CONTEMPORARY RESEARCH ON CHILD-CENTERED PLAY THERAPY (CCPT) MODALITIES: A META-ANALYTIC REVIEW OF CONTROLLED OUTCOME STUDIES

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The present meta-analytic study estimated the overall effectiveness of child therapy interventions using CCPT methodology and explored the relationships between study characteristics and treatment effects. Fifty-two studies between 1995 and the present were included based on the following criteria: (a) the use of CCPT methodology, (b) the use of control or comparison repeated measure design, (c) the use of standardized psychometric assessment, and (d) clear reports of effect sizes or sufficient information for effect size calculation.

Hierarchical linear modeling (HLM) techniques were utilized to estimate the overall effect size for the collected studies and explore relationships between effect sizes and study characteristics. Dependent variable included 239 effect sizes, and independent variables included 22 study characteristics. The mean age of all child participants in the collected studies was 6.7. In 15 studies, the majority of participants were Caucasian. An equal number of studies were made up of non-Caucasian participants, including 3 with majority African American, 4 with majority Hispanic/Latino participants, 5 with majority Asian/Asian American participants, and 3 with other ethnic populations. Study collection included 33 studies with majority of boys and 11 studies with majority of girls.

HLM analysis estimated a statistically significant overall effect size of 0.47 for the collected studies ($p < 0.001$). This result indicated that the overall improvement from pre to posttreatment demonstrated by children in experimental groups was approximately $1/2$ standard deviation better than by children in control groups. A statistically significant amount (49.2%) of between-study variance was found ($p < 0.001$), indicating the heterogeneity among the 52 studies.
Statistically significant relationships were found between effect sizes and study characteristics including child age, child ethnicity, clinical level of referral, treatment integrity, presenting issue, source of data, population, and caregiver involvement.

Effect size findings for CCPT and its moderators should be interpreted in light of the specific, and perhaps more rigorous statistical analysis method (HLM) and effect size calculation formula used for the present study, particularly in comparison to previous meta-analytic findings. Overall findings support CCPT’s beneficial treatment effect. Specifically, CCPT can be considered a developmentally and culturally responsive effective mental health intervention across presenting issues.
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Identifying effective mental health treatments for children is a growing concern in the United States. The number of children with significant mental health concerns is increasing at an alarming rate, having doubled over this decade (Mental Health America [MHA], 2010). According to MHA (2010), approximately 20% of children develop mental health problems severe enough to meet diagnostic criteria, but only one third of them receive help. Major government reports have brought national attention to the urgent need for early identification and treatment to prevent the onset of more serious problems (President’s New Freedom Commission on Mental Health, 2003; U.S. Public Health Service, 2000). Hence, identifying empirically supported interventions that are responsive to the distinct needs of children and families is critical.

Play therapy is widely used to treat children’s emotional and behavioral problems because of its responsiveness to children’s unique developmental needs. Historically, child development experts have emphasized the critical role of play in children’s healthy growth and development (Berk, 2008; Russ, 2003; Smith, 2006). Early researchers proposed a relationship between children’s play behavior and their cognitive, social, and emotional development. Piaget was one of the first to describe how children’s symbolic play serves a therapeutic function by helping them deal with unconscious conflicts (Piaget & Inhelder, 1966/1969). Vygotsky (1967) also advocated the important function of symbolic or imaginary play in helping children fulfill their wishes and generalize their emotions in the broader context of the social environment.

Due to the important developmental properties of play, psychotherapists in the 1900s began to include play materials and activities in child psychotherapy. Among these
psychotherapists, Hug-Hellmuth (1921) primarily utilized play as a means of observing children’s unconscious materials, whereas Klein (1932) interpreted the preconscious and unconscious meaning in children’s play. Unlike Hug-Hellmuth and Klein, Anna Freud (1928) employed play as a means of facilitating the therapeutic relationship between the child and the psychoanalyst. Psychotherapists such as Levy (1938) and Hambidge (1955), instead of interpreting and analyzing children’s play, employed structured play situations to help the child act out emotions as they related to a particular presenting problem.

Child-centered play therapy (CCPT), rooted in person-centered philosophy (Rogers, 1951), established by Virginia Axline (1947), and further developed and popularized by Moustakas (1951), Ginott (1961), Guerney (1964), and Landreth (1991), is a developmentally responsive intervention for children. Prior to the age of 11 years, children tend to possess concrete views of the world and lack the capacity for abstract reasoning and verbal ability (Piaget, 1951). Hence, from a developmental perspective, children have difficulty expressing themselves through verbal means alone. Play is the most essential activity of childhood and the most available and natural method for children to express their emotions and thoughts (Fromberg & Bergen, 2006). CCPT therapists believe in children’s innate tendency toward growth and respect their phenomenal world (Axline, 1947; Guerney, 1964; Landreth, 2002). Through play, CCPT therapists enter children’s worlds by following their lead and trusting in their capacity for self-realization (Landreth, 2002).

Filial therapy, originally established by Bernard and Louise Guerney as a 12-month group parent training model, is based on the principles and procedures of CCPT. Parents learn basic CCPT attitudes and skills, conduct play therapy-like sessions, and receive supervision from mental professionals trained in CCPT and filial therapy in order to serve as agents of change for
their own children (Landreth & Bratton, 2006). In the late 1970s, Landreth (1991, 2002) began to experiment with condensing Guerney’s filial therapy model into a more time-limited approach based on his experiences that parents had difficulty committing to long-term parent training. Over time, this model evolved into a structured 10-session group model. In 2006, Landreth and colleague Sue Bratton further formalized this 10-session model in a text titled *Child Parent Relationship Therapy (CPRT): A 10-session Filial Therapy Model*.

CCPT has a research history encompassing more than 60 years. Therapists have used CCPT as a successful child therapy intervention for a variety of presenting issues or problems, including abuse and neglect, aggression and acting out, attachment difficulties, autistic spectrum disorder, chronic illness, deafness, dissociation and schizophrenia, emotional disturbance, trichotillomania, fear and anxiety, grief, learning disabilities, mental challenges, reading difficulties, mutism, self-efficacy, social problems, speech difficulties, trauma and posttraumatic stress disorder, and withdrawn behaviors (Landreth, Sweeney, Ray, Homeyer, & Glover, 2005).

Mental health professionals, including child therapists, are ethically responsible for providing treatments or interventions based on empirical evidence (Association for Behavioral and Cognitive Therapies and Society of Clinical Child and Adolescent Psychology, 2010b). CCPT has a strong base of research support targeting a variety of presenting issues. An exhaustive review of the literature revealed over 800 publications focused on CCPT theory, research, and practice (Bratton et al., in press). Since the 1940s, case studies and anecdotal reports have been used as traditional methods to investigate the effectiveness of CCPT. Axline’s (1964) report on Dibs is one of the most famous case studies in the CCPT literature and in the broader field of play therapy. Recently, researchers have employed more rigorous methodology in single-case research design (Garofano-Brown, 2008; Schottelkorb, 2008), which enables
researchers to observe and analyze the tendency of treatment effect in a quantifiable and more precise manner.

Among the important criteria for empirically evidenced treatments is the statistically significant superiority of the treatment condition as compared to a no-treatment, alternative treatment, or placebo condition in controlled outcome studies (Chambless & Hollon, 1998). In other words, controlled outcome research can validate the effectiveness of the intervention due to controlling for extraneous factors or variables through the use of control or comparison groups. Approximately 110 outcome studies using control or comparison groups were found in the CCPT literature, including 47 studies from the almost 5 decades of research prior to 1995 and 63 studies from 1995 to the present. The vast majority of individual findings showed CCPT statistically significantly superior to no treatment. However, as is typical of research in psychotherapy, most studies utilized small sample sizes, which limited the power of validating results and the ability of generalizing findings (Bratton & Ray, 2000; Bratton, Ray, Rhine, & Jones, 2005). Meta-analytic methodology can overcome this limitation by statistically combining research findings across studies to compute an overall treatment effect size. A review of the literature revealed no meta-analytic review of CCPT.

Meta-analysis, originally developed by Glass (1976), is a quantitative and systematic method of integrating research findings from a collection of quantitative studies. In the psychotherapy literature, only two meta-analytic reviews focusing exclusively on play therapy outcomes were found. Leblanc and Ritchie (1999) published a meta-analysis on a collection of 42 play therapy outcome studies, including 31 studies in nondirective play therapy, and found a moderate overall effect size of 0.66 for all 42 studies. Bratton et al. (2005) also conducted a meta-analytic review for 93 play therapy outcome studies and found an overall effect size of 0.80.
In their analyses of treatment characteristics, they further categorized studies by humanistic-nondirective and nonhumanistic-directive and found an overall effect size of 0.92 for 73 humanistic-nondirective play therapy studies, which is statistically significantly larger than the overall effect size of 0.71 for the 12 nonhumanistic-directive play therapy studies.

Although Bratton et al. (2005) found a large effect size for humanistic play therapy, the studies included in their seminal meta-analysis spanned from the early 1950s up to 2000, with the majority prior to 1985. These early research efforts were important in advancing the field of play therapy; however, the methodology employed in the majority of these early studies fails to meet the more rigorous standards applied in current research.

Statement of the Problem

Individual outcome studies in CCPT, as mentioned above, are typically limited by small sample sizes, resulting in insufficient power to validate results and the inability to generalize findings. A contemporary meta-analytic review of CCPT studies can address this issue by aggregating results from studies employing current accepted standards for outcome research. Hence, the purpose of this meta-analytic review is to integrate quantitative findings of controlled outcome studies in CCPT from 1995 to the present in order to investigate the overall effectiveness of CCPT and to explore the relationships between specific study characteristics and treatment effect.
CHAPTER 2

REVIEW OF THE LITERATURE

The review of literature includes three major areas: (a) rationale for and development of child-centered play therapy (CCPT); (b) research support for CCPT; and (c) the use of meta-analysis as a technique of research synthesis.

Rationale for and Development of Child-centered Play Therapy

Play

From Rousseau’s early writings in the 1700s, play has been seen as important for children. Play, from an evolutionary perspective, represents a critical human activity in a child’s growth and development (Smith, 2006). The very presence or absence of play has been described as a barometer of the mental health of a child (Isaacs, 1938). The relationship between play and children’s cognitive, linguistic, social, emotional, creative, spiritual, and cultural development has been well-documented in the literature and embodies a growing source of research interest (Berk, 2003; Elkind, 2007; Fromberg & Bergen, 2006; Piaget, 1951; Russ, 2003; Sutton-Smith, 2001).

Exercise play is the most primitive form of play, which takes place mainly at the sensor-motor developmental level in the form of repeating behaviors. Piaget believed that this repetition served an important function of learning as well as pleasure as children experience the outcome of their actions (Berk, 2003). Piaget (1951) was also one of the first child development experts to suggest the value of symbolic play in children’s development. Because children do not possess the same adaptive strategies as adults in satisfying their emotional and cognitive needs, symbolic play assumes a critical function of assimilating external reality to the self and further satisfying children’s inner needs. Similarly, Freudian schools of play therapy believed
that symbolic play helped children deal with unconscious conflicts (Piaget & Inhelder, 1966/1969).

Vygotsky (1967) suggested that children’s play strongly relates not only to the development of intellectual functions, but also to the affective and social development. Stetsenko (2004) reinforced Vygotsky’s belief that at approximately 3 years of age children “become involved in more and more complex forms of cooperation with other people, including forms of cooperation that demand complex symbolic forms of interaction” (p. 509). Children furthermore create imaginary situations in play, which is similar to symbolic play, not only to fulfill their wishes but also to generalize their emotions in a broader context of social environment. Piaget (1951) proposed that children’s imaginary play naturally begins to decline after 4 years of age: “The more the child adapts himself to the natural and social world the less he indulges in symbolic distortions and transpositions, because instead of assimilating the external world to the ego he progressively subordinates the ego to reality” (p. 145). Throughout childhood play continues to serve a vital role in nourishing children’s social, emotional, and cognitive development (Elkind, 2007). While play typically serves to characterize childhood, it remains a pervasive activity throughout the lifespan. This overview of the role and significance of play in children’s early development does not diminish its continued impact on human growth and development.

Based on the rich history of literature on the essential nature of play in children’s lives and its natural developmental properties, the use of play in child therapy naturally followed. While psychoanalysts were the first to use play therapy in the early 1900s, researchers generally credit the advent of Axline’s (1964) nondirective play therapy approach with popularizing the approach.
Play Therapy

According to the relationship between play and child development, the critical role and therapeutic function of play in a child’s intellectual, emotional, and social development are apparent and widely accepted in the field of play therapy. Mental health professionals have long utilized play in child psychotherapy. In 1909 Sigmund Freud published the first report concerning “Little Hans,” a 5-year-old boy with a phobia. In this report, he depicted the treatment approach as providing advice to Hans’s father in order for him to respond to Hans and advocated the use of play as a therapeutic intervention with the 5-year-old boy (Freud, 1955/2001). Although his report did not significantly address the role, function, or meaning of children’s play, it triggered researchers’ interest in children’s expression of emotional difficulties through play and is generally considered to be the origin of play therapy (Landreth, 2002).

Hug-Hellmuth was recognized as one of the first therapists who emphasized the significant use of play in children’s psychoanalysis process (Landreth, 2002). Hug-Hellmuth (1921), a psychoanalyst, found difficulty applying analytical principles with children under the age of 7 or 8 because of their limited verbal and cognitive development. Thus, in order to facilitate children’s self-expression, she followed Freud’s work with Hans to include play materials and activities in her psychoanalysis. However, in Hug-Hellmuth’s work with children, the use of children’s play was not considered as a specific therapeutic technique or approach, but as a means of observing children’s habits, symptoms, characteristics, and unconscious materials.

Melanie Klein (1932) utilized the technique of “play analysis” in her psychotherapy with children, which was viewed as equivalent to free association in adult psychoanalysis. Klein advocated that toys and play materials were appropriate for children’s expression of fantasies and experiences. Klein also believed that through this play analysis technique, analysts could
observe children’s thoughts and emotions and further obtain an overall picture regarding their mental processes represented through play. Unlike Hug-Hellmuth’s work, Klein (1955) not only utilized play as a means of observation, but further interpreted the preconscious and unconscious meaning of their play to her child clients.

At approximately the same time, Anna Freud (1928, 1946) developed a different perspective on the use of play in children’s psychoanalysis. She hesitated to directly interpret and analyze children’s play, because their play might not necessarily be related to unconscious materials or memories in the past. She believed that play of some children might merely reflect recent experiences. Instead of direct interpretation, she employed play as a means to facilitate the establishment of a therapeutic relationship between a child and an analyst. This therapeutic relationship was considered to be an essential foundation of accessing the child’s inner world.

David Levy (1938) advocated “release therapy” to help young children release their emotions and past experiences. In this approach, throughout the therapeutic process the therapist provides minimum or no interpretation of the child’s play and structures play situations similar to the child’s life experience for the child to act out his or her feelings. Gove Hambidge (1955) also advocated the use of structured play in children’s psychotherapy process. The purpose of structuring children’s play was to facilitate their free and productive play activities, which focus on a particular presenting problem. Because of these pioneers, play was gradually emphasized and embedded in the therapeutic process of child psychotherapy.

CCPT

Landreth (2002) provided a broad definition of play therapy as follows:

[It is] a dynamic interpersonal relationship between a child (or person of any age) and a therapist trained in play therapy procedures who provides selected play materials and
facilitates the development of a safe relationship for the child (or person of any age) to fully express and explore self (feelings, thoughts, experiences, and behaviors) through play, the child’s natural medium of communication, for optimal growth and development. (p. 16)

Landreth (2002) further provided a specific definition for CCPT as “a complete therapeutic system, not just the application of a few rapport-building techniques, and is based on a belief in the capacity and resiliency of children to be constructively self-directing” (p. 59). CCPT originated from the philosophy of person-centered psychotherapy (Rogers, 1951). Thus, core therapeutic conditions, such as unconditional positive regard, empathy, and congruence (Rogers, 1957), and essential beliefs in client-centered counseling, such as innate actualizing tendency, reality and phenomenal field, internal frame of reference, self-concept, and incongruence and anxiety, are also crucially relevant in CCPT (Axline, 1969; Landreth, 2002; Rogers, 1951).

The core belief reflected in person-centered psychotherapy is that every human being possesses an innate tendency of self-actualization, which naturally drives him or her toward growth. In counseling, the three core conditions, empathy, genuineness, and unconditional positive regard, provided by the counselor can facilitate this innate tendency in the client (Rogers, 1942).

In 1947 Virginia Axline, a student and later a colleague Carl Rogers, developed “nondirective play therapy” by applying Rogers’s principles of person-centered psychotherapy to her psychotherapy with children. Many therapists, including Moustakas (1951), Ginott (1961), B. Guerney (1964), L. Guerney (1983), and Landreth (1991, 2002), have followed, expanded, and popularized Axline’s nondirective play therapy. In the literature, several terms have been coined as alternative names for the nondirective play therapy established by Virginia Axline, including
client-centered play therapy (Ginsberg, 1984; Guerney, 1983), person-centered play therapy (Goetze, 1994), humanistic play therapy (Bratton & Ray, 2002), and child-centered play therapy (Landreth, 2002).

From a developmental perspective, children typically cannot engage in mature abstract reasoning and thinking until approximately age 11; rather, they understand the world from a concrete perspective (Landreth, 2002; Piaget, 1951). Thus, most children are not able to fully verbally express themselves, especially when attempting to communicate their emotions and feelings (Landreth, 2002). Axline (1969) stated that “play is the child’s medium of self-expression” (p. 9). Landreth (2002) proposed that play is the most essential activity of childhood. Children are not merely having fun in their play; they experience, explore, and learn their internal world as well as their external world. Play is also an important way for children to make connection with people and the world around them.

Woltmann (1964) further proposed that play serves a cathartic function for children: “The make-believe element eliminates guilt feelings which would appear if action could result in real harm and damage and enables the child to be victorious over forces otherwise above his reach and capacity” (p. 24). Children are generally resilient; they quickly forget many negative experiences in daily life, except those extremely unpleasant or hurtful ones. Unlike adults, who can use verbal expression to communicate and perhaps expel their feelings, children play out their emotions, difficulties, needs, and unpleasant experiences. In other words, toys become children’s words, and play becomes their language (Axline, 1969; Landreth, 2002).

Axline (1947) advocated eight basic principles that guide play therapists in developing a therapeutic relationship with and a secure environment for children. These principles include the following:
1. The therapist must develop a warm, friendly relationship with the child.

2. The therapist accepts the child exactly as he/she is.

3. The therapist develops a feeling of permissiveness so that child feels free to express feelings completely.

4. The therapist recognizes and reflects feelings (of a child) so that the child can gain insight into his/her behaviors.

5. The therapist respects that the child can solve his/her problems and believes that the responsibility to change rests on the child.

6. The therapist does not attempt to direct the child, instead, lets the child lead the way, the therapist follows.

7. The therapist understands that therapy is a gradual process and does not rush the child.

8. The therapist establishes only those limitations that are necessary to anchor the therapy to the real world and to facilitate the child’s awareness for his/her responsibility in the relationship. (p. 75)

Both Axline (1947) and Landreth (2002) emphasized the primacy of the therapeutic relationship in the play therapy process. Further, they believed in children’s capacity for self-realization and their innate tendency towards growth. Landreth (2002) described this self-actualization as an active process in which a child continuously interacts with the world and moves “toward becoming a more positively functioning person, toward improvement, independence, maturity, and enhancement of self as a person” (p. 61).

Filial Therapy/Child Parent Relationship Therapy

In the 1960s, Bernard and Louise Guerney conceived of the creative idea of directly involving parents in the therapeutic process of their children’s psychotherapy, and they named
this approach *filial therapy* (Guerney, 1964). The introduction of the Guerneys’ filial therapy model marked a significant and innovative development in the use of CCPT principles and procedures (Bratton et al., 2005). Filial therapy is a group parent training model based on CCPT in which parents learn essential CCPT attitudes and skills, receive supervision from mental health professionals trained with CCPT and filial therapy, and conduct weekly play therapy-like sessions with their own children. In other words, parents in filial therapy become agents of change for their children. In filial therapy the parent-child relationship is strengthened, fostering growth in both the parent and the child (Landreth & Bratton, 2006).

As early as the beginning of the 20th century, mental health professionals reported their success in directly involving parents in their children’s play therapy. In 1909, Freud (1955/2001) provided instructions to a father for him to respond to his 5-year-old son in their home play sessions. Natalie Rogers Fuchs (1957) successfully helped her daughter overcome her fear and resistance over her potty training by following suggestions from her father, Carl Rogers, and the play therapy principles of Virginia Axline. Baruch (1949) advocated that playful activities contain psychological value, making discipline easier for parents and further strengthening parent-child relationships. She also provided examples of parents helping their children cope with emotional difficulties through playful activities. Moustakas (1959) recommended that parents conduct play therapy sessions at home in order to improve their relationships with their children. Both Baruch’s and Moustakas’s approaches were based on person-centered philosophy; however, unlike filial therapy, they did not employ group setting, structured instruction, or close supervision.

Bernard Guerney (1964) provided a detailed rationale, description, and structure for the group training model. In the filial training group, parents not only learn CCPT skills, concepts,
and attitudes, but also practice them in the home play sessions with their children. Guerney’s filial therapy model was originally designed as a weekly 2-hour group format that was conducted over a period of 1 year and gradually shortened to 5 or 6 months. Ginsberg (1997) and Vanfleet (1994) have successfully modified and adapted Guerney’s filial therapy model to individual parents.

