated that assignment to PCIT-ED, compared to the control group, predicted remission of MDD diagnosis for children who displayed (a) less negative maternal representations (estimate = $-.68$, $p = .01$) or (b) relatively more positive than negative maternal representations (estimate = $.30$, $p = .02$). Together, these studies add important insight into the broad range of impact to symptomology that PCIT-ED may have, and the importance of cultivating positive caregiver-child relationships when treating childhood depressive symptoms using PCIT.

PCIT-EC_o. Because children diagnosed with ADHD are more likely to have unique challenges regulating their emotions (Melnick & Hinshaw, 2000) and demonstrate conduct problems (Egger & Angold, 2006), there is need for developmentally appropriate treatments to address these challenges for this specific population. Out of recognition of this need, PCIT-Emotion Coaching (PCIT-EC_o; Chronis-Tuscano et al., 2016) was created as an adaptation of PCIT-ED, with several notable modifications. For example, during the PDI phase, in special circumstances, emotion regulation coaching is used in place of strategic ignoring. Additionally, emotion coaching is implemented in the timeout procedure, and (in contrast to PCIT-ED) direct teaching sessions for child emotion identification and relaxation strategies were removed due to evidence of limited efficacy in ADHD-diagnosed populations. Further, a task intended to elicit guilt in the PCIT-ED procedure was removed due to it being ineffective, more psychoeducation about ADHD was implemented, and the PCIT-ED session focused on joy coaching was removed due to overlap with PRIDE skills (Chronis-Tuscano et al., 2016).

Research for the efficacy for PCIT-EC_o is in its early stages and is limited to one singular study. PCIT-EC_o findings came from three case examples of a small treatment trial

intended to show the efficacy PCIT-ED in treating children with ADHD. Five children were treated using the PCIT-ED protocol, and three children (ages 3.5, 4.0, and 5.5 years) were treated with PCIT-ECo. For all three of the PCIT-ECo cases, significant reductions were shown in emotion regulation problems as measured by the Emotion Regulation Checklist (ERC; Shields & Chicchetti, 1997), and these reductions remained at a 6-month follow up (Chronis-Tuscano, 2016). Unfortunately, effect sizes for these reductions were not provided, and diagnostic/clinical significance varied (as did children's diagnoses; e.g., ADHD, ODD, CD). Moreover, only one of the three cases reportedly had significant reductions in internalizing symptoms (as measured by caregiver-reports on the CBCL). Therefore, the initial findings for PCIT-ECo are uncertain, and further research is needed to better establish its efficacy, particularly relative to other PCIT protocols, both standard and adapted.

Altogether, empirical evidence for the efficacy of modular adaptations of standard PCIT to reduce internalizing problems are promising. Overall, improvements in internalizing symptoms have ranged from medium ($gs = 0.50\text{--}0.66$; Barstead et al., 2018) to large ($ds = 0.84\text{--}2.17$; Chronis-Tuscano et al., 2015; Lenze et al., 2011; Luby et al., 2012). Additionally, the majority of these treatments have shown notable diagnostic response among participants and/or reductions of mean internalizing scores from subclinical to normal ranges (as well as clinically significant reductions using samples with more severe internalizing symptoms). Taken together, early research for these treatments provides support for the capacity of modular adaptations of PCIT to target both broad and diagnostic-specific internalizing problems in young children.

Yet, despite this robust, growing body of research supporting both the transdiagnostic effectiveness of standard PCIT and the efficacy of adapted PCIT treatments to target internalizing problems (see Table 1 for a summary), these treatments have largely been developed and validated for early childhood, namely for children ages 2 through 6 years old (e.g., Barstead et al., 2018; Chase & Eyberg, 2008; Chronis-Tuscano et al., 2015, 2016, 2020; Lenze et al., 2011; Luby et al., 2018; Mersky et al., 2016; Zimmer-Gembeck et al., 2019).

Moreover, the vast majority of developmental PCIT adaptations have been created and validated for younger children (e.g., infants, toddlers; Bagner et al., 2013, 2016; Blizzard et al., 2017; Girard et al., 2018). Comparatively, there is a relative lack of developmentally appropriate and empirically validated PCIT protocols for children who present with externalizing—much less comorbid externalizing and internalizing problems—in middle childhood (see below). This is particularly salient since children in this age group have unique biopsychosocial competencies, risks, and needs.

Middle Childhood

Middle childhood is a developmental period spanning from the end of early childhood to the beginning of puberty/adolescence (i.e., typically defined as ages 7–11 years), that is marked by distinct physical, cognitive, and social development, as well as unique risks for psychopathology (Bancroft, 2003; Best et al. 2009; Colle & Del Giudice, 2011; Del Giudice & Belsky, 2010; Del Giudice, 2018; DelGuidice et al., 2009; Ghandour et al., 2019; Ghetti and Bunge, 2012; Herdt & McClintock, 2000; Hochberg, 2008; House et al., 2013; Jambon & Smetana, 2014; Joffe, 1997; Korell & Peer, 2019 Kumpfer et al., 2002; Lagattuta et al., 2009; Lancy and Grove, 2011; Lebel et al., 2008; Locke & Bogin, 2006; Moilanen et al., 2010 Piccardi et al., 2014; Scalise Sugiyama, 2011; Stocker et al., 2002; Weisner, 1996; Wells, 2007). In terms of physical development, middle childhood is marked by the emergence of permanent molars, increases in muscle mass and BMI, initial development of axillary hair and body odor, as well as notable increases in both gross and fine motor skills (Del Giudice, 2018; Hochberg, 2008; DelGuidice et al., 2009; Wells, 2007; Joffe, 1997). Additionally, the onset of androgen secretion in middle childhood brings about notable physical differences between sexes (e.g., bone strength and muscularity are greater for children assigned male at birth), as well as sex differences in vocal characteristics (Del Giudice et al., 2009). Relatedly, during this time, the brain reaches its peak in both overall volume and volume of grey matter, which is associated with motor control, memory retention, and emotion regulation (Lebel et al., 2008). Overall, much

of the physical development observed in middle childhood can be understood as the onset of changes that present themselves with greater magnitude in adolescence (e.g., puberty, voice changes, rapid emergence of body hair, increases in production and release of hormones, increases in body mass; Vijayakumar et al., 2018; Rogol et al., 2018; Swayer et al., 2018).

However, marked neurological development that occurs during adolescence has yet to occur (or may be in its early stages) during middle childhood. For instance, significant development of the prefrontal cortex—and associated increases in cognitive control, attention, inhibitory self-control, and prospective memory—most prominently occurs during adolescence, not middle childhood (Kolb et al., 2012). Similarly, further interconnectivity of brain regions emerges during adolescence, along with another rise in cerebral dopamine levels (Del Guidice, 2018; Steinberg, 2010).

Related to the above neuro-anatomical and neuro-endocrinal changes, middle childhood also is a time of significant cognitive development. Specifically, there is an increase in reasoning, problem-solving skills, and use of concrete operations (Bjorklund, 2011), as well as increased capacities for navigational skills (e.g., being able to understand maps) and working memory (Piccardi et al., 2014). Further, middle childhood is a time marked by changes in visual processing; specifically, a preferential transition from local to global visual processing occurs (i.e., children in middle childhood perceive visual stimuli in a broader and more “big-picture” manner than children in early childhood). Additionally, prominent changes occur in children’s executive function during this time period, such that children’s capacity to inhibit inappropriate or unwanted behavior increases, as well as their ability to make and follow-through with plans and maintain sustained attention (Best et al. 2009; Weisner, 1996). At the same time, middle childhood, when compared to adolescence, is marked by significant deficits in abstract reasoning, increases in futuristic and philosophical concerns, long-term personal goal orientation, and establishment of personal values and ethics (apart from those of an individual’s

family of origin) that occur during adolescence (Del Giudice, 2018; Lansford & Banati, 2018; Lehalle, 2020).

Outside of physical and cognitive development, children in middle childhood also experience notable development in how they understand and engage with the outside world, specifically in terms of social development. Specifically, children in middle childhood develop distinct roles and identities in their peer relationships, gender socialization, and families. For instance, significant improvements in the ability of children to engage in mentalizing processes (i.e., understanding and representing mental states of others) have been observed in children in middle childhood, along with an increased ability to consider multiple and conflicting perspectives among peers (Lagattuta et al., 2009). Relatedly, in middle childhood children engage in more complex moral reasoning (e.g., consideration of conflicting moral beliefs; Jambon & Smetana, 2014), and engage in prosocial behavior that is reflective of and determined by specific cultural norms (House et al., 2013). Concurrent with improvements in episodic memory in middle childhood (Ghetti & Bunge, 2012), children in this age-group also typically demonstrate notable improvements in storytelling (both biographical episodic memories and fictional stories), which putatively is an important social skill for establishing peer friendships for children and continues to be an important tool for the transmission of inter-generational wisdom at older ages (Scalise Sugiyama, 2011). Relatedly, middle childhood is a time period where social hierarchies develop in peer groups, competition for social resources emerges (e.g., status, friends, reputation, popularity; Del Giudice et al., 2009), and children predominately use pragmatic verbal tools (e.g., joking, teasing, gossiping) to establish themselves within peer-based social hierarchies (Locke & Bogin, 2006).

Related to the physical sex differences that develop in middle childhood, this time period is also marked by an increased sense of gender identity and a time where spontaneous sex segregation occurs in peer friendships (Del Giudice et al., 2009). Relatedly, prominent sex differences in social play can be observed during this development period—children assigned

male at birth are more likely to engage in play fighting; whereas, children assigned female at birth are more likely to engage in play parenting (Del Giudice et al., 2009). Further, children assigned male at birth begin to engage in higher levels of physical aggression than their female counterparts during this time period (Del Giudice et al., 2009), which may be related to the development of social competition mentioned above. There is also a notable divergence in attachment styles between boys and girls in middle childhood—boys with insecure attachment styles become more avoidant; whereas girls with insecure attachment styles become more ambivalently attached (Del Giudice et al., 2009; Del Giudice & Belsky, 2010). Lastly, middle childhood marks the onset of sexual and romantic attractions for many children, as well as escalation of sexual play (Bancroft, 2003; Herdt & McClintock, 2000).

In the context of the family, middle childhood is an age where children are far more capable of (and are often expected to) assist in domestic tasks (e.g., independent completion of household chores, assistance in preparing meals). Relatedly, because of the aforementioned physical and cognitive development in middle childhood, children in this developmental age may be trusted to do certain tasks or activities without adult supervision (e.g., taking medication, health practices and hygiene, preparing some meals on their own, etc.), and relatedly these children begin to be viewed more fully as people with unique personalities, social roles, and individuality by adults (Lancy and Grove, 2011). Further, attachment styles that are developed in the caregiver-child relationship in early childhood are associated with emotional competencies (or lack thereof) in middle childhood. For instance, children with secure attachment styles demonstrate significantly more positive cognitive emotional regulation strategies than do children with disorganized attachment styles (Colle & Del Giudice, 2011). Similarly, research has shown that sibling conflict in early childhood predicts anxiety, depression, and delinquent behavior in early adolescence (Stocker et al., 2002), further emphasizing the importance of positive familial relationships in middle childhood for positive life trajectories in adolescence and beyond.

Notwithstanding, youth in middle childhood interact with their social environment in a markedly distinct way from those in adolescence. Specifically, the former, compared to the latter, typically have a much lower capacity for independence compared to early adolescence (e.g., making own meals, completing tasks without caregiver-assistance), and especially late adolescence (e.g., having a job, driving, living independently of family of origin). This adolescence-linked independence, combined with the previously discussed establishment of individual values and goal orientation, makes adolescents far less reliant on their caregivers and more likely to interact, seek support from, and spend time with their peers (Hill et al., 2007; Steinberg & Silk, 2002), or to spend time in isolation (Copeland et al., 2018; Larson & Richards, 1991; Larson & Verma 1999) than children in middle childhood.

Related to the above intensification of social competition and outcomes related to familial relationships, middle childhood also signifies unique risks for overall mental health and psychopathology. A peak occurs in anxiety disorders (specifically social phobias), as well as ADHD during this time period (Del Giudice et al., 2009)—and perhaps most notably, in child conduct problems (Del Giudice et al., 2009; Del Giudice et al., 2011, Ghandour et al., 2019; Korell & Peer, 2019). Additionally, externalizing problems in middle childhood have been shown to be associated with high levels of internalizing problems (i.e., comorbidity), and low levels of academic competence throughout middle childhood, and predict greater risk of even more severe internalizing problems in the transition from middle childhood to adolescence (Moilanen et al., 2010). Indeed, untreated externalizing problems in middle childhood (e.g., ODD), if untreated, are likely to develop into more severe externalizing problems (e.g., conduct disorder) and criminality in adolescence (Fairchild et al., 2019; Beaudry et al., 2021). Untreated internalizing problems in middle childhood also typically worsen (e.g., increased severity of depression and anxiety; Young et al., 2019), consequently increasing the risk of suicidality in adolescence (Scardera et al., 2020). Finally, comorbid externalizing and internalizing problems (e.g., aggression and social anxiety) in middle childhood put individuals at much greater risk for

alcohol and substance use disorders in adolescence (Addolorato et al., 2018; Blumenthal et al., 2019; Dyer et al., 2019; Kumpfer et al., 2002; Regan et al., 2020).