In the late 1970s Landreth (1991/2002) began to notice possible concerns about the long-term process in Guerney’s filial therapy model and proceeded to modify it into a shorter format. Throughout his efforts for around 20 years, he effectively abstracted the essential materials and concepts, combined his personal teaching and play therapy experience, and developed the condensed and structured 10-session filial therapy model. In 2006 Landreth and Bratton further formalized this 10-session model into a text, *Child Parent Relationship Therapy (CPRT): A 10-session Filial Therapy Model*. Bratton, Landreth, Kellam, and Blackard (2006), in order to enhance the ease of replication for mental health professionals and provide researchers with tool for ensuring treatment fidelity, published a treatment manual, which contains a thorough and detailed protocol, comprehensive guidelines, parent notebook, and necessary materials and resources. Researchers have modified the CPRT 10-session model into more time-intensive formats, including Harris and Landreth (1997), Smith and Landreth (2004), and Ferrell (2004). In addition to different training formats, some researchers have also applied the CPRT model to paraprofessionals, including teachers (Brown, 2003; Crane & Brown, 2003; Helker & Ray, 2009; Morrison, 2007; Post, McAllister, Sheely, Hess, & Flowers, 2004) and mentors (Baggerly & Landreth, 2001; Jones, Rhine, & Bratton, 2002; Robinson, Landreth, & Packman, 2007).
Research Support for CCPT

Research in the field of CCPT has a history of more than 60 years. Traditionally, the method of case study and anecdotal report has been used to investigate the effectiveness of CCPT. Since the 1940s, many researchers have published numerous case studies and reports in CCPT. Among these reports, the story of Dibs, published by Axline (1964), is considered one of the most famous case reports. These case studies and reports have demonstrated CCPT as a successful child therapy intervention on a variety of presenting issues or problems, including abuse and neglect, aggression and acting out, attachment difficulties, autistic spectrum disorder, chronic illness, deafness, dissociation and schizophrenia, emotional disturbance, trichotillomania, fear and anxiety, grief, learning disabilities, mental challenges, reading difficulties, mutism, self-efficacy, social problems, speech difficulties, trauma and posttraumatic stress disorder, and withdrawn behaviors (Landreth et al., 2005).

Although they may provide additional information as to the effectiveness of an intervention, case studies have several methodological weaknesses. For example, because of the lack of control or comparison designs, many case studies may be unable to claim that the improvement or change in a child is the result of intervention effectiveness rather than the natural consequence of maturation (Leblanc, 1998). More recent single case studies have employed greater methodological rigor and offered promise as a method of advancing the research base for CCPT (Garofano-Brown, 2008; Schottelkorb, 2008). For the purpose of the meta-analytic review, case study research cannot be equated with controlled outcome studies using two or more groups.
Controlled Outcome Research on CCPT Prior to 1995

Controlled outcome research in CCPT, including experimental or quasi-experimental designs in which a CCPT treatment is compared to a wait list control, placebo/active control, or another intervention, allows researchers to control for irrelevant factors or variables in order to draw conclusions that treatment outcomes are in fact due to the treatment.

Prior to 1995, researchers found 48 controlled outcome studies that used CCPT methodology, including 6 studies from 1945 to 1954; 5 studies from 1955 to 1964; 13 studies from 1965 to 1974; 13 studies from 1975 to 1984; and 11 studies from 1985 to 1994 (Bratton & Ray, 2000, 2002; Bratton et al., 2005).

Mundy, 1957; Newcomer & Morrison, 1974; Sokoloff, 1966); and learning, speech, and reading
difficulties (Bills, 1950a, 1950b; Crow, 1990; DeGangi, Wietlisbach, Goodin, & Scheiner, 1993;
Elliott & Pumfrey, 1972; Oualline, 1976; Seeman & Edwards, 1954; Siegel, 1971; Sokoloff,

Researchers have studied the effects of filial therapy on parental empathy, acceptance,
and attitudes to better understand the systematic impact of training parents in CCPT
methodology. Positive outcomes were found in the following areas: parental empathic
interactions, parental acceptance, allowance of self-direction, involvement, affect sensitivity,
parent-child relationship and communication, and CCPT attitudes and skills (Dematatis, 1982;

Controlled Outcome Research on CCPT from 1995 to Present

Experimental and quasi-experimental designs have become more prolific in CCPT
research since 1995. An exhaustive literature search revealed 63 controlled outcome studies over
the most recent 15-year period compared to the 48 CCPT studies found in the 45 years prior to
1995. A further look at study dates revealed that 13 studies were conducted from 1995 to 1999,
with 30 studies from 2000 to 2005 and 21 studies from 2006 to the present. The lower number
of studies found since 2006 may be due to articles in review or in press, rather than a decline in
research. The majority of the studies found positive outcomes for the effects of CCPT.

Appendix A contains a chart that briefly summarizes study methods and findings for the 63
controlled outcome studies identified for the present meta-analytic review.

Researchers of 22 controlled outcome studies have found positive outcomes on children’s
externalizing problems, including conduct behavior problems, attention-deficit/hyperactivity
disorder (ADHD) symptoms, aggressive behaviors, and negative problem behaviors (Ceballos,
Twenty-two studies demonstrated positive outcomes on internalizing problems, including anxiety, emotional adjustment, suicide risk, and depression (Baggerly & Landreth, 2001; Ceballos, 2009; Costas & Landreth, 1999; Fall, Navelski, & Welch, 2002; Flahive & Ray, 2007; Garza & Bratton, 2005; Grskovic & Goetze, 2008; Jones & Landreth, 2002; Jones et al., 2002; Kale & Landreth, 1999; McGuire, 2001; Morrison, 2007; Packman & Bratton, 2003; Post et al., 2004; Rhine, 2002; Sheely-Moore & Bratton, 2010; Shen, 2002; Smith & Landreth, 2003; Smith & Landreth, 2004; Tyndall-Lind et al., 2001; Villarreal, 2008).

Another eight studies also revealed positive outcomes on children’s overall behavior in a broad spectrum without specifying the behavioral problem areas (Bratton & Landreth, 1995; Harris & Landreth, 1997; Jang, 2000; Landreth & Lobaugh, 1998; Raman & Kapur, 1999; Ray, 2003; Shashi, Kapur, & Subbakrishna, 1999; Yuen, Landreth, & Baggerly, 2002). Some researchers were interested in children’s play behaviors and found positive outcomes in desirable play behaviors and nurturing and creative play themes (Glover & Landreth, 2000; Kot et al., 1998).

Research findings from 19 studies supported the positive outcomes on parent-child relationship and teacher-child relationship (Bratton & Landreth, 1995; Ceballos, 2009; Chau &

Positive outcomes on self-efficacy were also found in 11 studies (Baggerly & Landreth, 2001; Costas & Landreth, 1999; Fall, Balvanz, Johnson, & Nelson, 1999; Glover & Landreth, 2000; Kot et al., 1998; Landreth & Lobaugh, 1998; McGuire, 2001; Post, 1999; Shen & Armstrong, 2008; Smith & Landreth, 2003; Tyndall-Lind et al., 2001). Another 15 studies demonstrated positive outcomes on parental acceptance (Beckloff, 1998; Bratton & Landreth, 1995; Chau & Landreth, 1997; Costas & Landreth, 1999; Ferrell, 2004; Glover & Landreth, 2000; Harris & Landreth, 1997; Johnson-Clark, 1996; Kale & Landreth, 1999; Kellam, 2004; Landreth & Lobaugh, 1998; Lee & Landreth, 2003; D. E. Ray, 2003; Tew et al., 2002; Yuen et al., 2002).

Researchers also found positive outcomes on adult empathic interactions with children in 20 controlled outcome studies (Bratton & Landreth, 1995; Brown, 2003; Chau & Landreth, 1997; Costas & Landreth, 1999; Crane & Brown, 2003; Elling, 2003; Ferrell, 2004; Glover & Landreth, 2000; Harris & Landreth, 1997; Hess, Post, & Flowers, 2005; Hilpl, 2002; Jang, 2000; Jones et al., 2002; Kidron, 2004; Lee & Landreth, 2003; Post et al., 2004; Robinson & Landreth, 2007; Smith & Landreth, 2003, 2004; Yuen et al., 2002). Four studies revealed positive outcomes on adults’ play therapy knowledge, attitudes, and skills (Brown, 2003; Crane & Brown, 2003; Grskovic & Goetze, 2008; Helker & Ray, 2009; Hess et al., 2005).

Four studies supported positive outcomes on academic-related issues including academic performance (Blanco, 2010), language skills (Danger & Landreth, 2005; McGuire, 2001) and reading achievement (Swanson, 2008). Researchers also found positive outcomes in other areas,
including diabetes adaptation of children diagnosed with insulin-dependent diabetes mellitus (Jones & Landreth, 2002), adolescents’ moral reasoning (Paone, Packman, Maddux, & Rothman, 2008), and children’s social-emotional functioning (Smith & Landreth, 2004).

Among all the 63 controlled outcome studies, 47 of them employed a no-treatment control group; 11 of them used alternative treatment comparison group; 2 used an active control group; and 3 used both an alternative treatment comparison and a no-treatment control group. The sample size in each study ranged from 10 to 168, with an average size of 35. Among all the studies, 35 of them utilized samples of equal to or more than 30 participants, which are considered to be large samples, and the other 28 studies used small samples with less than 30 participants.

In addition to the beneficial outcomes mentioned above, a few researchers have reported statistically nonsignificant outcomes in CCPT. Mixed findings were found in some of the studies prior to 1995. For example, Saucier (1987) found statistically significant difference when comparing nondirective play therapy to no treatment but no significant difference between directive and nondirective play therapy interventions. Other studies prior to 1995 reported no statistically significant benefits in CCPT. For example, Yates (1976) found no statistically significant differences between nondirective play therapy group, teacher consultation group, and control group. While the majority of findings reported in controlled outcome studies between 1995 and the present (see Appendix A) showed a statistically significant positive effect for play therapy, several studies reported nonsignificant outcomes on one or more measures. A number of studies reported mixed findings; for example, Garza and Bratton (2005) found that CCPT demonstrated a statistically significant improvement and large treatment effect on children’s externalizing behaviors, and a non-significant improvement and moderate treatment effect on
internalizing problems. A few studies revealed no statistically significant difference between CCPT and a non-play therapy comparison treatment (Ray, 2007; Schumann, 2010), or when compared to no treatment or placebo treatment (Hacker, 2009; Kaplewicz, 2000).

The Use of Meta-analysis as a Technique of Research Synthesis

Development of Meta-analysis

Meta-analysis is a method of integrating, summarizing, and interpreting quantitative empirical research studies by means of utilizing statistical techniques to encode, combine, and analyze the statistical findings typically reported in research studies (Lipsey & Wilson, 2001).

Prior to the 1970s, researchers and scholars in the social science field depended on narrative literature reviews in order to integrate independent studies (Glass, 1977; Light & Smith, 1971; Schulze, 2004). This narrative method of integrating research, especially empirical studies, has often been criticized as invalid and controversial due to the subjective and biased judgment made by the limited reviewers (Pillemer, 1984; Wolf, 1986).

Social scientists in the 1970s began to utilize statistical techniques to integrate quantitative findings in empirical research. Some researchers, including Luborsky, Singer, and Luborsky (1975), focused on generating the overall significance for collected studies. Some other researchers preferred synthesizing research findings through estimating the overall effect size. Among these researchers, Light and Smith (1971) utilized original raw data to integrate the research findings of independent studies, but Glass (1976) and Hunter and Schmidt (1990) focused on using statistical analysis results in the synthesis process.

The term meta-analysis was created by Gene Glass in 1976. Glass defined meta-analysis as “the analysis of analyses… the statistical analysis of a large collection of analysis results from individual studies for the purpose of integrating the findings” (p. 3). In the next year, Gene Glass
and his colleague, Mary Lee Smith, published the first meta-analysis of psychotherapy in which they simply standardized and averaged treatment outcomes from 375 psychotherapy studies using the control group design and claimed psychotherapy as effective (Smith & Glass, 1977). Despite the criticisms of their meta-analytic study, they indeed pioneered this new systematic method of integrating empirical studies.

Statistical Techniques to Meta-analysis

Since 1976, researchers have developed several different statistical techniques to conduct meta-analysis. The most classic technique was developed by Glass (1976, 1977), who treated the collected studies as a sample, assumed the research findings as independent, and utilized the statistical techniques that researchers often used in the primary analysis to integrate and analyze the research findings. Gene Glass chose effect size as an essential indicator of the treatment effectiveness of empirical studies and demonstrated the methods to obtain effect size statistics from several different research designs, such as experimental study and correlation study (Glass, 1977).

Around the same time, Schmidt and Hunter (1977) proposed a strategy of validity generalization, which was another meta-analytic technique. Their strategy focused mainly on creating a new validity distribution through combining the sample information into the original distribution, and the mean of this new distribution became the estimate of overall validity. This approach eliminated variance due to different testing situations, namely the reliability issue, and primarily accounts for the variance due to true test validity.

Hough and Hall (1991) compared Gene Glass’s approach with Hunter and Schmidt’s approach and found that the major differences between them are the use of standard deviation in the effect size formula, the employment of sampling error test, and the use of a correction
formula for measurement error. In the effect size formula, Glass (1976) used the standard deviation from the control group in order to avoid influence from the treatment. Hunter and Schmidt (1990), however, advocated the use of the pool within-group standard deviation because it tended to contain much less sampling error than the control group standard deviation did. In addition, within-group standard deviation can easily be computed from the value of $t$ or $F$, which is reported in most studies, while control group standard deviation may not be as accessible in many studies.

Hunter and Schmidt (1990) addressed the emphasis on testing sampling error in order to determine the existence of the moderator variables, whereas Glass (1976) simply assumed that moderator variables constantly exist. In spite of the disagreement on testing sample error, both approaches recommended Pearson correlations or related analyses, such as ANOVAs or regression analysis, to locate the moderator variables and determine their relationship with the study effect sizes (Hough & Hall, 1991).

Another difference between Glass’s (1976) approach and Hunter and Schmidt’s (1990) approach was the correction for measurement error. Glass (1976) did not recommend making corrections for measurement errors and simply focused on the overall mean effect size; on the other hand, Hunter and Schmidt (1990), in order to more accurately estimate the overall mean effect size, suggested a correction formula for possible measurement error as “dividing the effect size by the square root of the reliability coefficient of the dependent variable measure” (Hough & Hall, 1991, p. 5).

Hough and Hall (1991) further concluded that G. Glass’s approach is more convenient for researchers to apply and provides fairly thorough information for the overall effect size. However, Hunter and Schmidt’s technique appears to be more accurate. Bangert-Drowns and
Rudner (1991) also reported a summary of several meta-analysis approaches and depicted Hunter and Schmidt’s as a systematic and comprehensive technique including some of the best features of the others, but they also indicated the potential difficulty of its application due to the required detail information from individual studies.

Other researchers have developed other statistical techniques in meta-analysis. For example, Hedges and Olkin (1985) employed Fisher-$z$ transformation in the procedure of obtaining estimated mean effect size and further developed a formula for the transformation between correlation coefficients and effect size. Another example technique proposed by Rosenthal and Rubin (1986) also involves the Fisher-$z$ transformation, but unlike Hedges and Olkin’s technique, this technique employs the degrees of freedom as weights in the effect size aggregation process (Schulze, 2004).

Meta-analysis Models

In general, there are several models available in meta-analysis. The one most frequently utilized is the fixed-effects model. This model stands on a basic assumption of homogeneity of the effect size parameters. The meta-analysis of the fixed-effects model assumes a fixed and universal effect size parameter, using the observed effect sizes from the collected studies to estimate this universal parameter (Hedges, 1994; Hedges & Vevea, 1998). Ideally, if a fixed and universal effect size exists, all the collected studies should contain the same observed effect size exactly identical with this universal one. However, the differences between observed effect sizes always exist in reality. It is believed that in the fixed-effects model the sampling error resulting from the diverse subject sampling in the collected studies is the only source causing the differences between observed effect sizes, and the different characteristics between these studies do not have systematic influence on their research results (Schulze, 2004). Conclusively, the
analyst using the fixed-effects model is interested in and capable of making “inferences only about the effect-size parameters in the set of studies that are observed… that is what we call a conditional inference” (Hedges & Vevea, 1998, p. 487).

Another widely used model is the random-effects model. In contrast to the fixed-effects model, the random-effects model assumes a population of effect size parameters and considers that the observed effect sizes are a random sample from this population. These observed effect sizes, consequently, are utilized to estimate the characteristics of this population, such as mean and variance (Hedges & Vevea, 1998; Raudenbush, 1994). In other words, the overall mean effect size becomes a random variable, which varies according to the random sample of the observed effect sizes. The source of the variance between observed effect sizes is not merely a sampling error from the subjects in the collected studies, but also the different characteristics between studies, such as type of treatment, diversity of research design, validity of measurement instruments and so on (Hedges & Vevea, 1998; Schulze, 2004). Most importantly, the analyst employing the random-effects model can make unconditional inferences, which is not limited to the specific study collection, but applied to the population of studies (Raudenbush, 1994; Rosenthal, Hoyt, Ferrin, Miller, & Cohen, 2006).

As noted above, the source of the variance between observed effect sizes is a critical distinction between fixed- and random-effects models. It is possible that the effect size parameters still remain heterogeneous after taking into account the sampling error variance and the systematic variance resulting from characteristics between studies. The mixed effects model is developed for this situation. “A mixed effects model assumes that the effects of between-study variables, such as treatment type, are systematic but that there is a remaining unmeasured (and possibly unmeasurable) random effect in the effect size distribution in addition to sampling
error” (Lipsey & Wilson, 2001, p. 124). Accordingly, the variance between observed effect sizes is attributed to the subject sampling error, systematic differences between studies, and the unmeasured random component.

In addition to the fixed, random, and mixed effects models mentioned above, researchers have adopted a multiple-level statistical approach, which is also known as the hierarchical linear model (HLM), into meta-analysis (Raudenbush & Bryk, 1986, 2002). HLM is also considered to be one of the mixed effects models, which combines both fixed and random effects approaches. Kalaian and Raudenbush (1996) further employed multivariate techniques into HLM for meta-analysis. The major advantage of their approach is allowing multiple and unequal effect sizes for each individual study in a meta-analysis.

Advantages of Meta-Analysis

As noted above, social science researchers prior to the 1970s tended to used qualitative review to combine research findings of different studies. In efforts to apply quantitative methods, some later researchers used “vote counting” methods in generating the overall significance for collected studies (Schulze, 2004). In comparison to these methods of synthesizing research findings for different studies, meta-analysis possesses several advantages in research integration.

First of all, meta-analysis is a structured and systematic procedure, which generates an explicit summary for a collection of studies and further provides evidence to support the analysis conclusions. Also, meta-analysis is capable of handling and summarizing a large number of studies that traditional qualitative review methods are unlikely to cover. In comparison with traditional qualitative review or summary methods, meta-analysis utilizes effect sizes, which depict both the magnitude and direction of the statistical relationship in a collection of studies, to represent more differentiated and sophisticated study findings. By computing collective
synthesized effect sizes, meta-analysis should be considerably more conclusive than individual studies (Lipsey & Wilson, 2001).

Disadvantages and Criticisms of Meta-Analysis

Meta-analysis, in spite of all the advantages above, also has its critics and limitations. The publication bias, or so-called “file drawer problem,” may be the well-recognized criticism of meta-analysis (Dear & Begg, 1992; Rothstein, 2007; Schwarzer, 1989). Because one of the main purposes of meta-analysis is to estimate the overall effect size by analyzing the quantitative data from the collected studies, the representation of the collection of studies to the target population becomes extremely critical. A common phenomenon in social and behavioral scientific research field is the extremely high proportion of the peer-reviewed publications presenting statistically significant results. This phenomenon may indicate the publication bias of favoring statistically significant results (Rubin, 1992). A meta-analyst is likely to overestimate the overall effect size, especially when the non-peer-reviewed publications, including book chapters, dissertations, and theses, and unpublished studies are usually difficult to obtain, because the studies with statistically significant results tend to contain larger effect sizes than those with statistically nonsignificant results.

In order to diminish or even eliminate the publication bias, the meta-analyst should carefully search and thoroughly collect peer-reviewed published studies, non-peer-reviewed publications, and unpublished data. The meta-analyst can also include publication in the coding to explore the differences between peer-reviewed published studies, and non-peer-reviewed publications, and unpublished studies (Bratton et al., 2005; Leblanc, 1998). In addition to collecting peer-reviewed published studies, non-peer-reviewed publications, and unpublished data and coding publication status, there are several other strategies to assess or correct
publication bias, such as the failsafe N, the funnel plot, statistical testing methods, linear regression method, cumulative meta-analysis, and trim-and-fill procedure (Rothstein, 2007).

While meta-analysts devote great effort to collecting non-peer-reviewed publications, and unpublished data, a potential concern is the quality of the collected studies. This is also a common criticism of meta-analysis (Eysenck, 1994). Meta-analysis has been criticized for putting great effort into analyzing studies of low quality (Schwarzer, 1989). In particular, the quality of non-peer-reviewed publications and unpublished studies may be more controversial due to the absence of peer reviews. Conn, Valentine, Cooper, and Rantz (2003) encouraged the inclusion of unpublished studies, or so-called grey literature, in meta-analysis because the exclusion of grey literature may likely overestimate the overall effect size. Several possible solutions to eliminating the impact of low-quality studies, such as including quality features in the coding and assigning different weights to studies with different quality, are recommended in meta-analysis literature (Schwarzer, 1989).