In light of the unique development and risks that differentiate middle childhood from early childhood and adolescence, careful consideration should be given to how to best treat psychological problems for children during this period. Notably, Bennet and Gibbons (2000) conducted a meta-analysis of 30 studies using CBT to treat conduct problems in both elementary school-aged children (including middle childhood) and adolescents; finding of this meta-analysis suggested that the effectiveness of CBT correlated positively with age (i.e., CBT was more effective with adolescents than it was elementary school-aged children; $r = .33$, $p < .10$ [two-tailed]). Similarly, McCart et al.'s (2006) meta-analysis of 41 treatment studies of child/adolescent conduct problems found that the effects for BPTs ($d = 0.45$, 95% CI [0.28, 0.60]) were significantly greater than the effects of CBT ($d = 0.23$, 95% CI [0.11, 0.32]) for treating conduct problems in children ages 6–12, and reinforced the findings of Bennet and Gibbons (2000) that the effect sizes of CBT for treating conduct problems was significantly associated with child age ($\beta = .37$, $p < .01$). Specific to internalizing problems, Eckshtain et al. (2017) found that a Hanf-based BPT (namely, an adapted *Defiant Child*; Barkley, 1997) caused large pre- to post-treatment reductions in MDD diagnoses ($g = -3.04$) in a sample of 15 youth ages 7–13 (100% MDD and 100% conduct-related disorder, pre-treatment), with this diagnostic response similar to CBT's effect among a gender- and age-matched control group ($n = 15$; $g = -2.73$) in depressive symptoms among a sample of 15 youth ages 7–13 (100% MDD, 47% conduct-related disorder, pre-treatment). Moreover, BPT-treated youth had a medium-to-large pre- to post-treatment decrease in self- and parent-reported depressive symptoms—as measured by a composite scores of the CBCL/YSR and RCADS—($gs = -0.75$ and -1.12), which was statistically noninferior to CBT outcomes ($gs = -0.99$ and -1.15 , respectively). Thus, the collective empirical evidence supports the comparative use of BPTs over CBT for treatment of externalizing problems in middle childhood, with more nascent research also supporting the

efficacy of BPTs for internalizing symptoms—particularly when comorbid with conduct problems—during this developmental period as well.

PCIT in Middle Childhood

Given previously discussed empirical support for PCIT as a best-practice BPT, use of PCIT—particularly when developmentally tailored and/or adapted—would likely be an efficacious treatment for child conduct problems in middle childhood. Recognizing this potential, and the fact that many PCIT clinicians receive referrals of conduct problems in middle childhood (i.e., outside standard PCIT’s age-range), McNeil & Hembree-Kigin (2010) outlined specific recommendations for tailoring and adapting PCIT for older children. This adapted protocol, referred hitherto as PCIT for Older Children (PCIT-OC), includes significant adaptations to both CDI and PDI phases.

For CDI, they recommended reducing the frequency of PRIDE skills and related CDI mastery criteria (i.e., 7 vs 10 praises, reflections, and descriptions each), developmentally adapting PRIDE skills (e.g., allowing non-labeled praise to count towards mastery, allowing informational descriptions to count as behavior descriptions), and using more developmentally appropriate activities (e.g., replacing toys designed for preschoolers, such as large crayons, with more sophisticated art supplies, such as colored pencils, beads, etc.). Additionally, they recommended increasing the length of special playtime at home (i.e., homework) from 5 to 10 minutes each day, and designating 10 minutes of each coach session for individual direct therapist-child therapy.

For PDI, McNeil and Hembree-Kigin (2010) recommended a “big ignore” in which caregivers are asked to provide a conditional warning statement (i.e., “if you don’t [insert caregiver-desired operant], I will turn and ignore”), followed by 45 seconds of strategic ignoring. Further, because caregivers may have trouble enforcing time-outs for older children due to greater child size, strength, and willpower, PCIT-OC entails using a “Time-Out with Incentive Chart (TIC)” in which children can earn privileges (e.g., candy, small toys, screen time) if they

comply to commands without a timeout procedure or if they comply with a timeout procedure, with this timeout procedure being otherwise identical to PCIT's standard protocol. Relatedly, PCIT-OC recommends that a "Time-Out with Suspension of Privilege" procedure be introduced as families progress through treatment, in which privileges (e.g., screen-time, outside play, etc.) are fully taken away until full compliance of the time-out procedure takes place.

Notwithstanding these recommendations, only one case study has empirically examined PCIT-OC's efficacy (Stokes et al., 2017; see below for more details), and the empirical literature of PCIT's effectiveness in middle childhood, with either its standard or adapted form, remains scant. Namely, a few PCIT studies have included children outside of the target age-group for the standard protocol (i.e., children older than 6-years, 11-months old; e.g., Barnett et al., 2015; Chaffin et al., 2004; Kaminsky et al., 2019), but these studies did not report individual case scores and/or compare treatment effects by age. Instead, these studies only reported age ranges, and thus the percentage of children in middle childhood included in these studies is unknown. One exception to the above trend was Woodfield and Lambie's (2019) evaluation of PCIT outcomes in a New Zealand community center with 35 children with conduct problems (and a high percentage of caregiver psychiatric disorders). Of those cases, eight (23%) involved youth older than 84 months (i.e., age 7), with these youth receiving a combination of standard PCIT and PCIT-OC. Regardless of protocol, most of these older youth graduated from PCIT (75%), although older youth tended to require more sessions to graduate compared to younger youth ($r = .34$, $p = .10$). However, like the aforementioned studies, the authors did not present separate pre- to post-treatment outcomes for youth aged 7+ or compare them directly to standard-age youth's outcomes. Additionally, this study only reported aggregated pre- and post-treatment ECBI scores. Thus, the effects of standard PCIT on children in middle childhood in these studies (or in general) remain unclear, particularly for internalizing symptoms.

Similarly, a few of the previously discussed adaptations of PCIT for internalizing problems included older children (i.e., PCIT-SM, CALM, and iCALM; Catchpole et al. 2019;

Comer et al., 2012; Comer et al., 2021; Cornacchio et al., 2019), but these studies also failed to compare treatment effects by age (or even list the exact number of youth aged 7+; c.f., Comer et al., 2012; $n = 2$ [22%]). Consequently, the efficacy of these treatments in middle childhood, or the degree to which age moderates their efficacy, is unknown. Additionally, tailoring of treatment for older children was not reported in these studies. Moreover, all of these treatments were adapted focally for internalizing problems (e.g., separation anxiety, selective mutism), so research for these treatments lack empirical evidence for the transdiagnostic effectiveness of PCIT for older children.

Rather, the only published empirical literature explicitly reporting PCIT outcomes with youth in middle childhood comes from three single-case case studies (i.e., Briegel et al., 2017; Cohen et al., 2012; Stokes et al., 2017). However, all three of these single case studies (each of which are detailed below) utilized different developmental adaptations rather than the same protocol. For instance, Cohen et al. (2012) published a case study examining the effects of PCIT on an 11-year-old boy who experienced a traumatic brain injury (TBI) that consequently resulted in clinical and subclinical levels of externalizing and internalizing problems ($T_s = 76$ and 63 , respectively, as measured by the BASC-2) that were not present before the brain injury ($T_s = 47$ and 50 , respectively). Some adaptations were made to the standard PCIT protocol for this case. For instance, use of behavioral descriptions were not required to meet CDI mastery, as the child reportedly reacted poorly to his mother's frequent use of behavior descriptions. Additionally, during PDI, physically moving the boy to the time-out chair was infeasible because of his size and age, and thus a 'swoop and go' technique (Eyberg & Funderburk, 2010) was used, in which the mother was asked to quickly gather toys in a basket, leave the playroom, hold the door closed, and wait 1 minute (plus 5 seconds of quiet) before returning to the room. In terms of outcomes, the child's disruptive behaviors decreased from the clinical range at pre-treatment (ECBI Intensity raw score = 133) to the normal range at post-treatment (ECBI Intensity raw score = 60), and these normative levels were maintained at a 4-week follow-up.

Further, caregiver-report stress with their child's conduct problems also decreased from clinical levels at pre-treatment (ECBI Problem raw score = 21) to normal levels at post-treatment (ECBI Problem raw score = 12) range. Notably, the child's internalizing scores were not assessed or reported at post-treatment, and thus potential improvements in internalizing symptoms for this case are unknown.

More recently, Briegel (2017) conducted a case study with a 10-year-old White boy diagnosed with ADHD and ODD at baseline, as determined by the German version of the Kinder Diagnostic Interview for Mental Disorders in Children and Adolescents (Kinder-DIPS; Schneider & Suppinger, 2009). Adaptations to PCIT's standard protocol for this case were minimal, but still involved developmentally tailoring toy selection during CDI sessions (e.g., construction games), increasing daily Special Time homework practice from 5- to 10-minutes, and coaching parents to use reflections in a more summative way (e.g., paraphrasing versus verbatim repetition). In terms of reported outcomes, overall child emotional-behavior problems, as measured by maternal-reports on the German version of the Strength and Difficulties Questionnaire (SDQ; Woerner et al., 2002), decreased from the clinical range at pre-treatment (raw score = 24) to the normal range at a 17-month follow-up assessment (raw score = 12). Similarly, clinically significant pre-treatment to follow-up reductions in disruptive behavior problems and related caregiver-distress were found, as measured by both the SDQ Conduct Problems scale (pre-treatment: raw score = 6; follow-up: raw score = 2) and the ECBI (pre-treatment: Intensity raw score = 155, Problem raw score = 16; follow-up: Intensity raw score = 97, Problem raw score = 3). As for internalizing problems (as measured by maternal ratings on the SDQ), the child's emotional problems (e.g., depressive and anxiety symptoms) were in the normal range at both pre-treatment and follow-up (Emotional Problems raw scores = 3 and 0, respectively). Taken together, these results suggest Briegel's tailoring of PCIT for older children may be efficacious for externalizing problems—with far less clear implications for internalizing problems, much less comorbid internalizing and externalizing problems in middle childhood.

In contrast, Stokes and colleagues (2017) examined the effectiveness of PCIT with an 8-year-old boy who was diagnosed with ODD from a referring clinic, and who had clinical levels of externalizing problems, as measured by the ECBI Intensity scale ($T_s = 67$ and 68 , per respective mother- and father-ratings) and CBCL Externalizing scale ($T_s = 77$ and 76 per respective mother- and father-ratings). At pre-treatment, the boy also had clinical levels of overall internalizing problems (CBCL Internalizing scale $T_s = 68$ for both parents). For this case, the authors followed the PCIT-OC's protocol and related developmental adaptations (e.g., reduced CDI mastery criteria, doubled homework duration, incentive chart for timeout compliance, response cost for noncompliance with timeout). Post-treatment, the participant's externalizing and internalizing problems, per caregiver-report, had reduced significantly. Specifically, ECBI intensity scores went from the clinical range at pre-treatment ($T_s = 67$ and 68 , per respective mother- and father-ratings) to the normal range at post-treatment ($T_s = 43$ and 49 , respectively). Additionally, maternal ratings on the CBCL indicated clinically significant pre- to post-treatment reductions in both externalizing problems ($T = 77$ to 61) and internalizing problems ($T = 68$ to $T = 45$; changes in paternal ratings could not be reported as the boy's father did not complete a post-treatment CBCL). Overall, these results provide the first empirical support for PCIT-OC, including its potential transdiagnostic efficacy.

Notwithstanding, the generalizability of these findings, both from Stokes et al. (2017) and from the other two extant case studies, is severely limited by their single case design, lack of standardized effects sizes (which stymies cross-group and cross-protocol comparisons), and relative heterogeneity. Most salient to the latter point, all three case studies differed in how they tailored or adapted PCIT (e.g., homework duration, mastery criteria, use or nature of timeout, etc.; see Table 2 for a comparative review). Thus, there is need for a standardized, developmentally adapted PCIT protocol for children in middle childhood that has been empirically validated with multiple youth. Out of this need, Parent-Child Interaction Therapy For Middle Childhood (PCIT-MC; Peer et al., 2019) was created.

PCIT-MC

Structure of PCIT-MC

In terms of structure, PCIT-MC is similar to PCIT's standard protocol. Namely, it consists of a tailored CDI phase and a developmentally adapted PDI phase, with the majority of adaptations being made to the PDI phase. Saliently, all of PCIT's core components (i.e., in-vivo coaching of caregiver-child interactions, assessment-based treatment, and mastery-based criteria; Eyberg, 2005) remain consistent throughout PCIT-MC.

CDI in PCIT-MC: In regard to CDI-specific tailoring, changes are made with consideration of developmental preferences and sensitivities to choice of play activities and toys, caregiver verbalizations, and the rationale provided to caregivers for PRIDE skills during the CDI Teach session. PCIT-MC has therapists mindfully consider the developmental preferences of toys used during CDI Coach sessions and Special Time, which is didactically taught during the CDI Teach session. This includes activities or toys that require finer motor skills (e.g., Legos versus over Duplo blocks, thin colored versus thick crayons), involve greater or more complex creativity (e.g., use of more advance art supplies), and/or activities that younger children might be more prone to make a mess with (e.g., use of paint or markers).

Additionally, during the CDI Teach session, parents are also taught to be mindful of the developmental age of their children when using verbalizations, particularly reflections and behavior descriptions, since children in middle childhood (by and large) are typically further along in their social-cognitive development than younger children (see Middle Childhood section). For example, when using PRIDE skills, direct "copy-cat" like reflections have the potential to be developmentally inappropriate—and less reinforcing—for children in middle childhood. Thus, caregivers are trained to do reflections by using more elaborative paraphrasing versus verbatim repetition; e.g., if a child says "Tall building!", a caregiver could say "It's a 10-story skyscraper!" Additionally, children in middle childhood often can be more talkative than children in early childhood, and may make greater use of long complex sentences, which can

inhibit the ability of a caregiver to make a simple reflection (see “Talkative Child” rules in DPICS-IV; Eyberg et al., 2013). Therefore, caregivers are also trained to make summative reflections (i.e., summarizing a long train of thought into a simple summative sentence or phrase). For example, if a child spends 1 minute explaining how they had several frustrating experiences at school, a caregiver might summarize that detailed explanation with a summative reflection (“You dealt with a lot of frustrating things at school today”). Caregivers also are trained to reflect longer complex sentences by briefly reflecting a few salient words, so as to facilitate versus interrupting the flow of a conversation. Relatedly, when giving behavior descriptions in PCIT-MC, caregivers are typically trained to use more advanced or complicated vocabulary and/or to describe more complex operant behavior. For instance, rather than saying “You placed a red brick on an orange brick”, a caregiver in PCIT-MC might say “You’re making a rainbow-patterned staircase”). Lastly, parents are taught to provide labeled praises for behaviors that are more comprehensive and/or advanced (at least compared to toddlers’ abilities), and thus better suit a child’s zone of proximal development (e.g., “Great job rinsing your dirty plate and putting it in the dishwasher” after dinner versus “Great job putting your dirty plate on the counter”).