Researchers have also criticized the issue of heterogeneity in meta-analysis. This issue is often referred to as comparing “apples and oranges.” Andrews and Harlen (2006) suggested that homogeneity be a precondition to a meta-analysis and regarded it as imprudent to conduct a meta-analysis when the collected studies are too heterogeneous. Rosenthal et al. (2006) also asserted that the homogeneity test “examines the hypothesis of systematic differences between studies by statistically testing whether the observed variance among the study effect sizes in the meta-analysis is greater than would be expected due to sampling error alone” (p. 236). Meta-analysts should not only conduct the homogeneity test but they should also carefully define moderator variables indicating the different characteristics between studies in order to further investigate the possible causes of heterogeneity (Leblanc, 1998).
The final criticism involves the multiple findings in a study. In traditional meta-analytic approaches, the research findings collected in a meta-analysis are viewed as units and treated as independent (Glass, 1977). However, it is controversial to treat each research result as independent when researchers report multiple results in an individual study. Another source of non-independent results from the reliance of multiple publications on the same study or multiple studies on the same sample (Schwarzer, 1989). Some researchers have proposed the solution of producing a mean effect size by averaging the dependent effect sizes, while other researchers have advocated that this approach to averaging effect sizes simultaneously excludes some important information (Glass, McGaw, & Smith, 1981; Wolf, 1986). Another solution to this problem is to employ the HLM approach, which allows the correlation between research results and enables meta-analysts to include all the information and results reported in the collected studies (Leblanc, 1998; Raudenbush & Bryk, 2002).

In addition to the critics mentioned above, researchers have also found other disadvantages, especially the enormous effort and specific knowledge. Lipsey and Wilson (2001) suggested that meta-analysis can require a large amount of labor, time, and specialized statistical knowledge and skills, more than is required in traditional qualitative review methods. Another disadvantage may be the common weakness shared by most quantitative research approaches. The structured and systematic procedures in meta-analysis, such as the coding of data, can be relatively objective and therefore unable to provide qualitative information.

Summary

Early researchers proposed a relationship between children’s play behavior and their cognitive, social, and emotional development (Piaget & Inhelder, 1966/1969; Vygotsky, 1967). Because of the developmental properties of children’s play, early mental health professionals

CCPT, rooted in the theoretical philosophy established by Virginia Axline, has demonstrated a long and consistent history of research, perhaps greater than any child therapy intervention (Bratton, Ray, Edwards, & Landreth, 2009). Further, the body of CCPT research has consistently shown its effectiveness with a variety of presenting problems and issues (Ray & Bratton, 2010). However, small sample size has plagued CCPT research, just as it has most research in the field of child psychotherapy (Bratton et al., 2005).

Meta-analysis, initially developed by Gene Glass, is a quantitative and systematic method of combining and analyzing research results from a collection of quantitative studies. Meta-analytic techniques enable researchers to use effect sizes, which depict both the magnitude and direction of the statistical relationships in a collection of studies, to represent more differentiated and sophisticated study findings. By computing collective synthesized effect sizes, meta-analysis is believed to be considerably more powerful than individual studies (Rubin, 2008).

Leblanc and Ritchie (2001) were the first to use meta-analytic methods to examine play therapy’s effect, followed by the larger meta-analysis of Bratton et al. (2005). Leblanc and Ritchie collected 42 play therapy controlled studies from 1947 to 1997, including 31 studies in CCPT, in their meta-analysis study and produced an estimated overall average effect size of 0.66, which is considered as moderate according to Cohen’s (1988) guidelines. They categorized therapy modalities into four groups, including nondirective, tool focused, other, and parent involved. Filial therapy studies were included in the parent involvement group. The nondirective group combined 73 effect sizes from 20 studies and produced an overall effect size of 0.43 (Leblanc & Ritchie, 1999). The meta-analytic review conducted by Bratton et al. (2005) also
indicated an overall average effect size of 0.80 across 93 controlled studies in play therapy from 1953 to 2000. Their analyses of treatment characteristics further illustrated a large overall effect size of .92 for 73 humanistic play therapy studies, the majority of which used CCPT methods. The large number of humanistic studies using filial therapy procedures (n = 26) revealed an effect size of 1.05, and statistically significantly contributed to the overall effect for humanistic approaches.

As noted earlier, the number and rigor of controlled outcome studies in CCPT has increased over the past 15 years, with 63 studies identified since 1995. Although the findings in Leblanc and Ritchie’s (2001) meta-analysis revealed a medium overall effect size for 20 studies in nondirective play therapy methodology, and Bratton et al. (2005) found a large overall effect size for 73 humanistic play therapy studies, most of the 63 studies conducted from 1995 to the present were not included in their meta-analytic reviews. In order to integrate the research outcomes for the effectiveness of CCPT, a more contemporary meta-analytic review in CCPT is needed.
CHAPTER 3

METHODOLOGY

Meta-analysis is a statistical method using a large collection of analysis results from individual studies in order to integrate the findings and investigate the generalization ability (Glass, 1976). The purpose of this study was to estimate the overall effectiveness of child-centered play therapy (CCPT), to explore the characteristics of the collected studies, and to further determine the relationships between the overall effectiveness and the characteristics of the collected studies in CCPT. An additional purpose of this study was to provide information to mental health professionals regarding the potential effectiveness of CCPT and the conditions under which the benefits of therapy may be maximized.

Research Questions

This meta-analytic study was designed to answer two primary research questions:

1. What is the overall effect size attributed to the use of CCPT procedures?

2. If effect sizes differ between the collected studies, can the differences be explained by study characteristics?

Definition of Terms

*Play therapy*. Landreth (2002) defined play therapy as:

a dynamic interpersonal relationship between a child (or person of any age) and a therapist trained in play therapy procedures who provides selected play materials and facilitates the development of a safe relationship for the child (or person of any age) to fully express and explore self (feelings, thoughts, experiences, and behaviors) through play, the child’s natural medium of communication, for optimal growth and development. (p. 16)
**Child-centered play therapy.** CCPT is a play therapy intervention “based on a belief in
the capacity and resiliency of children to be constructively self-directing” (Landreth, 2002, p. 59),
which follows the theoretical nondirective philosophy established by Virginia Axline (1947).

**Meta-analysis.** Meta-analysis is a systematic method for integrating, summarizing, and
interpreting quantitative findings obtained from a collection of research studies. Glass (1976)
defined meta-analysis as:

the statistical analysis of a large collection of analysis results from individual studies for
the purpose of integrating the findings. It connotes a rigorous alternative to the casual,
narrative discussions of research studies which typify out attempts to make sense of the
rapidly expanding research literature. (p. 3)

**Effect size.** The effect size, for the purpose of this study, is a statistic that “produces a
statistical standardization of the study findings such that the resulting numerical values are
interpretable in a consistent fashion across all the variables and measures involved” (Lispey &
Wilson, 2001, p. 4).

**Hierarchical linear models.** Hierarchical linear models (HLM) is an advanced statistical
analysis method, which allows researchers to organize, nest, and analyze data in multiple levels
by following the hierarchical feature of data structure (Raudenbush & Bryk, 2002).

**Search Strategies**

One of the major critiques of meta-analysis is that the results might be based on a biased
collection of studies. In order to address this potential publication bias reported in literature, I
conducted a comprehensive offline search as well as an exhaustive search of online databases to
locate non-peer-reviewed publications and unpublished research studies.
Online Search

The first method was the online search utilizing the University of North Texas (UNT) library referenced databases, including Biosis Previews, Cambridge Scientific Abstracts, Dissertation Abstracts, Electronic Collections Online (ECO), Education Research Complete, ERIC, Family and Society Studies Worldwide, Guilford Publications, MEDLINE, Professional Development Collection, PsycARTICLES, Psychology and Behavioral Sciences Collection, PsycInfo, Sage Journals Online, Social Work Abstracts, SpringerLink, Web of Science, and Wiley Journals Online.

Biosis Previews is a journal article database for disciplines including life science, biology, bio-medics, and interdisciplinary journals. This database contains nearly 6,000 journal titles, 19,100,000 bibliographic records, and over 165,000 documents between 1926 and the present. Cambridge Scientific Abstracts is a large database comprising 14 sub-databases that cover subjects including arts and humanities, natural sciences, social sciences, and technology. Dissertation Abstracts database provides bibliographic citations and 350-word abstracts for dissertations published from 1980 and bibliographic citations. Dissertation Abstracts database also provides bibliographic citations and 150-word abstracts for master’s theses published from 1988. ECO is a journal article database collecting over 600 full-text journals on multiple academic disciplines. Education Research Complete is an online resource for education research including subjects on all levels of education from early childhood to higher education and all educational specialties. Education Research Complete provides indexes and abstracts for more than 1,500 journals and full text for more than 750 journals and includes full text for more than 100 books and monographs and for numerous education-related conference papers. ERIC is a
premier national bibliographic database of education literature that collects published journal literature from over 1,000 periodicals.

The Family and Society Studies Worldwide database contains research, policy, and practice literature for the fields of family science, human ecology, human development, and social welfare from 1970 to the present. Guilford Publications includes 15 journals from Guilford Publications. MEDLINE is an authoritative database of medical information, collecting abstracts from over 4,000 current biomedical journals. Professional Development Collection is a research and journal article database collecting nearly 550 high quality education journals and more than 200 educational reports. PsycARTICLES contains 66 journals from the American Psychological Association (APA), the APA Educational Publishing Foundation, the Canadian Psychological Association, and Hogrefe and Huber. Psychology and Behavioral Sciences Collection is a journal article database including subjects such as emotional and behavioral characteristics, psychiatry and psychology, mental processes, anthropology, and observational and experimental methods. The Psychology and Behavioral Sciences Collection also offers full-text coverage for over 600 journals. PsycInfo provides abstracts and full text for over 1,300 journals from 1872 to the present and covers subjects such as psychiatry, education, business, medicine, nursing, pharmacology, law, linguistics, behavior analysis, and social work.

Sage Journals Online database includes over 220 journals in the fields of communication studies, criminology, education, management and organization studies, materials science, health sciences, political science, psychology, sociology, and urban studies and planning. Social Work Abstracts database covers social work-related topics from 1977 to the present, including homelessness, AIDS, child and family welfare, aging, substance abuse, legislation, and community organization. SpringerLink database offers full-text coverage for over 1,250 fully
peer-reviewed journals and more than 10,000 books from 1999 to the present. The subjects include medicine and public health; biomedical and life sciences; engineering; Russian library of science; humanities, social sciences; law; earth and environmental science; chemistry; and materials science. Web of Science is a research database including 10,000 high-impact journals across disciplines and 120,000 conference proceedings from 1995 to the present. Wiley Journals Online is a journal article database that provides full-text access for over 350 Wiley journals in the fields of biology, chemistry, mathematics, behavioral sciences, and computer sciences from 1997 to the present.

The keywords for searching online databases included child-centered play therapy (CCPT), nondirective play therapy, client-centered play therapy, person-centered play therapy, humanistic play therapy, filial therapy, child parent relationship therapy (CPRT), child teacher relationship therapy (CTRT), and any combinations of these terms. All of the search results from each keyword were combined. I read through all the search results and determined the appropriate studies for this analysis. Due to the language limitation, only studies written in English were included.

The abstracts obtained from the search on these online databases were carefully examined in order to determine the collection of studies meeting the criteria for inclusion in this meta-analysis. Full texts were downloaded online or requested through interlibrary loan for the studies providing no abstracts. For the studies with abstracts too ambiguous for determining if the articles were eligible for inclusion in the study, full text copies were also obtained.

Offline Search

The second method for obtaining articles occurred via the offline search. For this search, the literature collection in the Center for Play Therapy at UNT, reviews of bibliographies, and
references from the obtained materials were used. Additionally, I inquired with play therapy associations and noted scholars, researchers, and professors in relevant fields to find eligible manuscripts. The main purpose of this method was to collect unpublished materials or studies. The studies collected from the offline searches were reviewed to determine their usefulness in this meta-analysis. The studies collected from both online and offline searches were combined to determine the initial pool of studies for this meta-analysis.

Data Collection and Inclusion Criteria

Meta-analysis has been criticized with the judgment of “garbage in – garbage out” (Lispey & Wilson, 2001). Wortman (1994) advocated a guideline for accessing research quality, which can primarily be used to determine the relevance and acceptability for inclusion or exclusion of studies in a meta-analysis. The quality of the research studies was carefully examined based on this guideline in order to screen the studies included in this meta-analysis.

First, the relevance of a study to be included in this meta-analysis was determined. More precisely, the construct and external validity of each study was examined to decide whether or not the study clearly reported the use of CCPT methodology, a humanistic play therapy intervention based on the theoretical philosophy established by Virginia Axline (Bratton & Ray, 2002). As noted previously, the alternative names of CCPT included nondirective play therapy (Axline, 1947), client-centered play therapy (Ginsberg, 1984; Guerney, 1983), and person-centered play therapy (Goetze, 1994). To be included in the meta-analysis, studies must clearly describe the experimental treatment as a play therapy intervention involving principles and procedures consistent with CCPT.

Internal validity and statistical conclusion validity, which indicates whether or not use of standardized psychometric assessment, control or comparison group designs, and the procedure
of pre and posttests, as well as appropriate statistical information for effect size calculation, were used to more carefully determine the inclusion or exclusion of a study. This analysis included only empirical research studies in which researchers reportedly used CCPT methodology in their interventions and produced effect sizes or necessary statistics for computing effect sizes, such as means and standard deviations or other parametric test statistics.

Control and comparison research designs are appropriate scientific techniques for accessing cause-and-effect relationships because they hold constant the other possible nontreatment factors (Borkovec & Castonguay, 2006). The use of a control group or comparison group was accordingly a requirement inclusion in this analysis. In sum, all of the articles or documents obtained from the search outcomes of the two search methods mentioned above were carefully reviewed and screened for (a) the use of CCPT methodology, (b) the use of control or comparison repeated measure design, (c) the use of standardized psychometric assessment, and (d) clear reporting of effect size or sufficient information for conducting an effect size calculation.

Sixty-one studies of which the abstracts appeared to meet the inclusion criteria were included in the initial study pool. The full texts of studies in the initial pool were downloaded online, retrieved from the library at the Center for Play Therapy, and obtained from requests through interlibrary loan service in Willis Library at UNT. Five advanced doctoral research assistants reviewed and examined each study in the initial pool based on the inclusion criteria. Prior to coding, research assistants received intensive coding training discussed in the next section. They coded dependent variables and independent variables following procedures in the coding manual (Appendix B). After all of the studies were coded by at least two research assistants, four studies had no sufficient and appropriate information for effect size calculation.
reports, one study had no formal assessments for the outcome measurement, and three studies did not qualify as child psychotherapy interventions using CCPT methodology. These eight studies were excluded from the meta-analysis. In addition, some effect sizes, which were not the main focuses of the corresponding studies, were also excluded from this meta-analysis. Therefore, the final study pool consisted of 53 studies and 240 effect sizes.

Coding Procedures

Five doctoral research assistants with advanced training in play therapy, research methods, and assessment received intensive coding training in the use of coding manual designed for this study prior to coding the collected studies. Each individual study included in the present meta-analysis was coded by at least two independent research assistants. The purpose of using two research assistants for each study, in addition to establishing inter-coder reliability among all research assistants, was to assure the accuracy of the data retrieved from each study by cross-checking coding results from two independent research assistants.

Several coding training sessions were conducted not only to train coders to be versed and skilled in the coding system but also to ensure a high level of consistency of coding among research assistants. The content of the coding manual was also discussed during training sessions to improve the clarity and applicability of each coding item and to assure the thorough coverage of the coding system on study characteristics. During the first training phase, I strategically chose a sample of two publications, which were more challenging to code due to the complicated research designs. In the training meeting, an experienced faculty researcher and I explained the coding manual and coding system to the research assistants. For two sample publications, all research assistants, the experienced faculty researcher, and I went through each
coding item in the coding manual in order to guarantee research assistants’ concordant and accurate understanding of the process.

Research assistants were given two sample publications to code individually during the second coding phase. They presented their coding results in the second coding meeting. The coding results indicated an inter-coder-agreement of 88.4% between all research assistants. More precisely, all research assistants coded accurately and consistently on 38 of the 43 coding items for both sample publications. The discrepancies between research assistants were discussed and the texts of the corresponding publications were re-examined until reaching 100% agreement between all research assistants.

During the third training phase, all research assistants were given another two sample studies to take with them as homework. They coded the studies individually without discussion and were asked to bring their coding results to the next training session. One additional coding item was found necessary during the second training session and added on the coding manual prior to the second training phase. Discrepancies were found on three of the 44 applicable items on one study, and four discrepant items were found on the other study. An average agreement of 92.0% was found between all research assistants in the second training phase. The discrepant items were also discussed and referred to the equivalent publications on the training session until 100% agreement between all research assistants was reached.

During the fourth training phase, all of the research assistants coded two studies individually without discussion. One of the studies was found irrelevant to this meta-analysis due to the use of treatment methodology other than CCPT, and this study was removed from the study pool. Inconsistent coding results in the other study were found on two of the 44 items indicating a 95.5% agreement between all of the research assistants. The inconsistent items were
further discussed and referred to the corresponding publications on the training session until 100% agreement was reached. During the fifth training phase, all of the research assistants coded one additional study without discussion and presented their coding results at the fifth and final training session. The coding results reached 100% consistency indicating a 100% inter-coder-agreement.

Each study included in the present meta-analysis was coded by two independent research assistants. When discrepancies were noted, meetings between the researcher, research assistants, and the experienced faculty researcher were held, and the discussions lasted until agreement was reached in order to guarantee the accuracy of the information and data utilized in subsequent analyses.

Dependent Variable/Effect Sizes

The dependent variable in the meta-analysis was the effect sizes of CCPT in each collected study. For the purpose of this study, effect size was defined as a statistic that “produces a statistical standardization of the study findings such that the resulting numerical values are interpretable in a consistent fashion across all the variables and measures involved” (Lispey & Wilson, 2001, p. 4). This meta-analysis generated an overall effect size for the collection of studies comparing CCPT group with control or comparison groups in order to estimate the overall effectiveness of CCPT. Sample sizes influenced the effect sizes because effect sizes are derived from sample statistics, such as means and standard deviations. An adjustment and weighting procedure for effect sizes based on sample sizes was utilized for computing average effect sizes. The adjustment and weighting procedure is discussed in later section.
Independent Variables/Study Characteristics

In order to determine the relationship between effect sizes and study characteristics, the study characteristics were coded into independent variables in this meta-analysis according to the coding manual. Characteristics of interest in this meta-analysis were as follows:

2. Age, ethnicity, gender, and education level of child participants
3. Family characteristics (including type of parents and the income/SES of the family)
4. Setting of the study (including school, hospital, crisis settings or shelter, prison, church, and institution)
5. Population focus of the study
6. Presenting issues or target behaviors
7. Clinical level of children who are qualified to studies
8. Participant recruitment (referral by parent, teacher, school counselor, or legal system)
9. Research design (experimental or quasi-experimental)
10. Treatment model (including CCPT, nondirective play therapy, humanistic play therapy, humanistic activity therapy/expressive arts/sandplay therapy, CPRT/Landreth’s filial therapy model, and Guerney’s or other filial therapy model)
11. Group information (including number of total treatment groups and type of control/comparison group)
12. Number of total participants (sample size of an individual study)
13. Treatment integrity
14. Treatment formats (including individual play therapy, group play therapy, individual
activity therapy/expressive arts/sandtray therapy, group activity therapy/expressive arts/sandtray therapy, and CPRT/Filial therapy)

15. Duration and intensity of treatment (number of weeks)

16. Information about therapist (including professional or paraprofessional, education and training, license or certification, and gender)

Some characteristics were specifically considered for filial therapy studies:

1. Play therapy treatment provider (including parent, teacher, and mentor)
2. Age, ethnicity, gender, and education of filial therapy participants.

Study characteristics are defined as necessary in the next chapter.

Analysis

This meta-analysis utilized the hierarchical linear modeling (HLM) techniques described by Raudenbush and Bryk (2002) to analyze the collected effect size statistics. The results of this analysis estimated the overall effect size for the dependent variable and the relationships between the effect size and the study characteristics. Also computed was the variation between the effect sizes and the studies. The relationships between potential moderator variables and outcome effect sizes were explored. HLM6 for Windows and PASW (i.e., IBM SPSS 17.0) were used to analyze the collected data.

Standardized Effect Sizes

In the first step of this analysis, the standardized effect sizes for individual studies were computed. Effect sizes were calculated using the following formula: \( ES = (\Delta_e - \Delta_c) / S_p \). In the formula, \( ES \) is the effect size, \( \Delta_e \) is the mean score differences between pretest and posttest scores of the experimental group, \( \Delta_c \) is the mean score differences between pretest and posttest
scores of the control group, and $S_p$ is the pooled standard deviations of the samples. The pooled standard deviation was calculated using Lipsey and Wilson’s (2001) formula as follows:

$$S_p = \sqrt{\frac{[(n_e - 1)S_e^2 + (n_c - 1) S_c^2]}{(n_e + n_c - 2)}}$$

This formula for pooled standard deviation required utilizing the mean score changes from pretest to posttest scores of two groups, instead of employing the traditional effect size formula (Cohen, 1988), which requires using the mean scores of two groups at posttest and automatically assumes the homogeneity of the pretest scores between the two groups. Therefore, formula used in this meta-analysis was more stringent.

In order for studies with small sample sizes to obtain statistically significant results, extraordinarily large effect sizes are often necessary. The inclusion of large effect sizes without correction or adjustment is likely to cause overestimation of overall effect size. Because many of the collected studies were based on small sample sizes, which might have produced biased effect sizes (Hedges, 1981), I utilized the correction formula advocated by Hedges and Olkin (1985) to adjust effect size and ensure unbiased estimation. The correction formula was the following:

$$ES_{\text{unbiased}} = ES \times \{1 - \frac{3}{(4N - 9)}\}, \text{ where } N = N_{\text{treatment}} + N_{\text{control}}.$$ 

In addition, each unbiased effect size was weighted by the inverse of its variance and divided by the square root of the reliability coefficient in order to take into account the variance and reliability of the outcome measures (Lipsey & Wilson, 2001).