In addition to developmentally tailoring caregiver verbalizations, the rationale described behind PRIDE skills is largely consistent with the standard protocol (e.g., “Labeled praise makes you and your child feel good!” [Eyberg & Funderburk, 2011]) but certain rationales are more likely to be emphasized (or deemphasized) for children in middle childhood. For instance, the standard protocol of PCIT promotes use of reflections as a tool for allowing children to lead conversation and facilitate expressive language acquisition (Eyberg & Funderburk, 2011), but children in middle childhood are not significantly likely to have deficits in these domains. Instead, during PCIT-MC CDI Teach sessions, a therapist is more likely to emphasize other protocol-listed benefits of reflections (e.g., they show active, open listening [Eyberg & Funderburk, 2011], which can help to deescalate and/or validate a youth). Additionally, developmental age should be considered when communicating the treatment process to

children (i.e., pitch and verbalizations should not sound patronizing). The mastery criteria for graduation from the CDI phase of PCIT-MC is the same for that of the standard protocol (in contrast to other developmental adaptations, mastery criteria are kept at 10 praises, reflections, and descriptions), and is coded using the DPICS with no changes to protocol or coding criteria. As with standard PCIT, after graduation from the CDI, caregivers move on to the PDI phase.

PDI in PCIT-MC. In contrast to CDI, significant modifications are made to the PDI module for PCIT-MC, given the aforementioned developmental differences between standard PCIT-aged youth and those in middle childhood (e.g., increased safety concerns with implementing a physical timeout with larger, stronger youth; increased need for greater, but still scaffolded autonomy; see Barkley and Robin, 2014). These developmental modifications are made using the theoretical and empirical support of a token economy, which is a behavior modification component that utilizes principles of operant conditioning to modify behavior (Kazdin, 2012). While token economies traditionally have taken many forms (in terms of target behaviors, token tracking, and forms of reinforcement), the principle mechanism of a token economy is that operationalized target behaviors are rewarded with tokens that can be combined for a reward. In this way, both the token and the eventual reward serve as behavioral reinforcers; the token being an immediate (and generalized secondary) reinforcer, and the earned reward being a delayed (and primary) reinforcer. Notably, when considering the reinforcing qualities of the delayed reward, the magnitude of the reinforcement is dependent on the number of tokens earned (i.e., rewards with greater magnitudes of reinforcement cost more tokens; Ivy et al., 2017; Kazdin, 2012). Additionally, token economies typically include response costs, a form of negative punishment, which involve the revoking of a specific quantity of tokens contingent on undesirable behaviors (e.g., defiance, non-compliance, aggression; Barkley & Robins, 2014; McLaughlin & Williams, 1988; Jowett et al., 2016). Token economies have long been utilized in experimental settings to understand mechanisms of behavior but grew in use in

clinical settings beginning in the 1960s with the rise of behavioral approaches to treatment (Kazdin, 2012; McLaughlin & Williams, 1988; Jowett et al., 2016).

Empirical evidence for the efficacy of the implementation of token economies is strong across treatment contexts and populations (e.g., Coelho et al., 2015; Doll et al., 2013; Ghezzi & Lewon, 2022; Jowett et al., 2016; Kang et al., 2013; Kazdin, 2012; Kim et al., 2022; Regnier et al., 2022; Tarbox et al., 2006). In regard to the former, token economies have shown support in classrooms (O'Leary & Drabman, 1971), inpatient mental health clinics (Milby, 1975), and rehabilitation home groups for pre-delinquent children (Phillips, 1968). Relatedly, there is a wealth of research showing support for token economies as a behavioral intervention for children—specifically, for managing disruptive behavior problems in preschool classrooms (Filcheck et al., 2004), increasing food acceptance (i.e., combatting picky eating; Kang et al., 2013), reducing conduct problems in children with ADHD (Coelho et al., 2015), and reinforcing attending behaviors in children with ASD (Tarbox et al., 2006). Taken together, there is strong evidence for the use of token economies in addressing child disruptive behaviors and related comorbid concerns.

Due to this robust support and relative avoidance of physical seclusion, restraint, and/or timeout, token economies are incorporated in PCIT-MC's PDI phase. Namely, PDI in PCIT-MC consists of two sequential subphases that progressively incorporate a token economy: Token Economy (TE) and Response Cost (RC). Both of these subphases begin with their own Teach sessions. During the TE Teach session, PCIT-MC therapists help caregivers to understand the difference between child rights, responsibilities, and privileges—and how a token economy can create a better contingency between child responsibilities and privileges and improve child behavior, both overall and in specific domains. Notably, this Teach session has therapists lead caregivers to understand that child rights are unconditional (i.e., not dependent on child behavior), and include things such as food, clothes, love, protection, and shelter. In contrast, privileges are material rewards or activities that optimally should be earned (e.g., dessert after

dinner, watching a show, playing video games, staying up late on the weekend, going to a water park) by completion of responsibilities or expectations (e.g., rinsing their cereal bowl in the morning, doing laundry, completing homework, brushing teeth, getting dressed). A critical component of this Teach session is helping caregivers to understand the differences between rights and privileges and where their child might be misconceiving certain privileges as rights. Additionally, PDI in PCIT-MC takes a positive reinforcement approach in which privileges by their very nature are not guaranteed, but can be reliably earned by the child, as opposed to a more punitive perspective in which privileges are assumed, but can be revoked due to undesirable behavior. Further, psychoeducation is provided on the progressive development of independence and agency that should occur during middle childhood, and then through adolescence and into adulthood (e.g., jobs, schooling, etc.). Relatedly, caregivers are taught that some privileges and activities may be appropriately prohibited and thus non-negotiable but then later become adaptive and negotiable as a youth develops (e.g., borrowing a car to drive oneself and friends to a movie theater).

Thereafter, caregivers in the TE Teach session provide psychoeducation on token economies, including what they are, how and why they work, and notably how they will help to more clearly and effectively establish contingencies between their youth's completion of responsibilities and awarded privileges—and thus improve their child's behavior, both overall and in specific domains. Notably, caregivers are taught how to create an effective token economy that is specific, consistent, and feasible. Specifically, each responsibility should be clearly operationalized with minimally sufficient, externally visible, and temporal criteria for completion (e.g., "After showering, put your dirty clothes in your laundry hamper by 8:00 pm."), just as each privilege should be similarly operationalized and associated with a specific point/token cost (e.g., watching caregiver-approved TV shows for 30 minutes on an iPad might cost 5 points). Additionally, effective (and PCIT-MC-adherent) token economies should be consistent, such that across all caregivers in a family, (1) each responsibility should be reinforced with its

designated tokens/points every time a child completes it, and (2) a child should be allowed to access any token economy's privilege by spending the required points they have earned—but only then. Moreover, to be effective, a token economy, per the TE Teach session, must be feasible or pragmatic (e.g., designated responsibilities need to be within a child's developmental capacity, privileges should be within the practical and financial limits of a family, and tracking of points earned and spent should be feasible for caregivers; e.g. sticker charts, spreadsheets, apps on phone). Once these principles are taught, therapists lead caregivers in drafting a PCIT-MC-adherent token economy and related tracking procedures. To finalize this product and process, therapists and caregivers collaboratively provide a developmentally tailored version of the above psychoeducation to the child client, present and explain the drafted token, and consult with the youth about additional desired privileges and/or other negotiable point awards and/or costs. These latter steps ensure appropriate child understanding of the token economy, build buy-in, and model developmentally appropriate child-caregiver negotiation and collaboration.

Following the TE Teach session, parents typically come in for 1–2 follow-up sessions without their children to review the effectiveness of the token economy with the therapist based on the three criteria discussed above (i.e., feasibility, consistency, and specificity). During these sessions, the therapists works with caregivers to make adjustments to the token economy (and model how to do such tailoring) in order to best meet the needs of the family (e.g., further operationalizing a specific responsibility, increasing the point worth of a developmentally difficult or caregiver-desired task, problem-solving where to keep a tracking sheet). These TE Review sessions continue until the above discussions and token economy tracking records affirm that the youth is positively engaging in the token economy (i.e., earning and spending tokens on multiple days), caregivers are consistently implementing the token including (e.g., recording earned and spent points accurately), and the child (at least per caregiver-report) is only gaining access to the token economy's privileges with earned/spent points.

Once this occurs, PDI's next and last subphase begins: Response Cost (RC). Like TE, it begins with a RC Teach session; wherein, caregivers are taught how to add response costs into their child's token economies. Namely, caregivers are taught how to give effective commands, with the same principles taught during standard PCIT (see above), though examples are developmentally tailored (e.g., "Bring your math homework to the dinner table" versus "Write the first letter of your name"). Likewise, the same 5-second rule is taught to caregivers to assess child compliance to commands, just as caregivers in PCIT-MC are also taught to give labeled praise for compliance to commands (e.g., "Good listening!" or "Great job following directions!"). However, rather than standard PCIT's timeout warning and timeout protocol, PCIT-MC's RC Teach session teaches caregivers to use a similar verbatim, but RC-specific warning for child non-compliance after the 5-second rule; namely: "If you do not clean up your toys, you will lose one point." As with standard PDI, the 5-second rule (with identical strategic ignoring) is implemented after this warning, and compliance is reinforced with a labeled praise (with similar rationale given during the Teach session). After this warning, continued non-compliance, however, does not precipitate a physical time-out procedure (as it does with standard PDI) but rather PCIT-MC's response cost procedure. First, the caregiver is instructed to say, "You didn't do what I told you to do, so you lost a point," followed by 1-minute of strategic ignoring, after which a follow-up warning is given (e.g., "If you do not [insert original command], you will lose another point"). These steps are repeated until compliance occurs, at which point, the caregiver briefly acknowledges the compliance—but not with labeled praise—and a follow-up command is given, all consistent with standard PDI's protocol.

Additionally, the RC Teach session has therapists teach caregivers to develop and implement House Rules and augment the child's token economy by adding specific response cost consequences for each violation of these rules (e.g., 10 points lost for physically hitting/hurting someone). Beyond substituting an immediate physical timeout for a specified point lost, this protocol is identical (and identical in how it is taught to caregivers) to standard

PCIT's House Rules system that is taught in PDI Coach 4. Yet, unlike standard PDI which teaches caregivers to progressively generalize commands and timeout to larger contexts (e.g., first during playtime, then anytime in the house, then outside in public too), the RC Teach session has caregivers immediately generalize the RC procedure (including 'House Rules') to all contexts in which the caregiver is supervising their child (e.g., playtime, homework, playground, grocery shopping, etc.)—though only once the RC procedure has been coached in-session (similar to standard PCIT's timeout implementation).

Indeed, similar to standard PDI Coach sessions, caregivers and their children in PCIT-MC next attend RC Coach sessions, during which the youth is explained the new system and caregivers practice the response cost procedure (e.g., giving effective commands, using the 5-second rule, giving warnings for non-compliance, etc.) with in-vivo coaching from the therapist. Similar to standard PDI, RC sessions involve progressively coaching caregivers to learn these skills (and maintain their CDI skills) with progressively more difficult, ideographically salient situations (e.g., initial playtime commands like passing a Lego, clean-up of toys, sharing with a sibling, public outings, meal-time behaviors, homework, etc.). At the beginning of each session, therapists not only administer the ECBI and complete a qualitative check-in, but they also review the caregiver-completed token economy and help problem-solve any issues (e.g., capitalizing on improvements, increasing point awards or costs, etc.). Next, each attending caregiver is first coded (for 5 minutes of PDI DPICS coding) and then coached, with RC sessions continuing until graduation criteria are met. For PCIT-MC, RC mastery criteria is the same as standard PCIT's PDI mastery criteria (i.e., 75+% effective commands with at least 4 commands during 5 minutes, plus 75+% correct follow-through to commands, as coded using the DPICS-IV). Consistent with standard PCIT, caregiver-reported readiness and an ECBI T-score below 55 are required for families to graduate PCIT-MC.

Empirical support for PCIT-MC

Empirical support for PCIT-MC comes from a pilot trial of PCIT-MC to reduce disruptive behavior problems in 11 youth ages 7–11 and related analyses (Bird et al., 2020; Peer et al., 2019; Strauch et al., 2020). Preliminary results from this pilot trial (Peer et al., 2019) involved four children between the ages of 8 and 10 years old, all of whom were diagnosed with ODD and comorbid psychiatric problems (e.g., ADHD, avoidant/restrictive food disorder). Using simulation modeling analysis (SMA; Borckardt et al., 2008), large pre- to post-treatment reductions in child disruptive behaviors, as measured by the ECBI, occurred for all four PCIT-MC-treated youth ($\text{range}_d = 1.62\text{--}3.53$), with the mean pre- to post-treatment effect ($M_d = 2.37$) exceeding that of best-practice treatments for behavior problems in middle childhood (i.e., Collaborative Problem Solving [$d = 0.72$] and Defiant Child [$d = 0.87$]; Ollendick et al., 2016). Additionally, all four children experienced clinically significant pre- to post-treatment reductions in disruptive behavior (i.e., ECBI scores), with these improvements sustained at 2–3-month follow-ups. Finally, this study also found significant incremental improvements for all four youth across each of PCIT-MC's phases and subphases (i.e., CDI, TE, and RC), similar to that of standard PCIT, indicating that both treatment modules uniquely contributed to PCIT-MC's overall treatment outcomes.