Some authors failed to report necessary statistics for effect size calculation or reported only sample sizes, means, and probabilities for the statistical significance tests. For these studies, other summary statistics and formulas, as illustrated by Lipsey and Wilson (2001), were used to compute or estimate effect sizes.
Overall Mean Effect Size

HLM techniques were used to generate an overall effect size, which estimated the overall population effect size with the associated statistical significance test. The homogeneity assumption was tested to explore whether or not the effect sizes nested onto the collected studies contained sufficient variance, which indicated study differences. Because the homogeneity assumption was violated, independent variables (i.e., study characteristics) were added to the HLM models to better explain the differences among the collected studies.

Outliers usually have a negative impact on research studies. Similarly, extreme effect size values, which are discrepant from the majority of the effect sizes, can decrease the representativeness of mean effect sizes, distort results, and mislead explanations of results. Lipsey and Wilson (2001) suggested that meta-analysts either eliminate the extreme effect size values which are considered to be unrepresentative or recode extreme values into more moderate ones. Lipsey and Wilson further explained the recoding process:

The analyst may look for a break in the effect size distribution and code outliers back to the next largest cluster of effect sizes. The discrepant values thus are included in the analysis, and are included as relatively large values, but they are kept from being so extreme. (p. 108)

During the process of testing the publication bias of the collected studies, I examined the effect size distributions on the funnel plots to determine the presence of the extreme effect sizes. Linear regression was used to further examine the symmetry of effect size distributions. This process is thoroughly described in the next chapter.
Hierarchical Linear Modeling

In order to avoid the violation of the independent data assumption, the unit of study in traditional meta-analysis is usually the individual research study, or more particularly, the average treatment effect size between experimental and control groups, instead of the multiple effect sizes reported in each study (Lispey & Wilson, 2001). However, the use of multilevel variable organization and multilevel modeling techniques in HLM enables meta-analysts to take into account the dependence between multiple effect sizes in each study while analyzing differences between studies.

HLM divides variables into multiple levels and nests lower level variables within higher level ones (Raudenbush & Bryk, 2002). The HLM techniques in the present study were used to model research results, namely, effect sizes, from each study as Level 1, and differences between studies as Level 2. More precisely, Level 1 was the within-study model, or the collected effect sizes of a study which allowed for investigating the characteristics of the effect sizes; Level 2 was a between-study model which allowed for exploring the differences between different studies.

The first step of the analysis in HLM was to build a means-as-outcomes model, also known as unconditional model, combine the effect sizes in the collected studies, and produce an overall average effect size. After the overall effect size was obtained, this model was further explored to determine the amount of variation between studies. This variation represented the differences between studies after the dependency of the multiple effect sizes within the studies were considered. The next step was to build a mixed model to investigate the differences between study outcomes. I added the defined study characteristics and effect size characteristics as independent variables to this model and examined the relationships between studies’ outcomes,
as the dependent variables, and the studies’ independent variables. The last step in this analysis was building a final model which included all significant variables after the examination of the relationships between studies’ outcomes and characteristics (Leblanc, 1998; Leblanc & Ritchie, 2001).

Strategies for Assessing Publication Bias

Publication bias is one of the major criticisms in meta-analysis studies. As noted previously, an extremely high number of peer-reviewed published research studies in the social science field have reported statistically significant results, and the studies with statistically nonsignificant results tend to be ignored or to remain unpublished (Rubin, 1992). When non-peer-reviewed research studies and unpublished materials become difficult to obtain and include in a meta-analysis, it becomes likely that analysts will overestimate overall effect size because studies with statistically significant results tend to contain larger effect sizes than studies with statistically nonsignificant results.

As mentioned beforehand, several strategies including failsafe N, the funnel plot, statistical testing methods, linear regression, cumulative meta-analysis, and the trim-and-fill procedure can be used to assess or correct publication bias (Rothstein, 2007). I utilized the funnel plot graphical technique and linear regression method to assess possible publication bias in this meta-analysis.
CHAPTER 4

RESULTS

This chapter presents the results of the data analyses as follows: (a) study collection, (b) description of coder training, (c) description of variables, and (d) results of statistical analyses.

Study Collection

Publication bias has been a criticism of meta-analytic studies. When meta-analysts encounter difficulties obtaining non-peer-reviewed research studies and unpublished materials, overestimation of the overall effect size is likely to occur (Rubin, 1992). Therefore, possible publication bias should be assessed prior to adding the collected effect sizes into the analysis. The funnel plot technique and linear regression method were used to assess the possible publication bias (Egger, Davey Smith, Schneider, & Minder, 1997; Rothstein, 2007; Sterne & Harbord, 2004).

Sterne and Harbord (2004) suggested using the standard error or inverse standard error instead of the sample size for the vertical axis in the funnel plot because the index of sample size may influence a researcher’s determination of asymmetry. Figure 1 illustrates the funnel plot of the 240 effect sizes calculated from the 53 studies in the final study pool using effect size magnitude as the horizontal axis and inverse standard error as the vertical axis. The shape of this funnel plot revealed possible outliers due to effect sizes located at the bottom-right corner on the graph. The linear regression method, which involves the inverse standard error to predict the effect size, was further applied to determine asymmetry (Egger et al., 1997). The intercept of this regression was observed to be statistically significantly different from zero (t-ratio = 2.353 and p = 0.019) and suggested the asymmetry resulted from the possible outliers.
As mentioned in the previous chapter, meta-analysts have been generally advised either to eliminate the effect sizes of outliers or to recode these effect sizes into more moderate ones (Lipsey & Wilson, 2001). The large effect size of 3.0 was obtained from a study with very low sample size and appeared significantly incompatible with the effect sizes from other studies. After close and thorough scrutiny of this specific study, I found only one effect size was reported and the article to be missing a large amount of information regarding study and effect size characteristics. More precisely, this study’s authors did not provide the necessary information for exploring the relationships between study differences and treatment effects, the primary objective of this meta-analysis. Thus, the inclusion of this study with the 3.0 effect size might
not have provided meaningful results and might have led to an overestimation of overall effect size. Therefore, I determined that this large 3.0 effect size should not be recoded into a smaller value and that the study should not be included in this meta-analysis.

On this basis, I omitted this study from analysis in order to avoid the overestimation for the overall effect size. Figure 2 shows the graph of the funnel plot after deleting this effect size. The shape of the funnel plot in Figure 2 appeared more symmetric than the previous graph in Figure 1. The linear regression method was applied and revealed no statistically significant difference between the intercept and zero ($t$-ratio = 1.703, $p = 0.090$), verifying the symmetry of the graph. Therefore, 52 studies and the 239 effect sizes from these 52 studies were included in the final study collection for this meta-analysis.

![Funnel plot for 239 effect sizes found in the final 52 studies of the meta-analysis.](image)

*Figure 2. Funnel plot for 239 effect sizes found in the final 52 studies of the meta-analysis.*
Description of Variables

The dependent variable in this meta-analysis was represented through the 239 effect sizes reported in the collected studies. The independent variables were the studies’ characteristics, which represented the between-study differences and the between-study variances in the statistical analyses. Fifty-five variables were originally designed to collect the most thorough information from each study. After the completion of the coding process, some variables were found to be too highly correlated to each other and were combined or eliminated. In addition, variables that were infrequently found in studies resulting in a very limited number of codings were eliminated to avoid biasing the meta-analysis results. After a careful and thorough review, 21 independent variables were included in the hierarchical linear modeling (HLM) analyses.

Level 1 Variables

The HLM technique in the present study modeled research results, namely the effect sizes, in the Level 1 (within-study level). The independent variables included in this level varied between effect sizes and represented the characteristics of effect sizes. The Level 1 independent variables included sample size, presenting issue, control group type, and source of data.

Sample size. This variable was the total number of participants for each outcome measure. Because the numbers of participants for outcome measures varied within individual studies, the effect sizes calculated from the same individual study may be based on different numbers of participants. In other words, this variable does not represent the overall sample size of each individual study. The lowest number sample size was four and the largest sample size was 168. The mean of all sample sizes was 33.74 participants with the standard deviation of 20.07.
**Presenting issue.** Empirical studies in the field of child psychotherapy usually report multiple effect sizes. The multiple effect sizes reported in an individual study could be due to measurements of different concepts, such as behavior, anxiety, and self-esteem. To obtain a more accurate understanding of the effect of CCPT methodology on specific presenting issues, it was necessary to categorize effect sizes across different studies. The variable of presenting issue was categorized into seven categories including total behavior problem, internalizing behavior problem, externalizing behavior problem, caregiver/child relationship stress, self-efficacy, academic performance, and other behavior problem. Table 1 illustrates the numbers of effect sizes for each of the seven categories and the categories’ percentages out of the total number of effect sizes for the meta-analysis.

Table 1

<table>
<thead>
<tr>
<th>Presenting Issue</th>
<th>No. of Effect Sizes</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Behavior Problem</td>
<td>56</td>
<td>23.4</td>
</tr>
<tr>
<td>Internalizing Behavior Problem</td>
<td>52</td>
<td>21.8</td>
</tr>
<tr>
<td>Externalizing Behavior Problem</td>
<td>53</td>
<td>22.2</td>
</tr>
<tr>
<td>Caregiver/Child Relationship Stress</td>
<td>29</td>
<td>12.1</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>14</td>
<td>5.9</td>
</tr>
<tr>
<td>Academic Performance</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>Other Behavior Problem</td>
<td>23</td>
<td>9.6</td>
</tr>
<tr>
<td>Total</td>
<td>239</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Control group type.** Control group type was coded into three categories, including no-treatment/wait-list control group, active control group, and comparison treatment group. The effect sizes of each group represented the differences between experimental group and various types of control group across time. The no-treatment/wait-list control group was the most
prevalent type of control group in which participants received no treatment or intervention and remained on the wait list until the end of the experiment period. In an active control group, participants receive equal amount of time and attention as participants in an experimental group but do not receive a therapeutic comparison treatment. Providing reading mentoring for children in a control group is an example of active control group. In a comparison treatment group, participants receive an alternative therapeutic intervention. The purpose of the comparison treatment group design is to explore the differential effectiveness between two therapeutic interventions. Table 2 illustrates the number of effect sizes in each type of control group and the control group types’ percentages out of the total number of effect sizes for the meta-analysis.

Table 2  
*Number of Effect Sizes for Control Group Type*

<table>
<thead>
<tr>
<th>Control Group Type</th>
<th>No. of Effect Sizes</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No-treatment/Wait-list Control Group</td>
<td>183</td>
<td>76.6</td>
</tr>
<tr>
<td>Active Control Group</td>
<td>22</td>
<td>9.2</td>
</tr>
<tr>
<td>Comparison Treatment Group</td>
<td>34</td>
<td>14.2</td>
</tr>
<tr>
<td>Total</td>
<td>239</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Source of data.* The same presenting issues might be assessed by different sources of raters. The categories of source of data in the collected studies included parent report, teacher report, child self report, and blinded independent rater (non-teacher) report. Table 3 shows the number of effect sizes each category contained and the source of data categories’ percentages out of the total number of effect sizes for the meta-analysis.
Table 3

*Number of Effect Sizes for Source of Data*

<table>
<thead>
<tr>
<th>Source of Data</th>
<th>No. of Effect Sizes</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent Report</td>
<td>120</td>
<td>50.2</td>
</tr>
<tr>
<td>Teacher Report</td>
<td>65</td>
<td>27.2</td>
</tr>
<tr>
<td>Child Self Report</td>
<td>45</td>
<td>18.8</td>
</tr>
<tr>
<td>Blinded Independent Rater</td>
<td>9</td>
<td>3.8</td>
</tr>
<tr>
<td>Blinded Independent Rater</td>
<td>(Non-Teacher) Report</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>239</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Level 2 Variables

The effect sizes in the previous level were nested within the Level 2 (between-study) model. The variables included in this level varied between studies. These variables also indicated the study characteristics of the 52 collected studies.

*Therapist training.* Research assistants initially coded the collected studies by writing down the numbers of participating therapists for each study by their education level, including masters students, doctoral students, earned master’s degree, earned doctoral degree, and other. All of the 52 studies were then divided into two categories due to the majority studies using doctoral students as therapists. Thirty-four studies were found to use doctoral students with advanced training as the therapists. The remaining 18 studies were coded into the category of other level of therapist training.

*Data origin.* The 52 studies were coded into three categories, including studies using purely original data, companion studies, in which researchers use some of the same subjects but may or may not share data, and studies using control or comparison group data from previous studies. Table 4 shows the number of studies each category contained and the percentages out of the total number of studies for the meta-analysis.
Table 4

*Numbers of Studies on Data Origin*

<table>
<thead>
<tr>
<th>Data Origin</th>
<th>No. of Studies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original Data</td>
<td>46</td>
<td>88.4</td>
</tr>
<tr>
<td>Companion Study</td>
<td>3</td>
<td>5.8</td>
</tr>
<tr>
<td>Data from Previous Study</td>
<td>3</td>
<td>5.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>52</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

*Statistical analysis method.* The 52 studies were coded into three categories of statistical analysis method, including analysis of variance (ANOVA) or multivariate analysis of variance (MANOVA), analysis of covariance (ANCOVA) or multivariate analysis of covariance (MANCOVA), and other analysis methods. Table 5 displays the number of studies on each category of statistical analysis method and the statistical method categories’ percentages out of the total number of studies for the meta-analysis.

Table 5

*Numbers of Studies on Statistical Analysis Method*

<table>
<thead>
<tr>
<th>Statistical Analysis Method</th>
<th>No. of Studies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANOVA / MANOVA</td>
<td>20</td>
<td>38.5</td>
</tr>
<tr>
<td>ANCOVA / MANCOVA</td>
<td>27</td>
<td>51.9</td>
</tr>
<tr>
<td>Other Analysis Methods</td>
<td>5</td>
<td>9.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>52</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
Clinical finding. This variable indicated whether or not clinical findings were reported in the collected studies. Clinical findings were defined as the information regarding numbers or proportions of participants who were moved from clinical or borderline range based on assessment scores at prettests to normal range according to posttest scores. Twenty-one of the collected studies included reports of the clinical findings and were coded into the category of clinical finding reported. The other 31 studies did not include reports of clinical findings were coded into the category of clinical findings not reported.

Caregiver involvement. This variable was coded into three categories, full parent involvement in child’s therapy, full teacher involvement in child’s therapy, and partial or no caregiver involvement in child’s therapy. The category of full parent involvement included studies in which parents were fully involved in the treatment process by receiving training and supervision as therapeutic agents for their children. The category of full teacher involvement included studies in which teachers were fully involved in the treatment process by receiving training and supervision as therapeutic agents for the children. The category of partial or no caregiver involvement included studies involving caregivers in parent or teacher consultation, studies specifically excluding parents and teachers in the treatment process, and studies with no description of caregiver involvement. Table 6 demonstrates the number of studies in each category of caregiver involvement and the caregiver involvement categories’ percentages out of the total number of studies for the meta-analysis.
Table 6

Numbers of Studies on Caregiver Involvement

<table>
<thead>
<tr>
<th>Caregiver Involvement</th>
<th>No. of Studies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Parent Involvement</td>
<td>24</td>
<td>46.2</td>
</tr>
<tr>
<td>Full Teacher Involvement</td>
<td>4</td>
<td>7.6</td>
</tr>
<tr>
<td>Partial or No Caregiver Involvement</td>
<td>24</td>
<td>46.2</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Treatment frequency. Treatment frequency in this meta-analysis was defined as the number of treatment sessions per week during the treatment period. The 52 studies were categorized into three types of treatment frequency, once a week, twice a week, and more than two times a week. Table 7 presents the numbers of studies on treatment frequency and the treatment frequency categories’ percentages out of the total number of studies for the meta-analysis.

Table 7

Numbers of Studies on Treatment Frequency

<table>
<thead>
<tr>
<th>Treatment Frequency</th>
<th>No. of Studies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once a Week</td>
<td>36</td>
<td>69.2</td>
</tr>
<tr>
<td>Twice a Week</td>
<td>9</td>
<td>17.3</td>
</tr>
<tr>
<td>More than Twice a Week</td>
<td>7</td>
<td>13.5</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Treatment duration. The treatment duration was measured according to the number of total treatment sessions. This variable was treated as a continuous variable and added into the
Level 2 HLM analysis. The mean number of treatment sessions was 11.87 and the standard deviation was 4.20. Figure 3 illustrates the scatter plot of effect sizes by the number of treatment sessions.

![Scatter plot of effect sizes by session numbers.](image)

*Figure 3. Scatter plot of effect sizes by session numbers.*

*Treatment format.* This variable was originally coded into five categories, including individual play therapy, individual activity therapy, group play therapy, group activity therapy, and CPRT/filial therapy. However, very few studies fit the categories of individual activity therapy and group activity therapy, so I combined individual play therapy with individual activity therapy. I also combined group play therapy with group activity therapy. Table 8 illustrates the numbers of studies in each of the three categories for treatment format and the percentages out of the total number of studies for the meta-analysis.
<table>
<thead>
<tr>
<th>Treatment Format</th>
<th>No. of Studies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual Play/Activity Therapy</td>
<td>16</td>
<td>30.7</td>
</tr>
<tr>
<td>Group Play/Activity Therapy</td>
<td>8</td>
<td>15.4</td>
</tr>
<tr>
<td>CPRT/Filial Therapy</td>
<td>28</td>
<td>53.9</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Setting*. The variable of setting was initially categorized into eight groups including school, hospital, crisis setting/shelter, prison, church, institution, other settings, and not-stated. Due to the limited numbers of studies in many groups, these groups were re-categorized into school setting, non-school setting, and not-stated. Table 9 illustrates the numbers of studies in the three categories for setting and the setting categories’ percentages out of the total number of studies for the meta-analysis.

<table>
<thead>
<tr>
<th>Setting</th>
<th>No. of Studies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>School</td>
<td>28</td>
<td>53.9</td>
</tr>
<tr>
<td>Non-School</td>
<td>19</td>
<td>36.5</td>
</tr>
<tr>
<td>Not-Stated</td>
<td>5</td>
<td>9.6</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Child gender*. Based on reviews of literature, this variable was coded into three groups including less than 50% male, greater than or equal to 50% male, and not-stated. Table 10
presents the numbers of studies for the child gender groups and the child gender group categories’ percentages out of the total number of studies for the meta-analysis.

Table 10

*Numbers of Studies on Child Gender*

<table>
<thead>
<tr>
<th>Child Gender</th>
<th>No. of Studies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 50% Male</td>
<td>11</td>
<td>21.1</td>
</tr>
<tr>
<td>≥ 50% Male</td>
<td>33</td>
<td>63.5</td>
</tr>
<tr>
<td>Not-Stated</td>
<td>8</td>
<td>15.4</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Publication status.* The collected studies included 36 peer-reviewed journal articles, 13 published doctoral dissertations and masters theses, two unpublished doctoral dissertations and masters theses, and one unpublished research study. All of the 52 collected studies were coded into two categories, published journal article study and non-peer-reviewed study. Published journal article study included 36 studies published in a variety of peer-reviewed journals. The remaining 16 studies were categorized into non-peer-reviewed study and included dissertations, theses, studies in book chapters, and unpublished studies.

*Child age.* The research assistants initially coded this variable by recording the mean age of child participants for each study. When the mean age was not reported in the study, the average age was estimated and calculated from children’s education levels. The mean age of all participants in the collected studies was 6.7 years old with a standard deviation of 1.82 years.

*Child ethnicity.* The 52 studies were originally coded into seven categories including more than 60% Caucasian, more than 60% African American, more than 60% Hispanic/Latino, more than 60% Asian/Asian American, more than 60% other ethnic groups, mixed groups, and
not-stated. Mixed groups included studies in which none of the ethnic groups reached 60% of the total participants. Due to the limited number of studies for ethnic groups other than Caucasian, the 52 studies were re-categorized into the following four categories: (1) more than 60% Caucasian, (2) more than 60% non-Caucasian, (3) mixed groups, and (4) not-stated. Table 11 displays the numbers of studies in these four categories and the child ethnicity categories’ percentages out of the total number of studies for the meta-analysis.

Table 11

*Numbers of Studies on Child Ethnicity*

<table>
<thead>
<tr>
<th>Child Ethnicity</th>
<th>No. of Studies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 60% of Caucasian</td>
<td>15</td>
<td>28.8</td>
</tr>
<tr>
<td>More than 60% of non-Caucasian</td>
<td>15</td>
<td>28.8</td>
</tr>
<tr>
<td>Mixed Groups</td>
<td>16</td>
<td>30.8</td>
</tr>
<tr>
<td>Not-Stated</td>
<td>6</td>
<td>11.6</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Clinical level of referral.* The 52 studies were coded into four categories, clinical criteria from formal standardized assessment, clinical criteria defined by researchers, parent/teacher referral, and not-stated. The category of clinical criteria from formal standardized assessment included studies in which children participants scored in the clinical/borderline/elevated range based on the pretest scores from formal standardized assessment. The category of clinical criteria defined by researchers contained studies in which clinical criteria were established by the researchers. Studies in which child participants were referred by their parents or teachers without description of specific clinical criteria were coded in the group labeled parent/teacher referral. Studies lacking any report of clinical criteria were coded in the group labeled not-stated.
Table 12 demonstrates the numbers of studies in these four categories and the child gender group categories’ percentages out of the total number of studies for the meta-analysis.

Table 12

*Numbers of Studies on Clinical Level of Referral*

<table>
<thead>
<tr>
<th>Clinical Level of Referral</th>
<th>No. of Studies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Criteria from Formal Standardized Assessment</td>
<td>10</td>
<td>19.2</td>
</tr>
<tr>
<td>Clinical Criteria Defined by Researchers</td>
<td>14</td>
<td>26.9</td>
</tr>
<tr>
<td>Parent/Teacher Referral</td>
<td>20</td>
<td>38.5</td>
</tr>
<tr>
<td>Not-Stated</td>
<td>8</td>
<td>15.4</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Population.* This variable contained four categories, including children referred due to traumatic experiences, children identified at-risk, children with medical challenges, and other population. The category of children referred due to traumatic experiences included studies in which child participants were identified with experiencing traumatic incidents such as domestic violence, life-threatening disaster, parents in prison, and sexual abuse. The category of children identified at-risk was defined as children who were referred due to emotional, behavioral, and/or academic concerns which may prevent their normal development in one or more areas. The category of children with medical challenges included studies in which child participants suffered from medical illnesses, disorders, or disabilities. Table 13 illustrates the number of studies in each population category and the population categories’ percentages out of the total number of effect sizes for the meta-analysis.
Table 13

Numbers of Studies by Population

<table>
<thead>
<tr>
<th>Population</th>
<th>No. of Studies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children Referred due to Traumatic Experience</td>
<td>10</td>
<td>19.2</td>
</tr>
<tr>
<td>Children Identified “At-Risk”</td>
<td>25</td>
<td>48.1</td>
</tr>
<tr>
<td>Children with Medical Challenges</td>
<td>6</td>
<td>11.5</td>
</tr>
<tr>
<td>Other Population</td>
<td>11</td>
<td>21.2</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Treatment integrity*. Treatment integrity was one of the two variables used to assess study quality. Three criteria were established in order to determine the treatment integrity, including the use of a treatment manual, the description of CCPT treatment procedure, and the description of therapists’ training in CCPT methodology. All of the 52 studies were coded into four categories including meeting all of the criteria, meeting two of the criteria, meeting only one of the criteria, and no description of the established criteria. Table 14 illustrates the number of studies in each treatment integrity group and the treatment integrity categories’ percentages out of the total number of effect sizes for the meta-analysis.

Table 14

Numbers of Studies on Treatment Integrity

<table>
<thead>
<tr>
<th>Treatment Integrity</th>
<th>No. of Studies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting All of the Criteria</td>
<td>15</td>
<td>28.8</td>
</tr>
<tr>
<td>Meeting Two of the Criteria</td>
<td>19</td>
<td>36.6</td>
</tr>
<tr>
<td>Meeting Only One of the Criteria</td>
<td>13</td>
<td>25.0</td>
</tr>
<tr>
<td>No Description</td>
<td>5</td>
<td>9.6</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Randomization. Randomization was the second characteristic used to assess study quality. All of the collected studies were coded into two categories including random assignment and no random assignment/no description. The category of random assignment included 33 studies in which researchers utilized a random table of numbers, stratified random drawing strategy, and other randomization strategies. In a few studies, researchers randomly assigned the majority of participants but arbitrarily assigned a small number of participants into treatment conditions due to situations beyond researcher control (e.g. schedule conflicts). Nineteen studies did not use random assignment or failed to report random assignment strategies used thus were coded into the category of no random assignment/no description.

Results of Statistical Analyses

HLM techniques were utilized to answer the main research questions: (a) What is the overall effect size for the collected studies using CCPT procedures? (b) If effect sizes differ between the collected studies, can the differences be explained by study characteristics?

The HLM analysis in this present study included the following four steps: (1) establishing an unconditional model to estimate the overall effect size for the collected studies and explore the variance in within-study and between-study levels; (2) adding each independent variable into the unconditional model separately in order to identify statistically significant predictors to effect sizes; (3) adding all the statistically significant independent variables together into unconditional model; (4) building a final model by keeping the independent variables, which were statistically significant in the third step, and eliminating the nonsignificant independent variables.

The Overall Effect Size

The overall effect size of the collected 52 studies was obtained from the unconditional analysis in HLM. The 239 effect sizes were added into the Level 1 (within-study) model as the
outcome variable: \( d_{ij} = B_{0j} + e_{ij} \), where \( d_{ij} \) was the effect size of the \( j \) study. The parameter \( B_{0j} \) was the mean effect size estimated by \( d_{ij} \). The symbol \( e_{ij} \) was the Level 1 error value and was assumed to follow a normal distribution with a mean of zero and a constant variance of \( \sigma^2 \). \( \sigma^2 \) was the corresponding parameter of \( e_{ij} \). Level 2 represented the between-study model: \( B_{0j} = \gamma_{00} + \mu_{0j} \), where \( \gamma_{00} \) was the grand mean effect size across studies. The symbol \( \mu_{0j} \) was the Level 2 error value and followed a normal distribution with a mean of zero and a variance of \( \tau \), which was a parameter of \( \mu_{0j} \). The combination of these two models yielded the mixed model: \( d_{ij} = \gamma_{00} + \mu_{0j} + e_{ij} \). In this model, \( d_{ij} \) was assumed to be normally distributed with a mean of \( \gamma_{00} \) and a variance of \( \sigma^2 + \tau \). Table 15 shows the estimation of the grand mean effect size.

Table 15

<table>
<thead>
<tr>
<th>Fixed Effect</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>t-ratio</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \gamma_{00} )</td>
<td>0.47</td>
<td>0.06</td>
<td>7.660</td>
<td>&lt; 0.001*</td>
</tr>
</tbody>
</table>

Note. \( \gamma_{00} \) is the grand mean effect size; * indicates the statistical significance.

The results from this unconditional analysis indicated an estimated overall effect size of 0.47. This estimated overall effect size was statistically significantly different, \( t \)-ratio = 7.660, \( p \) < 0.001. The overall improvement from pretreatment to posttreatment demonstrated by children in experimental groups was approximately half of a standard deviation better than the improvement demonstrated by children in control groups.

The Within-study and Between-study Differences

The results from this unconditional analysis provided within-study and between-study variances. Table 16 displays the estimation of variance components in each level. The results
demonstrated that the between-study variance was statistically significantly different from zero ($\chi^2 = 260.134, p < 0.001$). The total variance in this mixed model was calculated from adding together the Level 1 and Level 2 variances: $0.152 + 0.157 = 0.309$. Accordingly, 49.2% (i.e., $0.152 / 0.309 = 0.492$) of total variance was attributed to the between-study (Level 2) variance, and the remaining 50.8% ($0.157 / 0.309 = 0.508$) of total variance was attributed to the within-study (Level 1) variance.

Table 16

*Estimation of Variance Components*

<table>
<thead>
<tr>
<th>Random Effect</th>
<th>Standard Deviation</th>
<th>Variance Component</th>
<th>df</th>
<th>$\chi^2$</th>
<th>$p$-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\mu_0$ (Level 2)</td>
<td>0.390</td>
<td>0.152</td>
<td>51</td>
<td>260.134</td>
<td>&lt; 0.001*</td>
</tr>
<tr>
<td>$e$ (Level 1)</td>
<td>0.396</td>
<td>0.157</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Chi-square ($\chi^2$) tested the statistical significance of between-study variance; *indicates statistical significance.

Relationships between Independent Variables and Effect Sizes

Due to the high amount of variance attributed to between-study differences, further analyses were performed to explore the relationships between study characteristics and effect sizes. The 21 identified independent variables representing study characteristics were added into either Level 1 or Level 2 models in HLM separately. Many of the independent variables were categorical variables. Thus, the dummy coding technique was utilized to add these variables into the HLM analyses. In the dummy coding system for each categorical variable, a reference group was selected for the comparison between categories. Generally, the category containing the largest variance was selected as the reference group.
The following dependent variables were not statistically significant predictors and did not contribute to the explanation of the Level 1 or Level 2 variance: sample size, control group type, therapist training, statistical analysis method, randomization, clinical finding, data origin, treatment duration, treatment frequency, treatment format, setting, and child gender. Table 17 illustrates the results for these variables.

For the variable of control group type, although the comparison group category was found statistically significantly different from no treatment control group and from active control group, the Level 1 variance increased after adding them into the analysis model. In other words, the different types of control group did not explain the differences between the collected effect sizes and were excluded from the further analysis. Similarly, for the variable of data origin, a statistically significant difference was found between the category of companion study and the category of original study, but adding these categories into the analysis model resulted in an increase of Level 2 variance. Hence, the variable of data origin was excluded from the overall mixed model.
<table>
<thead>
<tr>
<th>Fixed Effect</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>t-ratio</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Size</td>
<td>&lt; 0.001</td>
<td>0.002</td>
<td>0.110</td>
<td>0.913</td>
</tr>
<tr>
<td>Control Group Type</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comparison (ref.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Treatment Control</td>
<td>0.353</td>
<td>0.127</td>
<td>2.786</td>
<td>0.006*</td>
</tr>
<tr>
<td>Active Control</td>
<td>0.410</td>
<td>0.138</td>
<td>2.963</td>
<td>0.004*</td>
</tr>
<tr>
<td>Child Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50% and More than 50% Male (ref.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 50% Male</td>
<td>0.066</td>
<td>0.127</td>
<td>0.520</td>
<td>0.605</td>
</tr>
<tr>
<td>Not-stated</td>
<td>-0.203</td>
<td>0.163</td>
<td>-1.247</td>
<td>0.218</td>
</tr>
<tr>
<td>Therapist Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctoral Students (ref.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other than Doctoral Students</td>
<td>-0.201</td>
<td>0.145</td>
<td>-1.382</td>
<td>0.173</td>
</tr>
<tr>
<td>Not-stated</td>
<td>-0.248</td>
<td>0.220</td>
<td>-1.129</td>
<td>0.265</td>
</tr>
<tr>
<td>Randomization</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Random Assignment (ref.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Random Assignment / No Description</td>
<td>-0.103</td>
<td>0.111</td>
<td>-0.930</td>
<td>0.357</td>
</tr>
<tr>
<td>Data Origin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Companion Studies (ref.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Original Studies</td>
<td>-0.231</td>
<td>0.075</td>
<td>-3.089</td>
<td>0.004*</td>
</tr>
<tr>
<td>Data from Previous Studies</td>
<td>-0.307</td>
<td>0.144</td>
<td>-2.137</td>
<td>0.037</td>
</tr>
<tr>
<td>Statistical Analysis Method</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANCOVA/MANCOVA (ref.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANOVA/MANOVA</td>
<td>-0.138</td>
<td>0.124</td>
<td>-1.115</td>
<td>0.271</td>
</tr>
<tr>
<td>Other Analysis</td>
<td>0.115</td>
<td>0.306</td>
<td>0.375</td>
<td>0.709</td>
</tr>
<tr>
<td>Clinical Finding</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reported (ref.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Reported</td>
<td>0.026</td>
<td>0.130</td>
<td>0.208</td>
<td>0.836</td>
</tr>
<tr>
<td>Treatment Frequency</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Once a Week (ref.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Twice a Week</td>
<td>-0.170</td>
<td>0.132</td>
<td>-1.295</td>
<td>0.202</td>
</tr>
<tr>
<td>More than Twice a Week</td>
<td>0.152</td>
<td>0.220</td>
<td>0.693</td>
<td>0.492</td>
</tr>
<tr>
<td>Treatment Duration (Sessions)</td>
<td>-0.006</td>
<td>0.009</td>
<td>-0.597</td>
<td>0.553</td>
</tr>
<tr>
<td>Treatment Format</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPRT/Filial (ref.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual Play Therapy</td>
<td>-0.257</td>
<td>0.140</td>
<td>-1.844</td>
<td>0.071</td>
</tr>
<tr>
<td>Group Play Therapy</td>
<td>-0.265</td>
<td>0.148</td>
<td>-1.797</td>
<td>0.078</td>
</tr>
<tr>
<td>Setting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-school (ref.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School</td>
<td>-0.096</td>
<td>0.130</td>
<td>-0.740</td>
<td>0.463</td>
</tr>
<tr>
<td>Not-stated</td>
<td>-0.227</td>
<td>0.140</td>
<td>-1.613</td>
<td>0.113</td>
</tr>
</tbody>
</table>

* Note. * indicates statistical significance. The abbreviation “ref.” represents reference group in dummy coding system.
Presenting issue. The variable of presenting issue was coded into seven groups including total behavior problem, internalizing behavior problem, externalizing behavior problem, parental/teaching stress, self-efficacy, academic performance, and other behavior problem. Six dummy variables were created for the variable of presenting issue while using externalizing behavior problem as the reference group. According to the analysis results, statistically significant differences were found between externalizing behavior problem and total behavior problem, \( t\)-ratio = 2.021, \( p = 0.044 \); between externalizing behavior problem and caregiver/child relationship stress, \( t\)-ratio = 2.207, \( p = 0.028 \); and between externalizing behavior problem and self-efficacy, \( t\)-ratio = 2.156, \( p = 0.032 \). However, adding the dummy variables into the model only explained 1.7% of the Level 1 variance, such that a very limited amount of Level 1 variance was attributed to the variable of presenting issue. Table 18 displays the estimated average effect sizes of the seven groups.

Table 18

Effect Sizes by Presenting Issue

<table>
<thead>
<tr>
<th>Presenting Issue</th>
<th>Average Effect Size</th>
<th>No. of Effect Sizes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Behavior Problem</td>
<td>0.53</td>
<td>56</td>
</tr>
<tr>
<td>Internalizing Behavior Problem</td>
<td>0.37</td>
<td>52</td>
</tr>
<tr>
<td>Externalizing Behavior Problem</td>
<td>0.34</td>
<td>53</td>
</tr>
<tr>
<td>Caregiver/Child Relationship Stress</td>
<td>0.60</td>
<td>29</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>0.59</td>
<td>14</td>
</tr>
<tr>
<td>Academic Performance</td>
<td>0.25</td>
<td>12</td>
</tr>
<tr>
<td>Other Behavior Problem</td>
<td>0.48</td>
<td>23</td>
</tr>
</tbody>
</table>
Source of data. The three data sources, parent report, teacher report, and child self report were coded into dummy variables, and blinded independent rater (non-teacher) report was selected as the reference group. The results exhibited statistically significant differences between blinded independent rater (non-teacher) report and parent report, \( t\)-ratio = 5.370, \( p < 0.001 \); between blinded independent rater (non-teacher) report and teacher report, \( t\)-ratio = 2.790, \( p = 0.006 \); and between blinded independent rater (non-teacher) report and child self report, \( t\)-ratio = 5.025, \( p < 0.001 \). The proportion of Level 1 variance attributed to source of data was only 1.6%, which means the variable of source of data only explained a very limited amount of Level 1 variance. The estimated average effect sizes for source of data are presented in Table 19.

Table 19
Effect Sizes by Source of Data

<table>
<thead>
<tr>
<th>Source of Data</th>
<th>Average Effect Size</th>
<th>No. of Effect Sizes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent Report</td>
<td>0.54</td>
<td>120</td>
</tr>
<tr>
<td>Teacher Report</td>
<td>0.36</td>
<td>65</td>
</tr>
<tr>
<td>Child Self Report</td>
<td>0.35</td>
<td>45</td>
</tr>
<tr>
<td>Blinded Independent Rater (Non-Teacher) Report</td>
<td>0.23</td>
<td>9</td>
</tr>
</tbody>
</table>

Publication status. This variable included the two categories of published journal article study and non-peer-reviewed study. The category of published journal article study was selected as reference group, and non-peer-reviewed study was dummy coded and added into the Level 2 model. A statistically significant difference was found between the categories of published journal article study and non-peer-review study, \( t\)-ratio = -3.152, \( p = 0.003 \). This variable was attributed as explaining 12.1% of Level 2 variance in this analysis model. In addition, the
estimated average effect sizes of 0.56 and 0.21 were found for published journal article study and non-peer-reviewed study, respectively.

**Child age.** In order to obtain the differential information for the variable of child age, I initially divided this variable into multiple age groups. After a series of analyses, I decided to combine age groups into the two levels of the age of 7 years and under and the age of 8 years and above. A statistically significant difference was found between the age group of 7 years and under and the age group of 8 years and above, \( t\)-ratio = -2.477, \( p = 0.017 \). The variable of child age explained 7.3% of between-study variance. The age group of 7 years and under contained 42 studies and yielded an estimated average effect size, 0.53. The 10 studies included in the age group of 8 years and above yielded an estimated average effect size of 0.21.

**Child ethnicity.** The group of more than 60% non-Caucasian was treated as the reference group in the statistical analysis. The groups of more than 60% Caucasian, mixed, and not-stated were coded into dummy variables. The results demonstrated a statistically significant difference between the group of more than 60% Caucasian and the group of more than 60% non-Caucasian, \( t\)-ratio = -2.721, \( p = 0.009 \). A statistically significant difference was found between the group of more than 60% of non-Caucasian and the group of not-stated, \( t\)-ratio = -3.591, \( p = 0.001 \). A proportion of 19.1% of the variance for the between-study difference was attributed to the child ethnicity groups. Table 20 displays the estimated average effect sizes for the four ethnicity groups.
Table 20

**Effect Sizes by Child Ethnicity**

<table>
<thead>
<tr>
<th>Child Ethnicity Groups</th>
<th>Average Effect Size</th>
<th>Number of Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 60% Caucasian</td>
<td>0.33</td>
<td>15</td>
</tr>
<tr>
<td>&gt; 60% Non-Caucasian</td>
<td>0.76</td>
<td>15</td>
</tr>
<tr>
<td>Mixed</td>
<td>0.42</td>
<td>16</td>
</tr>
<tr>
<td>Not-stated</td>
<td>0.20</td>
<td>6</td>
</tr>
</tbody>
</table>

**Caregiver involvement.** The categories of full parent involvement and full teacher involvement were coded into dummy variables, and the category of partial or no caregiver involvement was treated as reference group. The results showed a statistically significant difference between the groups of partial or no caregiver involvement and full parent involvement, \( t\)-ratio = 2.071, \( p = 0.043 \). A statistically significant difference was also observed between the groups of partial or no caregiver involvement and full teacher involvement, \( t\)-ratio = 2.052, \( p = 0.045 \). This variable contributed 4.4% of the between-study variance. Table 21 illustrates the estimated average effect sizes for these three groups.

Table 21

**Effect Sizes by Caregiver Involvement**

<table>
<thead>
<tr>
<th>Caregiver Involvement</th>
<th>Average Effect Size</th>
<th>Number of Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Parent Involvement</td>
<td>0.59</td>
<td>24</td>
</tr>
<tr>
<td>Full Teacher Involvement</td>
<td>0.53</td>
<td>4</td>
</tr>
<tr>
<td>Partial or No Caregiver Involvement</td>
<td>0.33</td>
<td>24</td>
</tr>
</tbody>
</table>
Population. Differing from presenting issue, the variable of population was added into the Level 2 model in order to explore the relationships between the target population in the collected studies and the average effect size. Among the four population categories, children referred due to traumatic experiences, children identified at-risk due to behavior, emotional, and/or academic concerns, and children with medical challenges were coded into dummy variables. The category of other population was selected as the reference group and was found to be statistically significantly different from the categories of children identified at-risk \((t\text{-ratio} = -2.508, p = 0.016)\) and children with medical challenges \((t\text{-ratio} = -2.661, p = 0.011)\). These four population groups explained 14.1% of the Level 2 (between-study) variance. The estimated average effect size of each group is illustrated in Table 22.

Table 22

<table>
<thead>
<tr>
<th>Population Groups</th>
<th>Average Effect Size</th>
<th>Number of Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children Referred due to Traumatic Experience</td>
<td>0.50</td>
<td>10</td>
</tr>
<tr>
<td>Children Identified “At-Risk”</td>
<td>0.37</td>
<td>25</td>
</tr>
<tr>
<td>Children with Medical Challenges</td>
<td>0.24</td>
<td>6</td>
</tr>
<tr>
<td>Other Population</td>
<td>0.80</td>
<td>11</td>
</tr>
</tbody>
</table>

Treatment integrity. Three criteria including the use of a treatment manual, the description of CCPT treatment procedure, and the description of therapists’ training in CCPT methodology were defined to assess the level of treatment integrity. The group of meeting only one criterion was selected as the reference group while dummy coding the other three groups included meeting all of the criteria, meeting two of the criteria, and no description of the
established criteria. The analysis results showed a statistically significant difference between the group of meeting only one criterion and the group of meeting all of the criteria ($t$-ratio $= 2.249$, $p = 0.029$). The group of meeting only one criterion was found statistically significantly different from the group of meeting two of the criteria ($t$-ratio $= 2.235$, $p = 0.030$). A proportion of 5.3% of the variance for the between-study difference was attributed to treatment integrity. Table 23 displays the estimated average effect sizes for these four groups.

Table 23

Effect Sizes by Treatment Integrity

<table>
<thead>
<tr>
<th>Treatment Integrity</th>
<th>Average Effect Size</th>
<th>Number of Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meet All Criteria</td>
<td>0.58</td>
<td>15</td>
</tr>
<tr>
<td>Meet Two of Criteria</td>
<td>0.49</td>
<td>19</td>
</tr>
<tr>
<td>Meet Only One Criterion</td>
<td>0.24</td>
<td>13</td>
</tr>
<tr>
<td>No Description</td>
<td>0.63</td>
<td>5</td>
</tr>
</tbody>
</table>

Clinical level of referral. This variable was added into the analysis model by coding into dummy variables the categories of clinical criteria from formal standardized assessment, clinical criteria defined by researchers, and not-stated. The category of parent/teacher referral served as the reference group. The statistically significant difference was found between the group of parent/teacher referral and the group of clinical criteria defined by researchers ($t$-ratio $= 2.274$, $p = 0.027$). The variable of clinical level of referral explained 3.9% of the between-study variance. The estimated average effect sizes are presented in Table 24.
Table 24

*Effect Size by Clinical Level of Referral*

<table>
<thead>
<tr>
<th>Clinical Level of Referral</th>
<th>Average Effect Size</th>
<th>Number of Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Criteria from Formal Standardized Assessment</td>
<td>0.52</td>
<td>10</td>
</tr>
<tr>
<td>Clinical Criteria Defined by Researchers</td>
<td>0.57</td>
<td>14</td>
</tr>
<tr>
<td>Parent/Teacher Referral</td>
<td>0.30</td>
<td>20</td>
</tr>
<tr>
<td>Not-Stated</td>
<td>0.57</td>
<td>8</td>
</tr>
</tbody>
</table>

Results of Final Model

The seven statistically significant independent variables identified in the individual HLM analyses, including publication status, child age, child ethnicity, population, clinical level of referral, parent involvement, and treatment integrity, were added altogether into the unconditional model. Although statistically significant differences in individual analyses were found between the categories of presenting issue and between the categories of source of data, these two variables were not included due to the low amount of variance (< 2%) they contributed to the within-study variance. The results showed that the variables of publication status, population, parent involvement, and treatment integrity were not statistically significant. The variables of child age, child ethnicity, and clinical level of referral remained statistically significant. As a result, the statistically nonsignificant variables were eliminated from the final model, and only the three statistically significant variables were included.