Using the same data, Strauch et al. (2020) set out to understand whether PCIT-MC resulted in improvements in caregiver skills during CDI (i.e., increases in “do skills” and decreases in “don’t skills” as measured by the DPICS-IV) from pre- to post-treatment. Notably, there were large increases in caregiver “do skills” from pre- to post-treatment ($d = 4.89$), as well as reductions in caregiver don’t skills ($d = -1.25$). Similarly, Bird and colleagues (2020) found that cross-session improvements in caregivers’ CDI skills significantly predicted subsequent cross-session decreases in child disruptive behavior (as measured by the ECBI), for all PCIT-MC-treated youth. Together, these findings provide preliminary evidence that (similar to standard PCIT) the observed effectiveness of PCIT-MC for treating child disruptive behavior problems is largely predicated by changing parenting behaviors, and more specifically, that the

effectiveness of in-vivo coaching of caregiver behaviors (a core component of standard PCIT), is maintained when developmentally tailored for older children during CDI. Yet, despite these findings, the efficacy of PCIT-MC to treat internalizing problems, especially with comorbid externalizing problems, remains unknown.

PCIT-MC's Alignment with Theoretical Models of Internalizing Disorders

Notwithstanding PCIT-MC's lack of empirical validation for internalizing symptoms, PCIT-MC's treatment components and putative mechanisms of change align well with multiple etiological models for internalizing symptoms, specifically anxiety and depression. Although these symptoms may arise, in part, due to biological mechanisms (e.g., hippocampal dysfunction, diminished serotonergic activity caused by the short allele of the human serotonin transporter gene; endocrinal dysfunction; Bernaras et al., 2019; Ferrari & Vila, 2017; Haraden et al., 2019; Kennis et al., 2020; Steimer, 2022), PCIT-MC focuses on ontogenetic versus polygenic targets. Specifically, PCIT-MC likely targets internalizing problems via evidence-based mechanisms identified across cognitive, behavioral, and interpersonal frameworks (Beck, 1976, 1985, 1979; Bertelsen et al., 2022; Coyne, 1976; Dadds et al., 2001; Evraire et al., 2014; Ferster, 1973; Giesler et al., 1996; Hassoulas et al., 2014; Jacobson et al., 2001; Joiner, 2000; Kaslow et al., 1992; Lewinsohn, 1974; O'Shea et al., 2013; Rachman & Hodgson, 1974; Sidman, 1953).

Cognitive framework and mechanisms. From a cognitive perspective, PCIT-MC is likely to successfully target the etiology and maintenance of depressive and anxious symptoms theorized by Beck's cognitive model of depression and anxiety (1967, 1985). Namely, Beck theorized that depressive and anxious symptoms arise in light of negative cognitive schemas (e.g., failure, inadequacy), which automatically, and often subconsciously, drive negative biases in cognitions and interpretation of events (e.g., negative automatic thoughts, cognitive distortions). More specifically, Beck's (1979) "negative cognitive triad" theorized that depressive schemas can be categorized by views about oneself being inadequate or worthless (i.e., self-

schemas), the world as being unfair or mean, and the future as being hopeless; whereas, anxiolytic schemas are differentiated by views of the world as scary dangerous and the future as uncertain (Beck et al., 1979). PCIT-MC might therapeutically address such triads in both of its main phases. First, caregivers' increased use of PRIDE skills (e.g., labeled praises) to their child during CDI (and then throughout PDI) could over time counter a youth's negative self-schemas (e.g., feelings inadequacy and/or worthlessness) and views that the world is mean or scary (via more positive caregiver-child interactions and attachment; Strauch et al., 2020). Second, PCIT-MC's PDI phase might further ameliorate a youth's depressive and/or anxiolytic cognitions about the world being cruel or unfair and/or the future being hopeless or uncertain via its token economy, which if implemented correctly and consistently, would grant the youth greater autonomy with more fair, consistent, and positive consequences to their actions. Moreover, caregivers' cross-phase use of PRIDE skills should model more adaptive cognitions and schemas to their youth (e.g., pointing out the direct, fair, and consistent relation between a child's positive action and a positive consequence, offering labeled praises about a child's ability to reliably and adaptively change their environment and related positive self-attributes) and thereafter amplify any time youth verbalizes more adaptive cognitions about themselves, the world, or future (e.g., reflections, labeled praises).

Behavioral framework and mechanisms. From a behavioral perspective, depressive symptoms occur because of (1) insufficient response-contingent positive reinforcement to previously adaptive or pleasurable behaviors, consequently leading to the extinction of these behaviors (Ferster, 1973; Lewinsohn, 1974; Jacobson et al., 2001), (2) overgeneralization of avoidant behavior due to negative reinforcement (Lewinsohn et al., 1973; Sigmon & Nelson-Gray, 1992), and/or (3) learned helplessness (Klein & Fencil-Morse, 1976; Miller & Seligman, 1975; Miller et al., 1977; Rehm, 1977; Seligman, 1972). More specifically, insufficient positive reinforcement for adaptive behaviors can occur when a person's access to potentially reinforcing stimuli decreases (Ferster, 1972; Rehm 1977). For instance, a child who once

enjoyed hockey because of reinforcements related to social relationships may lose interest in and stop playing hockey after they move to a city far away from their previous teammates, and thus subsequently experience a relative decrease in positive reinforcement and therefore develop depressive symptoms. Yet, beyond a relative lack of positive reinforcement, exposure to aversive stimuli (e.g., bullying at a neighborhood park, overly critical parenting) also can cause depressive symptoms via negative reinforcement of avoidant behaviors (i.e., aversive control), especially when these avoidant behaviors maladaptively overgeneralize (Lewisohn et al., 1973; Sigmon & Nelson-Gray, 1992). For instance, a child who is bullied at a birthday party may experience anxiety and distress upon being invited to future birthday parties, either choose not to attend or leave prematurely, experience a resultant reduction in distress, and consequently avoid future parties and similar social events that otherwise would provide positive reinforcement and facilitate positive developmental cascades. Additionally, exposure to aversive stimuli can bring about the extinction of adaptive escape behaviors (i.e., learned helplessness; Rehm 1977; Seligman, 1972) when past attempts to engage in behaviors that could possibly alleviate depressive symptoms are operantly positively punished (e.g., a child being discouraged by caregivers from crying or showing emotions). Because of these behavioral mechanisms, increasing activity (i.e., behavioral activation; Dimidjian et al., 2011) has been shown to be an important aspect in treatment of depressive symptoms (Lejuez et al., 2001). Specifically, behavioral activation involves increasing access to and reinforcement of adaptive behaviors (and thus those behaviors themselves) while also decreasing depressogenic avoidance related to aversive control and learned helplessness (Dimidjian et al., 2011; Hopko et al., 2003). From this approach, PCIT-MC may target depressive symptoms caused by relative lack of positive reinforcement for adaptive behaviors by implementing alternative forms of reinforcement (i.e., tokens and respective rewards) for target behaviors (i.e., responsibilities), with the intention of differentially reinforcing adaptive versus maladaptive/avoidant operants. Specifically, during CDI (and beyond), youths' adaptive behaviors (e.g., prosociality, eating

novel foods, attending piano lessons, completing homework) are increasingly reinforced with labeled praises and other PRIDE skills, and during the novel PDI adaptation, target behaviors are reinforced with tokens and their related earned reward. Thus, PCIT-MC is likely to counteract depressive symptoms related to behavioral extinction by consistently and reliably reinforcing psychologically adaptive behaviors, while concurrently reducing avoidant behaviors. For example, a child who once found reading books to be rewarding and enjoyable, might find decreased enjoyment in reading upon a heightened workload at school. PCIT-MC may counteract this by differentially reinforcing reading for pleasure outside of school assignments through the token economy and PRIDE skills, thus increasing the likelihood of reading and thereby decreasing the risk of and/or severity of depressive symptoms.