Table 25 displays the analysis results for the final model. A statistically significant difference was found between the age group of 7 years and under and the age group of 8 years and above. The ethnicity group of more than 60% non-Caucasian was statistically significantly
different from the other three ethnicity groups of more than 60% of non-Caucasian, mixed, and not-stated. In addition, a statistically significant difference occurred between the category of parent/teacher referral and the category of clinical criteria defined by researchers. The variables in the final model were centered around the grand mean, and the intercept indicated the grand mean effect size.

The grand mean effect size, 0.470, was almost identical to the estimated overall effect size, 0.468, in the initial unconditional model. In comparison with the variance components in the unconditional model, the Level 2 variance decreased from 0.152 to 0.099, indicating a variance decrease of 0.053 (i.e., 0.152 – 0.099 = 0.053). In other words, the variables of child age, child ethnicity, and clinical level of referral all together explained 34.9% (0.053 / 0.152 = 34.9%) of the original between-study (Level 2) variance. More precisely, in the unconditional model, 49.2% of the total variance was attributed to Level 2 variance, the estimator for between-study differences. These three variables together explained 34.9% of the differences among the collected 52 studies. In addition, a statistically significant amount of the variance remained unexplained ($\chi^2 = 158.957, p < 0.001$).
Table 25

Results of Final Model

<table>
<thead>
<tr>
<th>Fixed Effect</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>t-ratio</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.470</td>
<td>0.049</td>
<td>9.666</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Child Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 and under (ref.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 and above</td>
<td>-0.404</td>
<td>0.137</td>
<td>-2.954</td>
<td>0.005*</td>
</tr>
<tr>
<td>Child Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Caucasian (ref.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>-0.460</td>
<td>0.148</td>
<td>-3.109</td>
<td>0.004*</td>
</tr>
<tr>
<td>Mixed Group</td>
<td>-0.424</td>
<td>0.146</td>
<td>-2.913</td>
<td>0.006*</td>
</tr>
<tr>
<td>Not-stated</td>
<td>-0.499</td>
<td>0.126</td>
<td>-3.963</td>
<td>&lt; 0.001*</td>
</tr>
<tr>
<td>Clinical Level of Referral</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent/Teacher Referral (ref.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical Criteria</td>
<td>0.211</td>
<td>0.164</td>
<td>1.283</td>
<td>0.207</td>
</tr>
<tr>
<td>Clinical Criteria Defined by</td>
<td>0.290</td>
<td>0.119</td>
<td>2.435</td>
<td>0.019*</td>
</tr>
<tr>
<td>Not-stated</td>
<td>0.134</td>
<td>0.134</td>
<td>1.012</td>
<td>0.318</td>
</tr>
</tbody>
</table>

Random Effect

<table>
<thead>
<tr>
<th>Component</th>
<th>Standard Deviation</th>
<th>Variance Component</th>
<th>$\chi^2$</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\mu_0$ (Level 2)</td>
<td>0.314</td>
<td>0.099</td>
<td>158.957</td>
<td>&lt; 0.001*</td>
</tr>
<tr>
<td>$\varepsilon$ (Level 1)</td>
<td>0.396</td>
<td>0.157</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. * indicates statistical significance. The abbreviation “ref.” represents the reference group in the dummy coding system.
Post-Hoc Analyses

Although control group type and randomization were not statistically significant predictors for the effectiveness of interventions using CCPT methodology, the estimated average effect sizes might have also provided valuable information. Therefore, further analyses were conducted for estimating the average effect sizes for studies using each control group type and studies using random assignment and no random assignment/no description. Table 26 displays the average effect size for each category of control group type. Table 27 illustrates the average effect sizes for two categories of randomization.

Table 26

*Effect Sizes for Control Group Type*

<table>
<thead>
<tr>
<th>Control Group Type</th>
<th>Average Effect Size</th>
<th>Number of Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Treatment Control Group</td>
<td>0.49</td>
<td>43</td>
</tr>
<tr>
<td>Comparison Group</td>
<td>0.14</td>
<td>6</td>
</tr>
<tr>
<td>Active Control Group</td>
<td>0.53</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 27

*Effect Sizes for Randomization*

<table>
<thead>
<tr>
<th>Randomization Category</th>
<th>Average Effect Size</th>
<th>Number of Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Random Assignment</td>
<td>0.51</td>
<td>33</td>
</tr>
<tr>
<td>No Random Assignment/No Description</td>
<td>0.38</td>
<td>19</td>
</tr>
</tbody>
</table>
Additional post-hoc analyses were also conducted to more closely explore differences between the variables of caregiver involvement, child ethnicity, population, and setting. Because of statistically significant differences between the categories of child ethnicity and the categories of caregiver involvement, I explored the relationships between these two variables.

Two statistical analyses including child ethnicity groups as the independent variable were conducted separately for 24 studies of partial or no caregiver involvement and 28 studies of full caregiver involvement. The results of both analyses indicated no statistically significant differences between the ethnicity groups of Caucasian, non-Caucasian, and mixed. Table 28 shows the results of these two analyses.

Table 28

*Results of Post-Hoc Analyses on Ethnicity Groups*

<table>
<thead>
<tr>
<th>Ethnicity Groups</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>t-ratio</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 Studies of Partial or No Caregiver Involvement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Caucasian (ref.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>-0.482</td>
<td>0.271</td>
<td>-1.779</td>
<td>0.090</td>
</tr>
<tr>
<td>Mixed</td>
<td>-0.309</td>
<td>0.285</td>
<td>-1.082</td>
<td>0.293</td>
</tr>
<tr>
<td>Not-stated</td>
<td>-0.535</td>
<td>0.251</td>
<td>-2.131</td>
<td>0.045*</td>
</tr>
<tr>
<td>28 Studies of Full Caregiver Involvement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Caucasian (ref.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>-0.283</td>
<td>0.201</td>
<td>-1.412</td>
<td>0.171</td>
</tr>
<tr>
<td>Mixed</td>
<td>-0.325</td>
<td>0.193</td>
<td>-1.684</td>
<td>0.105</td>
</tr>
<tr>
<td>Not-stated</td>
<td>-0.540</td>
<td>0.184</td>
<td>-2.936</td>
<td>0.008*</td>
</tr>
</tbody>
</table>

*Note.* * indicates statistical significance. The abbreviation “ref.” represents the reference group in the dummy coding system.
The descriptive information demonstrated the 15 non-Caucasian studies consisted of 10 studies with full caregiver involvement and five studies with partial or no caregiver involvement. The question of whether or not the high average effect size of the non-Caucasian studies resulted from the impact of the 10 studies with full caregiver involvement led to the next post hoc analysis. An analysis on these 15 non-Caucasian studies using full caregiver involvement versus non-full caregiver involvement as the independent variable was conducted. No statistically significant difference occurred between the 10 studies of full caregiver involvement and the five studies of partial or no caregiver involvement ($t$-ratio = 0.566, $p = 0.580$).

Three post-hoc analyses for caregiver versus non-caregiver involvement as the independent variable were conducted to explore the differential impacts of caregiver involvement on each specific population group. No analysis was conducted for the category of other population because all of the 11 studies in this category used the CCPT modality with full caregiver involvement. No statistically significant differences occurred between studies of full caregiver involvement and studies of non-full caregiver involvement on the population groups of children referred due to traumatic experiences ($t$-ratio = -0.380, $p = 0.714$), children identified at-risk ($t$-ratio = 1.282, $p = 0.213$), and children with medical challenges ($t$-ratio = 1.898, $p = 0.128$).

Post-hoc analyses were conducted to investigate the possible differences between the studies of full caregiver involvement and the studies of non-full caregiver involvement on school setting and non-school setting. Two separate analyses were conducted using caregiver involvement as the independent variable for the studies of school setting versus studies of non-school setting. The results of the analysis for school setting led to no statistically significant difference between full caregiver involvement and non-full caregiver involvement ($t$-ratio = 1.781, $p = 0.086$). Finally, non-school setting led to no statistically significant difference
between the full caregiver involvement and non-full caregiver involvement groups (t-ratio = 1.649, p = 0.117).
CHAPTER 5
DISCUSSION AND CONCLUSION

This chapter presents a discussion of the research findings on the overall effectiveness of CCPT and the relationships between independent variables and effective sizes. The summary of the findings, limitations, and recommendations are also provided.

Overall Effectiveness of CCPT

The hierarchical linear modeling (HLM) analyses generated an estimated overall effect size of 0.47 with a standard error of 0.06 for the collected 52 studies. Individual analyses revealed statistically significant findings on several independent variables of study characteristics. In the HLM final model, the three independent variables of child age, child ethnicity, and clinical level of referral were found statistically significantly related to the treatment effects of child psychotherapy interventions using CCPT methodology. These three variables together explained 34.9% of the between-study differences among the collected studies. These findings are discussed in the next section.

In this present meta-analysis, the estimated overall effect size was statistically significantly different from zero. More precisely, the overall improvement from pretreatment to posttreatment demonstrated by children who received CCPT interventions was approximately one-half of a standard deviation better than the overall improvement of children who received no therapeutic treatments or received alternative interventions. This finding supports the overall effectiveness of child psychotherapy interventions using CCPT methodology.

Tables 29 and 30 are included to provide clarity in comparing the present study to previous meta-analytic reviews in the field of child psychotherapy. At first glance, the present findings appear discrepant with results from the previous meta-analyses discussed below.
However, the results shown in these tables must be interpreted in light of differences in the effect size calculation formula and statistical analysis method used in the present meta-analysis.

Table 29
Meta-Analytic Studies on the Effects of Child Psychotherapy

<table>
<thead>
<tr>
<th>Study</th>
<th>N of Studies</th>
<th>Publication Status</th>
<th>No. of Effect Sizes</th>
<th>ES Formula</th>
<th>Treatment Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casey &amp; Berman (1985)</td>
<td>75 (20)</td>
<td>Published Studies Only</td>
<td>64 (1 avg. ES per study)</td>
<td>(\frac{m_e - m_c}{S_p}) post</td>
<td>Behavioral &amp; Nonbehavioral</td>
</tr>
<tr>
<td>Weisz et al. (1987)</td>
<td>108</td>
<td>Published Studies Only</td>
<td>163 (1 avg. ES per treatment condition)</td>
<td>(\frac{m_e - m_c}{S_{post,c}})</td>
<td>Majority Behavioral</td>
</tr>
<tr>
<td>Kazdin et al. (1990)</td>
<td>223</td>
<td>Published Studies Only</td>
<td>1 or 2 avg. ES per treatment condition</td>
<td>(\frac{m_e - m_c}{S_p}) post</td>
<td>Majority Behavioral</td>
</tr>
<tr>
<td>Weisz et al. (1995)</td>
<td>150</td>
<td>Published Studies Only</td>
<td>150 (1 avg. ES per study)</td>
<td>(\frac{m_e - m_c}{S_{post,c}})</td>
<td>Majority Behavioral</td>
</tr>
<tr>
<td>Leblanc &amp; Ritchie (2001)</td>
<td>42</td>
<td>Published &amp; Unpublished</td>
<td>166 (Multiple ESs per study)</td>
<td>(\frac{m_e - m_c}{S_p}) post</td>
<td>Play Therapy (Majority of Non-Directive)</td>
</tr>
<tr>
<td>Bratton et al. (2005)</td>
<td>93</td>
<td>Published &amp; Unpublished</td>
<td>93 (1 avg. ES per study)</td>
<td>(\frac{m_e - m_c}{S_p}) post</td>
<td>Play Therapy (Majority of Humanistic)</td>
</tr>
<tr>
<td>Huey &amp; Polo (2008)</td>
<td>25</td>
<td>Published Studies Only</td>
<td>25 (1 avg. ES per study)</td>
<td>(\frac{m_e - m_c}{S_p}) post</td>
<td>Mixed</td>
</tr>
<tr>
<td>Reese et al. (2010)</td>
<td>65</td>
<td>Dissertation and Theses Only</td>
<td>73 (1 ES per treatment) / 188 (1 ES per outcome measure)</td>
<td>(\frac{m_e - m_c}{S_{pre,c}})</td>
<td>Cognitive-Behavioral &amp; Skills Training</td>
</tr>
<tr>
<td>Present Study</td>
<td>52</td>
<td>Published &amp; Unpublished</td>
<td>Multiple ESs</td>
<td>(\frac{(\Delta_e - \Delta_c)}{S_{pre}})</td>
<td>CCPT</td>
</tr>
</tbody>
</table>

*Note. \(\Delta_e\) is the mean change of experimental group from pre to posttest; \(\Delta_c\) is the mean change of control group from pretest to posttest; \(m_e\) is the mean score of experimental group at posttest; \(m_c\) is the mean score of control group at posttest; \(m_{pre}\) is the mean score at pretest; \(m_{post}\) is the mean score at posttest; \(S_{pre}\) is the pooled standard deviation of pretest; \(S_{post}\) is the pooled standard deviation of posttest; \(SD_{pre,c}\) is the pretest standard deviation of control group; \(SD_{post,c}\) is the posttest standard deviation of control group.*

(continued)
Table 29 (continued).

<table>
<thead>
<tr>
<th>Study</th>
<th>Control Type</th>
<th>Statistical Model</th>
<th>Fixed / Random</th>
<th>Mean Age</th>
<th>Avg. ES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casey &amp; Berman (1985)</td>
<td>No Treatment Control / Active Control</td>
<td>ULS</td>
<td>N/A</td>
<td>8.9</td>
<td>0.71 (0.65)</td>
</tr>
<tr>
<td>Weisz et al. (1987)</td>
<td>No Treatment Control / Active Control</td>
<td>ULS</td>
<td>N/A</td>
<td>10.2</td>
<td>0.79</td>
</tr>
<tr>
<td>Kazdin et al. (1990)</td>
<td>No Treatment Control / Active Control / Comparison</td>
<td>ULS</td>
<td>N/A</td>
<td>10.2</td>
<td>0.84b</td>
</tr>
<tr>
<td>Weisz et al. (1995)</td>
<td>No Treatment Control / Active Control</td>
<td>WLS / ULS</td>
<td>N/A</td>
<td>10.5</td>
<td>0.54 / 0.71</td>
</tr>
<tr>
<td>Leblanc &amp; Ritchie (2001)</td>
<td>No Treatment Control</td>
<td>HLM</td>
<td>Mixed</td>
<td>7.8</td>
<td>0.66</td>
</tr>
<tr>
<td>Bratton et al. (2005)</td>
<td>No Treatment Control / Active Control / Comparison</td>
<td>Weighted</td>
<td>Random</td>
<td>7.0</td>
<td>0.80</td>
</tr>
<tr>
<td>Huey &amp; Polo (2008)</td>
<td>No Treatment Control / Active Control / Treatment as Usual</td>
<td>WLS</td>
<td>N/A</td>
<td>N/A</td>
<td>0.44</td>
</tr>
<tr>
<td>Reese et al. (2010)</td>
<td>Control</td>
<td>Unweighted</td>
<td>N/A</td>
<td>N/A</td>
<td>0.44 / 0.34</td>
</tr>
<tr>
<td>Present Study</td>
<td>No Treatment Control / Active Control / Comparison</td>
<td>Weighted HLM</td>
<td>Mixed</td>
<td>6.7</td>
<td>0.47</td>
</tr>
</tbody>
</table>

Note. WLS represents weighted least square method. ULS indicates unweighted least square method. N/A represents the study failed to report specific information. aCasey & Berman (1985) reported an overall effect size for the 64 of 75 collected studies. bKazdin et al. did not report overall ES, but Weisz et al. (1995) estimated overall ES of 0.84 for them.

Casey and Berman (1985) conducted a meta-analysis for studies published between 1952 and 1983 with 75 collected studies involving either a control group design or a treatment comparison group design. Casey and Berman estimated the efficacy of psychotherapy with children. As shown in Table 27, the effect size formula they utilized included the mean difference at posttest between experimental group and control or comparison groups divided by
pooled standard deviation of the posttests. In order to avoid violating the assumption of independent data, an average effect size was calculated for each collected study. Casey and Berman suggested an unweighted overall effect size of 0.71 for the 64 studies and an unweighted average effect size of 0.65 for the 20 collected studies using play interventions with children.

In another meta-analytic review, Weisz, Weiss, Alicke, and Klotz (1987) included 108 well-designed controlled outcome studies occurring between 1952 and 1985 in which children and adolescents between 4 and 18 years old received some form of psychotherapy. The effect size formula used by Weisz et al. (1987) was slightly different from the one used by Casey and Berman. Weisz et al. (1987) used the posttest standard deviation of the control group, instead of pooled standard deviation. Weisz et al. (1987) found an unweighted average effect size of 0.79 for 108 of the collected studies and an unweighted average effect size of 0.56 for 20 studies in which treatment groups experienced client-centered or nondirective interventions.

Kazdin, Bass, Ayers, and Rodgers (1990) reviewed 223 published studies addressing child and adolescent psychotherapy from 1970 to 1988. Among the 223 studies, 64 studies included no treatment control group design, and other 41 studies included active control group design. Kazdin et al. calculated unweighted effect sizes either at posttest or at very last follow-up test for each treatment condition of the 223 studies by using Casey and Berman’s (1985) formula. Although Kazdin et al. did not report an overall effect size, Weisz et al. (1995) estimated the effect size ($ES = 0.84$) for them.

the posttest standard deviation of control group to calculate an average effect size for each study. They further estimated an overall effect size, 0.54, using the weighted least squares (WLS) analytic approach and another overall effect size, 0.71, using the unweighted least squares (ULS) analytic approach.

Leblanc and Ritchie (1999, 2001) published another meta-analysis on the 166 effect sizes from the collected 42 play therapy outcome studies involving no treatment control design and found a moderate overall effect size of 0.66 for all 42 studies. Leblanc and Ritchie also used the same effect size formula found in Casey and Berman (1985) and were able to include multiple effect sizes from each study due to the advantage of HLM techniques. In the original meta-analysis published in Leblanc’s (1998) dissertation, LeBlanc identified 31 studies in which nondirective play therapy interventions were provided by professionals, found 73 effect sizes, and reported an average effect size of 0.43.

The meta-analytic review of play therapy with children conducted by Bratton et al. (2005) demonstrated a large weighted overall effect size of 0.80. Bratton et al. collected 93 controlled outcome studies, occurring between 1953 and 2000, in which play therapy interventions were used as experimental treatment in comparison to no treatment or to alternative treatment. Bratton et al. used the same effect size formula as Casey and Berman (1985) and calculated an average effect size for each study. Bratton et al. also applied the weighting strategy used by Weisz et al. (1995) to estimate more stringent overall effect sizes. Among the 93 collected studies, 73 utilized humanistic-nondirective play therapy interventions, and these 73 studies yielded a large mean weighted effect size of 0.92.

Huey and Polo (2008) published a thorough systematic review of 25 studies, each of which included an investigation of the overall effects of psychosocial treatments specifically on
ethnic minority children and adolescents. Huey and Polo conducted a brief meta-analysis for these 25 studies and reported a mean effect size of 0.44 for the 25 studies. Huey and Polo also reported an average effect size of 0.57 for the 13 studies with no treatment or placebo control design. Huey and Polo used the same formula for calculating effect sizes as the one used by Casey and Berman (1985) in which mean differences between experimental and control or comparison groups at posttest were divided by posttest pooled standard deviation.

Reese, Prout, Zirkelback, and Anderson (2010) conducted a meta-analysis of 65 dissertations completed between 1998 and 2008 and representing the field of school-based psychotherapy. Using mean differences at posttest between the experimental and control groups divided by the posttest standard deviation of control group, Reese et al. calculated an average effect size for each treatment intervention and for each outcome measure. The estimated unweighted overall effect sizes were 0.44 for 73 treatment interventions and 0.34 for 188 outcome measures. Among the 65 collected studies, 29 were conducted in elementary schools, and these yielded an unweighted average effect size of 0.65.

As mentioned previously, the overall effect size of 0.47 in this current study seems lower than several of the findings in previous meta-analytic reviews. One possible reason for the differences between the overall effect sizes in this current study and in previous meta-analytic studies may be the statistical analysis methods. Instead of calculating a single average effect size for each individual study, HLM technique was used in the present meta-analysis to allow multiple effect sizes from each individual study without violating the assumption of independent data. Based on an exhaustive review of the literature, Leblanc & Ritchie’s (2001) study was the only other child therapy meta-analysis identified that used HLM technique.
Another more significant reason for the lower effect size observed in the current study might be due to the different calculation formulas for effect sizes. The researchers of all the previous meta-analyses mentioned above calculated effect sizes using mean score differences at the posttest between experimental and control or comparison groups and either pooled standard deviations or control group standard deviations. However, the effect size found in this current study was calculated based on the between-group differences of mean score changes from pretest to posttest divided by the pretest pooled standard deviation and allowed for taking both pretest and posttest mean scores into consideration. In a meta-analysis examining the effects of psychosocial interventions for children with disruptive behavior, Fossum, Handegard, Martinussen, and Morch (2008) advocated for this effect size formula as “a more stringent calculation of treatment effects” (p. 444). I also consulted with an experienced statistician (D. Chen, personal communication, November 5, 2010) who confirmed my belief that using this formula would yield more stringent, and perhaps more conservative, effect sizes. However, in the absence of evidence to prove my belief, it is possible that the effect size formula and HLM techniques used in this present study did not produce more conservative results.

In conclusion, the overall effect size finding supports CCPT as a beneficial mental health intervention for children. However, interpreting the magnitude of the treatment effect based on traditional methods (Cohen, 1988) is hindered by the non-traditional statistical methods and effect size calculation formula used in the present study. Additionally, the differences in statistical methodology among meta-analyses presented in Table 27 and 28 restricts an accurate understanding of the effects of CCPT relative to other child therapy interventions.
Relationships Between Independent and Dependent Variables

The HLM models in this meta-analysis included two levels. Level 1 was the within-study model, and Level 2 was the between-study model. The variables in Level 1 contained the dependent variable, effect sizes, and the independent variables representing the characteristics of the individual effect sizes. The Level 2 variables were all independent variables that depicted studies’ characteristics. Therefore, the total amount of variance in the two-level HLM model was divided into within-study and between-study variance.

Effect Size Characteristics and Effectiveness

According to the analysis results presented previously, 50.8% of the total variance was attributed to the within-study (Level 1) variance. The sources of the within-study variance might include the systematic differences of individual effect sizes, measurement error, and random sampling error (Leblanc & Ritchie, 2001).

*Presenting issue.* With the estimated average effect sizes ranging from 0.25 to 0.60 for the seven categories of presenting issue, interventions using CCPT methodology showed a positive effect on a variety of presenting issues. Among the seven categories, externalizing behavior problem was found to be statistically significantly different from total behavior, caregiver/child relationship stress, and self-efficacy, indicating significant differences between the efficacies of the interventions based on CCPT methodology for these types of presenting issues. More precisely, the effect sizes for total behavior problem ($ES = 0.53$), caregiver/child relationship stress ($ES = 0.60$), and self-efficacy ($ES = 0.53$), were statistically significantly higher than the effect size for externalizing behavior problem ($ES = 0.34$). The interventions using CCPT methodology were more efficient for improving children’s broad spectrum behavior problems, enhancing their self-esteem, and reducing caregiver/child relationship stress than for
improving children’s externalizing behavior problems. Even though CCPT interventions were observed to be effective for reducing caregiver/child relationship stress, it should be noted that the majority of study results addressing caregiver/child relationship stress were reported by caregivers trained as treatment providers. The treatment effectiveness of CCPT for reducing caregiver/child relationship stress might be biased and should be interpreted with caution.

Co-morbidity of symptoms may be a reason for the greater improvement on children’s broad spectrum behavior problems. Young children often show multiple symptoms across various presenting issues (Achenbach & Rescorla, 2000). For example, a child can be identified with having aggressive behavior and depressed mood concurrently. The improvement on children’s broad spectrum behavior problems may result from the combination of changes on two or more presenting issues and thus appear to be greater than the improvement for a single behavior problem. The greater change on enhancing children’s self-esteem forms a reasonable and understandable observation because building self-esteem represents one of the play therapy skills illustrated on CCPT protocol (Giordano, Landreth, & Jones, 2005; Ray, 2009). Given the low number of effect sizes coded in the category of self-efficacy, its high average effect size might have been a biased result.

In the majority of previous meta-analytic reviews in the literature, the researchers reported no statistically significant differences between presenting issues or target behavior problems. Although Casey and Berman (1985) found statistically significant differences between target problems, the differences were between social adjustment and other target problems including impulsivity/hyperactivity, phobia, and somatic problems. Bratton et al. (2005) divided target problem behaviors into the four categories of externalizing, internalizing, combined behavior (equivalent to total behavior in this present meta-analysis), and other.
However, Bratton et al. found no statistically significant difference between these categories, but they reported the average effect sizes for internalizing behavior problem ($ES = 0.81$), externalizing behavior problem ($ES = 0.78$), and combined behavior ($ES = 0.93$). These three effect sizes were considered large effect sizes, according to Cohen’s (1988) guidelines. Leblanc and Ritchie (2001) found no statistically significant difference between the six categories of presenting problems including emotional maladjustment, social maladjustment, reaction to or anticipation of identified traumatic event, academic problems, family maladjustment, and behavioral problems, and they did not report the average effect sizes for these categories of presenting problems.

Weisz et al. (1987) and Weisz et al. (1995) compared the target problem types of overcontrolled problems and undercontrolled problems, which appeared to be similar to internalizing and externalizing behavior problems, and found no statistically significant difference. The average effect sizes reported by Weisz et al. (1987) were 0.79 for undercontrolled problem and 0.88 for overcontrolled problem. However, Weisz et al. (1995) reported somewhat lower effect sizes, 0.62 and 0.69, for undercontrolled and overcontrolled problems, respectively.

Other previous meta-analytic researchers investigated the effectiveness of child and adolescent treatments and focused on specific presenting issues or behavior problems. Corcoran and Dattalo (2006); Dowell and Ogles (2010); Fabiano et al. (2009); Fossum et al. (2008); Skowron and Reinemann (2005); Rosner, Nruise, and Hagl (2010); and Weisz, McCarty, and Valeri (2006) were among these researchers. These meta-analyses were briefly reviewed to examine average effect sizes produced for target presenting issues and to serve as a comparison for the findings in this present study. Tables 31 and 32 illustrate these meta-analyses.
<table>
<thead>
<tr>
<th>Study</th>
<th>Main Focus</th>
<th>N of Studies</th>
<th>No. of Effect Sizes</th>
<th>ES Formula</th>
<th>Treatment Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skowron &amp; Reinemann (2005)</td>
<td>Maltreatment</td>
<td>21</td>
<td>21 (1 avg. ES per study)</td>
<td>(\frac{(m_e - m_c)}{Sp_{post}})</td>
<td>Behavioral &amp; Nonbehavioral</td>
</tr>
<tr>
<td>Corcoran &amp; Dattalo (2006)</td>
<td>ADHD</td>
<td>16</td>
<td>16 (1 avg. ES per study)</td>
<td>(\frac{(m_e - m_c)}{Sp_{post}})</td>
<td>Cognitive-Behavioral Only</td>
</tr>
<tr>
<td>Weisz et al. (2006)</td>
<td>Depression</td>
<td>35</td>
<td>35 (1 avg. ES per study)</td>
<td>(\frac{(m_e - m_c)}{SD_{post,c}})</td>
<td>Majority Cognitive-Behavioral</td>
</tr>
<tr>
<td>Fossum et al. (2008)</td>
<td>Disruptive / Aggressive Behavior</td>
<td>33</td>
<td>33 (1 avg. ES per study)</td>
<td>(\frac{(\Delta_e - \Delta_c)}{Sp_{pre}})</td>
<td>Majority Behavioral</td>
</tr>
<tr>
<td>Fabiano et al. (2009)</td>
<td>ADHD</td>
<td>20</td>
<td>20 (1 avg. ES per study)</td>
<td>(\frac{(m_e - m_c)}{Sp_{post}})</td>
<td>Behavioral Only</td>
</tr>
<tr>
<td>Dowell &amp; Ogles (2010)</td>
<td>Overall Effects</td>
<td>48</td>
<td>48 (1 avg. ES per study)</td>
<td>(\frac{(m_e - m_c)}{Sp_{pre}})</td>
<td>Majority Cognitive-Behavioral</td>
</tr>
<tr>
<td>Rosner et al. (2010)</td>
<td>Bereavement</td>
<td>12 (7)</td>
<td>Multiple ESs per study</td>
<td>(\frac{(m_e - m_c)}{Sp_{post}})</td>
<td>Mixed</td>
</tr>
</tbody>
</table>

*Note. The symbol \(\Delta_e\) is the mean change of experimental group from pre to posttest, and \(\Delta_c\) is the mean change of control group from pre to posttest. The symbol \(m_e\) is the mean score of experimental group at posttest; \(m_c\) is the mean score of control group at posttest; \(Sp_{pre}\) is the pooled standard deviation of pretest; \(Sp_{post}\) is the pooled standard deviation of posttest; and \(SD_{post,c}\) is the posttest standard deviation of control group.*

(continued)
Table 30 (continued).

<table>
<thead>
<tr>
<th>Study</th>
<th>Control Type</th>
<th>Stat. Model</th>
<th>Fixed vs. Random</th>
<th>Mean Age</th>
<th>Publication Status</th>
<th>Ave. ES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skowron &amp; Reinemann (2005)</td>
<td>No Treatment Control / Active Control / Treatment as Usual</td>
<td>WLS</td>
<td>N/A</td>
<td>6.3</td>
<td>Published Studies Only</td>
<td>0.54</td>
</tr>
<tr>
<td>Corcoran &amp; Dattalo (2006)</td>
<td>Control / Comparison</td>
<td>Weighted Regression</td>
<td>Random</td>
<td>N/A</td>
<td>Published Studies Only</td>
<td>0.42</td>
</tr>
<tr>
<td>Weisz et al. (2006)</td>
<td>No Treatment Control / Active Control</td>
<td>WLS / ULS</td>
<td>Random</td>
<td>N/A</td>
<td>Published &amp; Unpublished</td>
<td>0.34 / 0.40</td>
</tr>
<tr>
<td>Fossum et al. (2008)</td>
<td>No Treatment Control</td>
<td>WLS</td>
<td>Random</td>
<td>N/A</td>
<td>Published &amp; Unpublished</td>
<td>0.62</td>
</tr>
<tr>
<td>Fabiano et al. (2009)</td>
<td>No Treatment Control</td>
<td>ULS/WLS</td>
<td>Random</td>
<td>7.1</td>
<td>Published &amp; Unpublished</td>
<td>0.83 / 0.74</td>
</tr>
<tr>
<td>Dowell &amp; Ogles (2010)</td>
<td>Comparison</td>
<td>WLS</td>
<td>Random</td>
<td>12.0</td>
<td>Published &amp; Unpublished</td>
<td>0.27</td>
</tr>
<tr>
<td>Rosner et al. (2010)a</td>
<td>No Treatment Control</td>
<td>Weighted Regression</td>
<td>Random</td>
<td>N/A</td>
<td>Published &amp; Unpublished</td>
<td>0.39 (0.46)</td>
</tr>
</tbody>
</table>

*Note.* WLS represents weighted least square method. ULS indicates unweighted least square method. WLS indicates weighted least square method. N/A represents the study failed to report specific information. *Only 7 out of the 12 controlled studies in Rosner et al. (2010) had both pre and posttest information.*
Weisz et al. (2006) conducted a meta-analysis focusing on the treatment effect for child and adolescent depression. Depression can be appropriately included in the category of internalizing behavior problem in this current study. Weisz et al. collected 35 peer-reviewed published studies and used the mean differences of posttest scores between treatment and control groups divided by the control group standard deviation to calculate the effect sizes. The overall weighted effect size for the collected 35 studies was 0.34 with a standard deviation of 0.40. In this present study, the estimated mean effect size for internalizing behavior problem ($ES = 0.37$) appeared close to the effect size Weisz et al. (2006) reported. Given what I believe the more stringent effect size formula used in the present study, the current finding confirmed the treatment effectiveness of CCPT modalities on improving children’s internalizing behavioral problems.

Fossum et al. (2008) reported average effect sizes for specific behavior problems in their meta-analytic review. Twenty of the 33 control group design studies included measures of changes in children’s aggressive behavior, which would have belonged in the category of externalizing behavior problem in this current study. Fossum et al. found an average effect size of 0.41 for these 20 studies. Only 16 control group design studies were compiled as investigations of the treatment effects of reducing parental stress, and the average effect size for these studies was reported as 0.39. Another average effect size of 0.42 was reported for the 13 control group design studies in which changes of children’s social functioning were examined. In this current study, social functioning belonged in the category of other presenting issue.

Corcoran and Dattalo (2006) conducted a meta-analysis with 16 published studies and specifically investigated parent-involved psychosocial treatment for children diagnosed with ADHD, a diagnosis closely related to the category of externalizing behavior problem defined in
this study. In these 16 studies, the treatment employed was clearly defined, and parents were described as part of the treatment. Using mean differences between experimental and control or comparison groups at posttest and the pooled within group standard deviation, Corcoran and Dattalo estimated an overall effect size of 0.42 for the 16 studies.

Fabiano et al. (2009) published another meta-analytic review of the behavioral interventions for children with ADHD. Fabiano et al. calculated an average effect size for each study using the posttreatment mean differences between the experimental and control groups divided by the pooled standard deviation. Fabiano et al. reported a weighted average effect size of 0.74 for the 23 between-group design studies included in the meta-analysis.

In addition to the meta-analyses mentioned above, Litschge, Vaughn, and McCrea (2010) collected 26 meta-analytic reviews and explored the overall efficacy on treatments for children and adolescent conduct problems, generally considered more relevant to the category of externalizing behavior problem that was used in this current study. Approximately one half of the collected meta-analyses showed small to medium effect sizes based on Cohen’s (1988) criteria, and the overall average effect size for all 26 meta-analyses was 0.43. It should be noted that Litschge et al. did not estimate the overall effect size but provided an average from the 26 overall effect sizes.

In the present study, the estimated average effect sizes for presenting issues ranging between 0.25 and 0.60 appeared lower than the corresponding average effect sizes reported by Bratton et al. (2005), Casey and Berman (1985), Weisz et al. (1987), and Weisz et al. (1995), all of which included studies dating back several decades. However, the current findings were similar to the average effect sizes reported in contemporary meta-analyses targeting more current research, such as Corcoran and Dattalo (2006), Fossum et al. (2008), Litschge et al. (2010), and
Weisz et al. (2006). It is possible that what appears to be higher outcomes from the meta-analytic reviews that were impacted by individual study findings derived from statistical methods and research designs that would not be considered rigorous by today’s standards. Although the findings, especially the differential mean effect sizes for target problems or presenting issues, varied among all the meta-analyses mentioned above, the positive and statistically significant results in this present study confirm the effectiveness of CCPT as a therapy methodology for a variety of presenting issues.

The HLM techniques used in the present study allowed for investigation of effect sizes for more than one presenting issue within a given study, whereas traditional statistical methods that calculate average effect sizes limit the examination to one presenting issue per study. Due to the fact that only one other meta-analysis (Leblanc & Ritchie, 2001) employed this statistical method, along with the different effect size formula used for the present study, a strict comparison of findings with previous meta-analytic studies is inadvisable.

Source of data. The category of blinded independent rater (non-teacher) report was statistically significantly different from the other categories of source of data including parent report, teacher report, and child self-report. Although the estimated average effect size of blinded independent rater (non-teacher) report ($ES = 0.23$) was statistically significantly lower than the effect sizes of the other three categories, parent report ($ES = 0.54$), teacher report ($ES = 0.36$), and child self report ($ES = 0.35$), it should be noted that the category of blinded independent rater (non-teacher) report only contained nine effect sizes from two studies, which might bias the statistically significant results. Casey and Berman (1985) also found statistically significant differences between the source types of the outcome measures. However, Casey and Berman’s findings which are now 25 years old contrasted with the current study, because they
found the effect sizes for the studies using observers (ES = 1.14), therapists (ES = 1.05), parents (ES = 0.80), and subject performance (ES = 0.74) as the sources of outcome measures to be significantly higher than the effect sizes in the studies using teachers (ES = 0.19) and children’s self-report (ES = 0.16) as the sources of outcome measures. Weisz et al. (1987) and Weisz et al. (1995) investigated the differences of effects between the sources of outcome measures using the same categories as Casey and Berman but found no statistically significant differences between these categories.

Sample size. Sample size did not generate statistically significant results in the individual HLM analysis for this variable, indicating that sample size was not a significant predictor of the effectiveness of interventions using CCPT methodology. It should be noted that unlike the sample size defined in other meta-analyses this variable in the present meta-analysis does not represent the sample size of each individual study but the number of participants for each outcome measure. Casey and Berman (1985) investigated the relationship between the number of participants and treatment effects and found studies with smaller sample sizes tended to produce statistically significantly larger treatment effect sizes. None of the other previous meta-analytic studies included total number of participants as an independent variable. Casey and Berman explained the possible reason for their finding as studies with smaller sample sizes required larger treatment effects in order to obtain statistically significant results, which were generally favored by most journals, and they further suspected the publication bias in their meta-analytic review.

Control group type. In this study, the average effect size for the comparison group (ES = 0.14) was statistically significantly lower than the average effect sizes of active control group (ES = 0.53) and no treatment control group (ES = 0.49), although the types of control
group were not added to the final model because they not only failed to explain the difference between effect sizes but also resulted in an increase of within-study (Level 1) variance. Among the previous meta-analytic studies, Bratton et al. (2005) and Leblanc and Ritchie (2001) reported no statistically significant differences between studies using no treatment control group and studies using alternative treatment comparison group. The other previous meta-analytic reviews did not examine the impact of control group types on treatment effects.

The average effect sizes produced by the collected studies of CCPT versus no treatment control group and CCPT versus active control group were close in values, and these statistically significant effect sizes asserted positive treatment effects for interventions using CCPT methodology. However, the low average effect size generated by the studies using comparison group design should be interpreted differently. Although the average effect size found for the collected studies of CCPT versus alternative treatment comparison group was significantly lower in comparison with CCPT versus the other two types of control group, the interventions using CCPT methodology were observed as statistically significantly more effective than the alternative evidence-based therapeutic treatments.

Study Characteristics and Effectiveness

The analysis results indicated 49.2% of the total variance was attributed to between study differences. This proportion is very close to the proportion of variance, 47%, reported by Leblanc and Ritchie (2001). Twenty-one variables of study characteristics were added separately into HLM models to estimate the between study differences, and seven variables showed statistical significance in the individual analyses.

Publication status. A statistically significant difference was found between two categories of publication status indicating that studies in peer-reviewed journals yielded a
significantly higher average effect size, 0.56, over the average effect size, 0.21, found in the non-peer-reviewed studies, including dissertations, theses, and unpublished research documents. This publication status characteristic accounted for 12.1% of the between study variance. Although Leblanc and Ritchie (2001) did not report any statistically significant differences between journal articles, dissertations, and unpublished studies, Bratton et al. (2005) found a statistically significant difference between 43 published studies and 50 unpublished studies. The average effect size of 1.04 was observed for the 43 published studies and was statistically significantly higher than the 0.77 effect size found for the 50 unpublished studies.

Some meta-analysts only collected studies published in peer-reviewed journals for their meta-analytic reviews on the overall effectiveness of child psychotherapy. These meta-analysts included Casey and Berman (1985), Huey and Polo (2008), Kazdin et al. (1990), Weisz et al. (1987), and Weisz et al. (1995), and the majority of overall mean effect sizes reported in their meta-analyses appeared relatively higher than the mean effect sizes found in most of the other meta-analyses that included both published peer-reviewed and unpublished studies (see Tables 27 and 28). The publication status finding in this study has supported the claim that studies with significant results are more likely accepted for publication in peer-reviewed journals (Rubin, 1992).

Child age. The average age of child participants in the current group of collected studies was 6.7 years old with a standard deviation of 1.82 years. The average age in this meta-analysis is very similar with the average ages in the studies by Bratton et al. (2005) and Leblanc and Ritchie (2001). The analysis results indicated the 42 studies of children of 7 years of age and younger yielded an average effect size of 0.53, a value statistically significantly larger than the average effect size of 0.21 produced in the 10 studies of children of 8 years of age and older.
Weisz et al. (1987) reported statistically significant findings in which younger children (4 to 12 years old) appeared to benefit more from psychotherapy than children in the 13 to 18 year age group benefitted. Weisz et al. (1995) reported a statistically significant difference in treatment effect according to client age. However, Weisz et al.’s (1995) findings supported older child participants as demonstrating a better treatment effect than the treatment effect demonstrated by younger children. Of note, behavioral psychotherapy, which is likely to be more beneficial to older children, represented the vast majority of the treatment modalities included in the studies analyzed by Weisz et al. (1995).

The present meta-analysis findings have confirmed CCPT to be a developmentally responsive mental health intervention for all children and especially for children younger than 7 years old. While the CCPT modality is more effective for younger children, it is important to note that of the 52 collected studies, only 10 studies reported a child mean age of 8 years and older. Further research is needed to closely examine the effectiveness of CCPT on older children, because this study’s findings were limited by the low number of studies involving children over the age of 8 years.

**Child ethnicity.** The results of this current study showed the category of more than 60% non-Caucasian as statistically significantly different from the categories of more than 60% Caucasian and not-stated. The average effect size of non-Caucasian ($ES = 0.76$), including African American, Latino/Hispanic, Asian/Asian American, and other ethnic minority groups, was significantly higher than the effect sizes of the other two categories of 60% Caucasian ($ES = 0.33$) and not-stated ($ES = 0.20$). None of the previous meta-analytic researchers examining the effectiveness of psychotherapy on children and adolescents in general included child ethnicity as a predictor for treatment effect. However, Huey and Polo (2008) conducted a brief meta-analysis
for 25 studies specifically targeting ethnic minority children and adolescents. Huey and Polo reported an overall effect size of 0.44 for the 25 collected studies and an average effect size of 0.57 for the 13 studies in which no treatment or placebo control design was employed.

The average effect size for the ethnic minority children included in studies collected for this present meta-analysis appeared to be higher than the average effect size Huey and Polo (2008) reported. CCPT appears based on this meta-analysis to be a culturally responsive psychotherapy intervention for children. The possible explanation for this finding relates to the basic belief in CCPT that play is the universal language for children to express their emotions and thoughts without relying on verbal ability. This non-verbal means of expression thus transcends language barriers faced by children of ethnic minority groups in other forms of more verbal communication oriented psychotherapy. In addition, the authoritative heritage in some cultures such as Hispanic/Latino, Asian, and perhaps African American cultures deprives children from freely expressing themselves and fully experiencing unconditional acceptance in their families. The fully accepting environment provided by CCPT therapists may thus results in extra benefits for children of these ethnicity groups.