Similarly, the development of maladaptive anxiety can be understood using Mowrer's (1951) 2-factor model of learning. Namely, anxious symptoms are theorized to first arise via classical conditioning—specifically, aversive unconditioned stimuli that elicit unconditioned responses (e.g., nervous feelings, restlessness, physiological responses) become associated with neutral or non-threatening stimuli, and elicit similar conditioned fear responses to previously neutral stimuli (thus becoming conditioned stimuli), even in the absence of aversive stimuli (McSweeney et al., 1984; Mineka & Oehlberg, 2008; Prokasy & Kumpfer, 1973). Secondly, the maintenance of anxious symptoms can be understood through operant conditioning (Skinner, 1971)—specifically, the short-term removal of the punitive properties of a conditioned fear response to neutral (or non-threatening) stimuli through emitted negatively reinforcing avoidant behaviors (Dymond, 2019; Dydson & Dienes, 2014; Ollendick & Vasey, 2001). For example, a child who was bitten by a dog may emit phobic reactions around other non-threatening dogs, and consequently avoid or resist settings in which there are dogs. These operantly reinforced avoidant behaviors maintain and increase the distress associated with anxious symptoms by (1) negatively reinforcing the operant of avoidance, increasing its likelihood in the future (Dymond, 2019), and thus, (2) also reducing the likelihood of the associative conditioning of neutral stimuli

with safety brought about by pursuant brave behaviors (i.e., pursuing a behavior even when anxious or afraid; Silk et al., 2013). Thus, from a behavioral perspective, alleviation of anxious symptoms (i.e., reconditioning of fear-conditioned stimuli with safety) is contingent upon brave behaviors being reinforced at a greater magnitude than the short-term negatively reinforcing properties of avoidant behaviors (Duits et al., 2015; Sangha et al., 2020; Schiller et al., 2008).

PCIT-MC is likely to remedy anxious symptoms by differentially reinforcing brave behaviors through positive reinforcement (i.e., PRIDE skills and the token economy), and consequently weakening maladaptive conditioned fear responses to neutral stimuli over time, thus both increasing the likelihood of emission of brave behaviors, and reducing conditioned fear responses to neutral (i.e., non-threatening) stimuli. For example, a child who has been bullied and develops socially anxious symptoms and related avoidant behaviors (e.g., social withdrawal) may benefit from the positively reinforcing qualities of PCIT-MC—specifically, through the use of PRIDE skills on the part of caregivers to encourage socially pursuant behaviors, and through the token economy encouraging time spent with friends through positive reinforcing tokens and their related awards. More specifically, PCIT-MC is likely to promote initiation and maintenance of brave behaviors by providing alternative forms of positive reinforcement for brave behaviors at a greater magnitude of reinforcement than the negative reinforcement provided by avoidance behaviors; specifically, by tailoring rewards (both in CDI and PDI) to be maximally reinforcing to each individual child.

Interpersonal framework and mechanisms Notably, the above cognitive and behavioral theories do not operate independently of one another in their explanations of the development and treatment of psychopathology. On the contrary, these frameworks and models contain significant conceptual overlap, varying primarily in their emphasis. These overlaps are especially salient to an interpersonal understanding of the etiology of internalizing problems, since social theories rely on both endogenous (e.g., cognitive), and exogenous (e.g., behavior and environment) factors to explain psychopathology (Mash & Barkley, 2014; McPhee et al.,

2020; Weightman et al., 2019; Wetherall et al., 2019). More specifically, other theories of depression focus on the social and interpersonal context in the etiology of depressive symptoms (e.g., Coyne, 1976; Joiner, 2000; Giesler et al., 1996), particularly the interpersonal context of the family (O'Shea et al., 2013). For instance, insecure attachment styles have been shown to be associated with depressive symptoms in youth (Spruit et al., 2019), and youth with depressive symptoms have been shown to engage in excessive reassurance-seeking and negative feedback-seeking from family members (Evraire et al., 2014). Moreover, these maladaptive interpersonal patterns are likely, without effective intervention, to generalize to relationships outside of the family unit (Whitton et al., 2008), further increasing the risk of developing anxious and depressive symptoms (Epkins & Heckler, 2011). PCIT-MC addresses these maladaptive interpersonal patterns by cultivating caregiver warmth during CDI through the use of PRIDE skills and instructing caregivers to further provide appropriate negative and positive feedback to their youth via PDI's token economy (e.g., PDI's 5-second rule and related strategic ignoring likely prevent caregivers from providing excessive reassurance).

Relatedly, relational uncertainty and overaccommodation by family members (i.e., "helicopter parenting") are theorized to cause anxious symptoms in youth (Bertelsen et al., 2022; Dadds et al., 2001). PCIT-MC addresses these interpersonal problems by cultivating a warm caregiver-child relationship through CDI, while also encouraging and incentivizing child agency and independence through PDI's token economy and CDI's general principle of allowing youth to lead play interactions (Eyberg & Funderburk, 2011). Lastly, and perhaps most importantly, PCIT-MC is likely to promote prosociality (e.g., being kind, active listening, consoling, sharing, using polite manners; Eisener et al., 2006; Gross et al., 2017; Ross & Peer, 2022) by modeling and incentivizing prosocial behaviors that can be generalized to other social relationships in a child's life, both intra-familial (e.g., sibling interactions) and extra-familial (youth behavior with peers, therapist, teachers, etc.). These healthy interpersonal behaviors are first didactically taught during Teach sessions and subsequently modeled by the therapist to the

caregiver through in-vivo coaching, with caregivers then directly modeling these prosocial behaviors to their child during sessions, at-home practice, and throughout other interactions. This system of teaching and modeling prosociality is likely to promote healthy caregiver-child attachment (Gross et al., 2017), equip children with adaptive interpersonal skills generalizable to other relationships, and thus create protective versus negative developmental cascades otherwise associated with anxious and depressive interpersonal deficits in middle childhood, adolescence, and beyond (Bubić & Ivanišević, 2016; Deighton et al., 2018; Garfin et al., 2018; Jamnik & DiLalla, 2019; Martínez-Martí & Ruch, 2017; Papachristou & Flouri, 2020; Salavera et al., 2019; Trickey et al., 2012). Altogether, the treatment mechanisms of PCIT-MC correspond well to cognitive, behavioral, and interpersonal etiological frameworks of anxious and depressive symptoms, and thus, its treatment components, particularly in aggregate, are likely to transdiagnostically remediate anxious and depressive symptoms for children in middle childhood.