The post-hoc analysis results demonstrated no statistically significant differences between the categories of more than 60% non-Caucasian and more than 60% Caucasian when the analyses were conducted separately on the 24 studies of CCPT provided by mental health professionals and on the 28 studies of CCPT with full caregiver involvement. In other words, CCPT provided by mental health professionals was equally effective for Caucasian children and ethnic minority children as were interventions of CCPT with full caregiver involvement. Moreover, the 10 studies of CCPT with full caregiver involvement were not statistically significantly different from the five studies of CCPT provided by mental health professionals.
when analyzing the 15 studies in the category of more than 60% non-Caucasian. CCPT interventions provided by mental health professionals and CCPT interventions with full caregiver involvement were equally effective in treating ethnic minority children.

Clinical level of referral. A statistically significant difference was found between the category of parent/teacher referral and the category of clinical criteria defined by researchers. Further, the category of clinical criteria defined by researchers ($ES = 0.57$) yielded a statistically significantly higher average effect size than the category of parent/teacher referral ($ES = 0.30$) yielded. The proportion of between study variance attributed to the differences between these categories was 3.9%.

Weisz et al. (1987), Weisz et al. (1995), and Bratton et al. (2005) explored the different treatment effects produced by the studies using analog samples and the studies using clinical samples. Weisz et al. (1987) and Bratton et al. did not find a statistically significant difference between these two groups. However, Weisz et al. (1995) reported a statistically significant difference between the groups, when the use of analog samples generated a statistically significantly larger average effect size than the clinical sample studies generated.

In the present meta-analytic study, the collected studies in which child participants met clinical criteria from standardized assessment for inclusion did not differ statistically significantly from the studies in which children did not meet the clinical criteria from a formal standardized assessment. The finding of no significant difference was consistent with the findings of Weisz et al. (1987) and Bratton et al. (2005). All of the estimated average effect sizes produced when children met clinical criteria from standardized assessment, when child participants met clinical criteria defined by researchers, and when no clinical criteria were outlined occurred between the values of 0.5 and 0.6. These findings did not support the general
belief that analog, or non-clinical, populations are more likely to produce better treatment outcomes than clinical populations (Bratton et al., 2005).

*Treatment integrity and randomization.* Study quality was divided into the two dependent variables of treatment integrity and randomization. The purpose of including treatment integrity was to explore the relationships between overall treatment effect and the levels of treatment integrity measured by the three criteria of use of a treatment manual, description of treatment procedure, and depiction of therapist training in CCPT methodology. The average effect size, 0.58, produced from the 15 studies meeting all three criteria was somewhat higher than the effect size, 0.49, produced from the 19 studies of meeting two of the criteria, although the two effect sizes were not statistically significantly different. When the level of treatment integrity was lowered to the group meeting only one criterion the average effect size produced from these 13 studies dropped to 0.24, a value statistically significantly lower than the average effect sizes found for the previous two treatment integrity groups. The current findings have confirmed the importance of assuring treatment integrity in empirical research studies and have clearly demonstrated the impact of treatment integrity on treatment effects for interventions using CCPT methodology.

The purpose of random assignment in an empirical research study is to ensure different treatment conditions are comparable and to avoid selectivity bias (Rubin, 2008). Although a statistically significant difference was not found between the studies of random assignment and the studies with no random assignment/no description, the results in the post-hoc analyses illustrated the observably higher average effect size of 0.51 generated from the studies of random assignment in comparison to the average effect size of 0.38 found for the studies with no random assignment/no description.
One of the major criticisms of meta-analysis has been related to the quality of studies collected for such a review, namely the problem of “garbage in – garbage out,” as conveyed by Lispey and Wilson (2001). For this meta-analytic study, the importance of study quality for empirical research was validated through use of the variables of treatment integrity and randomization and by the positive relationship found between study quality and treatment outcome. Additionally, this potential problem of garbage in – garbage out was addressed by comparing studies via these variables. None of the previous meta-analytic researchers investigated the potential influence of study quality on the treatment effect. The meta-analysis by Bratton et al. (2005) were the only previous meta-analytic researchers to report 70% of their collected studies as showing random assignment in the study design. In this present meta-analysis, 33 studies included random assignment and represented approximately 63% of the total number of 52 collected studies.

Caregiver involvement. In this meta-analysis, the studies of full parent involvement ($ES = 0.59$) and the studies of full teacher involvement ($ES = 0.53$) were statistically significantly different from the studies of partial or no caregiver involvement ($ES = 0.33$). CCPT interventions with full caregiver involvement, in which caregivers were trained as therapeutic agents in children’s psychotherapy process, provided better treatment outcomes than CCPT interventions with partial or no caregiver involvement, in which treatment was provided by mental health professionals. In several of the previous meta-analytic reviews, the benefits of involving parents or teachers in the therapeutic process of children psychotherapy were shown. Bratton et al. (2005) and Leblanc and Ritchie (2001) both found statistically significant differences between the mean effect sizes produced by the studies using mental health professionals as therapists and the studies including parents as therapists, and in both studies the
results favored of including parents as therapists. Weisz et al. (1995) reported similar findings for studies involving paraprofessionals, including parents or teachers, as therapists yielded a statistically significantly larger mean effect size than both the studies employing professionals as therapists and including students as therapists. However, Weisz et al. (1995) demonstrated no statistically significant difference between the last two groups of studies.

Dowell and Ogles (2010) were interested in the difference between treatment effects of individual child psychotherapy and psychotherapy directly involving parents. Dowell and Ogles collected 48 outcome studies, in which “an individual child treatment group [was compared] to an alternative treatment that consisted of either family therapy or one that combined an individual child intervention with a parent-only intervention” (p. 154). Dowell and Ogles calculated Cohen’s $d$ as the effect size index with the use of the posttest mean differences between two groups divided by the pooled standard deviation. The 48 studies together yielded an overall weighted mean effect size of 0.27 suggesting a statistically significant additional treatment effect for the psychotherapy directly involving parents in comparison with individual child psychotherapy.

As stated in Bratton et al. (2005), the possible factors for the better treatment results produced by parents and teachers serving as therapeutic agents for children and students include stringent treatment procedures, close professional supervision, intensive training, dual roles of parents or teachers as treatment providers and outcome measure sources, and the distinctly challenging levels presented by child clients or participants for which professionals are more likely to receive the more challenging clients than paraprofessionals are likely to receive. Findings for this present study as well as in previous meta-analyses suggest mental health practitioners should strongly consider involving parents fully in their children’s therapy process.
However, CCPT interventions provided by mental health professionals are still considered effective based on the statistically significant findings in this present study and previous meta-analyses and appear vital in some situations. When caregivers are not emotionally available or their children are suffering from severe emotional disturbances, children’s caregivers may be unable to meet these children’s needs, and interventions requiring full caregiver involvement may not be appropriate for these circumstances. Therefore, professionals should be cautioned to use sound judgment when determining treatment modalities, given the findings of this meta-analytic study.

Several post-hoc analyses were conducted in this meta-analysis to explore the impacts of CCPT interventions with full caregiver involvement and of CCPT with partial or no caregiver involvement regarding independent variables such as population and setting. The results from the present post-hoc analyses showed no statistically significant differences between studies of full caregiver involvement and studies of partial or no caregiver involvement on the specific population groups, including children referred due to traumatic experience, children identified at-risk, and children with medical challenges. In other words, CCPT interventions in which caregivers were trained as therapeutic agents in children’s psychotherapy process and CCPT interventions directly provided by mental health professionals deliver equal treatment effects for these specific population groups. Similarly, no statistically significant differences were found between studies of full caregiver involvement and studies of partial or no caregiver involvement in school and non-school settings. This finding suggested equivalent efficacies for CCPT interventions in which caregivers were trained as therapeutic agents in children’s psychotherapy processes and for CCPT interventions provided directly by mental health professionals in either school or non-school settings.
Population. Unlike previous meta-analytic reviews solely focusing on presenting problems or issues, in this present meta-analysis, population were distinguished from presenting issue as an independent variable. The corresponding population groups were added to the between-study level model in the HLM analyses. Among the four population groups, the group of other population generated an average effect size \((ES = 0.80)\) that was statistically significantly larger than the average effect sizes produced by the group of children identified at-risk \((ES = 0.37)\) and the group of children with medical challenges \((ES = 0.24)\). However, the average effect size \((ES = 0.50)\) generated from the group of children referred due to traumatic experience was not statistically significantly different from the ones produced by the other three population groups. Although the high average effect size was observed for the other population category, it is difficult to generate any further conclusion or implication due to the lack of a clear definition for the composition of this population.

Litschge et al. (2009) collected 26 meta-analytic reviews in order to explore the overall efficacy of treatments for childhood and adolescent conduct problems, which would fall in the category of children identified at-risk in the present meta-analysis. Approximately 50% of the collected meta-analyses reported small to medium effect sizes, and the overall average effect size for these 26 meta-analyses was 0.43. Although the average effect size estimated for the studies of children identified at-risk appears lower than the average effect sizes reported by Fabiano et al. and Litschge et al., the different effect size formula and statistical analysis model in this meta-analysis may explain the differences.

Other meta-analysts were especially interested in the populations of maltreated children and children in bereavement. These populations would be included in the current study category of children referred due to traumatic experience. Skowron and Reinemann (2005) collected 21
studies for their meta-analysis and examined the effectiveness of psychological interventions for children identified as maltreatment victims. The overall weighted effect size Skowron and Reinemann reported was 0.54; they used the mean score difference between the experimental and control groups at the posttest divided by the pooled standard deviation. Rosner et al. (2010) conducted a meta-analysis of 27 collected studies to investigate the treatment effectiveness for children and adolescents suffering from bereavement and grief. The formula of mean differences between treatment conditions divided by pooled standard deviation was used to calculate the effect sizes for each study included in the meta-analysis. Among the 27 studies, no treatment control group design was used in 12 studies, but the average effect size of 0.39 was observed. The average effect size produced by the studies of children referred due to traumatic experience for this present meta-analysis appeared similar, if not slightly higher, than the effect sizes reported by Skowron and Reinemann and Rosner et al., suggesting that CCPT is an effective therapy modality for children suffering from traumatic experience.

Child gender. The findings in this study revealed no statistically significant difference between the treatment effects on the studies with majority boy samples and studies with majority girl samples. Furthermore, psychotherapy interventions using CCPT methodology were equally effective between boys and girls in the current meta-analysis. The findings of treatment effects for different child genders varied in previous meta-analytic reviews. Bratton et al. (2005), Leblanc and Ritchie (2001), and Weisz (1987) did not find a statistically significant relationship between treatment effect and child gender. Casey and Berman (1985), however, advocated that the gender of child participants was significantly related to the treatment outcome and that studies with the majority of participants being male tended to yield smaller effect sizes. Weisz et al. (1995) reported that studies with majority female samples produced statistically significantly
higher mean effect sizes than did studies with majority male samples.

*Treatment duration.* The number of treatment sessions was not found to be a statistically significant predictor of the treatment effect in this present study. The relationship between the number of treatment sessions and treatment effects has varied in other meta-analytic reviews as well. Casey and Berman (1985) reported a negative relationship between treatment effect and length of treatment. Bratton et al. (2005) and Leblanc and Ritchie (2001) reported the length of treatment as a significant predictor of treatment effect and found a quadratic relationship between the two variables. The scatter plot of effect sizes versus treatment sessions in this present study showed that the majority of effect sizes centered on session number 10 and were especially located on session numbers 10, 11, and 12. In addition, 32 of the collected studies reported providing 10 to 12 treatment sessions to child participants. Given the majority of effect sizes and studies centered around a treatment length of 10 to 12 sessions, it is reasonable to conclude that the between-study variance on the variable of treatment sessions was likely too low to result in statistical significance.

*Treatment format.* In this current study, I divided treatment format into the three categories of individual play therapy, group play therapy, and CPRT/filial therapy. Although no significant differences were found between these categories, the average effect size produced for the 28 filial therapy studies ($ES = 0.59$) appeared slightly higher than the average effect sizes for the 16 studies of individual play therapy ($ES = 0.33$) and the 8 studies of group play therapy ($ES = 0.33$). Most of the previous meta-analytic reviewers, including Casey and Berman (1985), Leblanc and Ritchie (2001), and Weisz et al. (1987), reported no statistically significant differences between different treatment formats, especially between individually administrated interventions and group treatments.
Weisz et al. (1995) reported a statistically significant difference between individual and group treatments, and the average effect sizes were 0.63 and 0.50, respectively. Bratton et al. (2005) reported studies of individual play therapy conducted by paraprofessionals, who were mostly parents in filial therapy training, produced a statistically significantly larger average effect size ($ES = 1.05$) than the studies of group play therapy ($ES = 0.73$) and studies of individual play therapy ($ES = 0.70$) produced; however, the studies of group and individual play therapy were not statistically significantly different from each other. The present study findings and Bratton et al.’s findings confirmed Dowell and Ogles’ (2010) conclusion that child psychotherapy interventions directly involving parents tend to produce better treatment outcomes in comparison with psychotherapy interventions involving children only.

**Setting.** In the present study, I found no statistically significant differences between treatment effects in school settings and in non-school settings. The estimated average effect sizes produced by the studies of school settings ($ES = 0.45$) and non-school settings ($ES = 0.52$), indicated that treatments using CCPT methodology appeared equally effective in both school and non-school settings. In two previous meta-analytic studies, Casey and Berman (1985) and Bratton et al. (2005) explored the impact of treatment settings on treatment effects. Casey and Berman did not find statistically significant differences between treatment settings, although the mean effect sizes varied across different settings considerably. Bratton et al., however, reported statistically significantly larger average effect sizes for studies in critical-incident settings ($ES = 1.00$) and residential settings ($ES = 1.10$) than for the studies in school settings ($ES = 0.69$) and outpatient clinical settings ($ES = 0.81$). Due to the extreme discrepancies between the number of studies in the school setting and the number of studies representing the other two settings, Bratton et al. cautiously suggested other possible influential variables. Bratton et al.
also suggested treatment duration as an example for which school counselors usually provide a limited number of therapy sessions for each school child in order to serve as many children as possible. Thus, the statistically significant differences between school setting and the other two settings may not reflect the differential treatment effectiveness.

Other Nonsignificant variables. Variables of study characteristics found not to be significant statistically in the present meta-analysis included therapist training level, data origin, statistical analysis method, report of clinical findings, and treatment frequency. These variables were not significantly related to the treatment efficacy of interventions using CCPT methodology.

Final Model

As stated previously, statistically significance results occurred for seven study characteristics in the individual HLM analyses. After adding these seven study characteristics into the overall mixed model, only three of them remained statistically significant. These three were child age, child ethnicity, and clinical level of referral. They were added into the final model as part of the last step in the HLM analysis. These three variables together explained 34.9% of the between-study differences in the 52 collected studies.

Summary

The CCPT modality has a long history of research dating back to 1940s (Bratton et al., 2009; Landreth, 2002). Consistent with most outcome research in the field of psychotherapy, CCPT research is limited by small sample sizes which restrict the generalization of research findings (Ray, Bratton, Rhine, & Jones, 2001). Meta-analysis allows researchers to overcome this limitation by combining research findings and further provides a more integrative summary of a collection of studies. While meta-analytic researchers have investigated the effects of CCPT
as part of larger reviews (Bratton et al., 2005; Leblanc & Ritchie, 2001), this study offers the first meta-analysis focused exclusively on CCPT’s effectiveness.

Leblanc and Ritchie (2001) collected 42 play therapy controlled studies from 1947 to 1997, including 20 studies in child-centered play therapy without caregiver involvement. They found an overall average effect size of 0.43, considered a moderate treatment effect (Cohen, 1988), for the 73 effect sizes from the 20 studies. Bratton et al. (2005) conducted a more comprehensive review of 93 controlled play therapy studies from a similar time frame, 1953 to 2000. Their analyses of treatment characteristics further illustrated a large overall effect size of .92 for 73 humanistic play therapy studies, the majority of which used CCPT methods. It is important to note in Bratton et al.’s meta-analysis, the effect size estimation for humanistic studies included studies with caregiver involvement as well as studies with professionally delivered treatments.

The present meta-analysis was focused exclusively on contemporary CCPT studies conducted from 1995 to 2010. After a careful and thorough search of CCPT literature, I retrieved 52 studies eligible for inclusion in the meta-analysis. Rigorous review and coding of the 52 collected studies produced 239 effect sizes. The results of the first step of analysis, the unconditional model, demonstrated an overall average effect size of 0.47, which was statistically significantly different from zero. Based on this overall effect size, children receiving interventions using CCPT methodology performed approximately one-half of a standard deviation better across treatment periods in comparison with children who did not receive any CCPT intervention. This overall effect size again confirmed CCPT as an effective treatment modality for children.
Although the majority of the effect sizes in this present study appeared lower than the effect sizes reported in previous meta-analytic reviews, these effect sizes should be interpreted in light of the specific statistical analysis method and effect size calculation formula employed for the current meta-analysis. Instead of the effect size formulas adopted by most of the previous meta-analysts, which were based on the outcome data of experimental and control groups at posttest, the formula I utilized accounted for the outcome data of experimental and control groups at both pretest and posttest and is believed to be more stringent and conservative statistically.

One of the main purposes of meta-analysis is to explore the relationships between effect sizes and study characteristics. The results from the second step of HLM analysis in this study revealed statistically significant relationships between treatment effects and nine study characteristics, including publication status, child age, child ethnicity, clinical level of referral, treatment integrity, presenting issue, source of data, population, and caregiver involvement. Presenting issue and source of data were not added into the further analyses due to their low contributions to explained variance. After adding the other seven study characteristics into the third step of analysis, only three of them remained statistically significant and were child age, child ethnicity, and clinical level of referral. These three variables were added into the final model as the last step in HLM analysis. These three variables together explained 34.9% of the between-study differences in the 52 collected studies.

In addition to the statistical methods discussed previously, publication status represents another influential factor researchers need to consider when comparing the findings of this study and those of previous meta-analytic studies. Some meta-analysts, such as Casey and Berman (1985), Huey and Polo (2008), Kazdin et al. (1990), Weisz et al. (1987), and Weisz et al. (1995),
only collected studies published in peer-reviewed journals for their meta-analytic reviews. Studies with statistically significant results are more likely accepted by journals; therefore, it is likely meta-analysts using published studies only might produce inflated effect sizes or might even overestimate treatment effects. The type of control group might also impact interpretations of meta-analysis findings. Meta-analysts who include only studies using no treatment control group or active control group are likely to generate higher effect sizes than those including studies using comparison groups of alternative therapeutic treatments. Hence, the effect size findings in this present study should not be compared with those reported in previous meta-analytic reviews based on numerical values alone.

Limitations

Results from the present study should be interpreted in light of the following limitations. First, several studies failed to include adequate information for coding independent variables into meaningful categories. As a result, for several variables, research assistants were forced to use the codes of not-stated or other or no description. The use of these categories allowed all of the collected studies to be included in the HLM analyses; however, these categories limited the meaningfulness of the interpretation and implications of the analysis results. For example, a statistically significant difference was found between the child ethnicity group of non-Caucasian and the category of not-stated. Without clear information about child ethnicity in the studies coded not-stated, the statistically significant difference between these two categories became meaningless. Therefore, an important recommendation for future researchers is to include thorough information regarding study characteristics.

A second limitation was the effect size formula used in the present study being different from the formula used in the vast majority of meta-analyses in child psychotherapy. I intended
to demonstrate the use of more stringent effect size formula which included outcomes for both pretests and posttests and to utilize advanced statistical analysis techniques (HLM) in order to include multiple effect sizes from each individual study without violating independent observations. Researchers and mental health professionals have an ethical obligation to carefully interpret the results of meta-analytic reviews based on a thorough understanding of statistical methods, particularly when comparing findings between studies. However, the lack of meta-analyses using the effect size formula and statistical analysis technique employed in this study resulted in the inability to meaningfully compare results. Statistics experts and future meta-analysts are thus encouraged to establish guidelines for comparing meta-analytic findings from various effect size formulas and statistical analysis methods.

A final limitation occurred because several categories of study characteristics had to be combined due to the low number of studies for the categories. For example, for the characteristic of child ethnicity, the originally coded categories included three studies of African American children, four studies of Hispanic or Latino children, five studies of Asian children, and three studies of other minority ethnic populations’ children. These categories had to be combined as the category of non-Caucasian in order to compare any studies against the child ethnicity category of Caucasian.

Recommendations

Findings from the present study provided support for use of CCPT methodology as a mental health intervention for children. Directions for future research and recommendations for practitioners and researchers are provided.
Recommendations for Mental Health Professionals

The present meta-analysis was consistent with many previous meta-analytic reviews (Bratton et al., 2005; Dowell & Ogles, 2010; Leblanc & Ritchie, 2001; Weisz et al., 1995) in confirming the benefits of including parents, teachers, or other significant caregivers in the therapeutic process of child psychotherapy. Therefore, child psychotherapists and counselors are encouraged to involve parents or significant caregivers in their treatment process. Another encouraging finding in this present study related to the relationship between child mean age and overall treatment effects for CCPT interventions being particularly beneficial for younger children. This finding confirmed CCPT modalities to be developmentally appropriate for children. Child mental health professionals are encouraged to employ CCPT methods with younger children.

In addition, the findings regarding the effects of CCPT methodology with children of ethnic minority groups, including African American, Latino/Hispanic, Asian/Asian American, and other non-Caucasian groups were especially promising, given the current focus to identify culturally responsive interventions in the mental health field. Based on this finding, child clinicians are strongly encouraged to consider employing CCPT interventions with their culturally diverse clients.

Recommendations for Research

The primary recommendation for future meta-analytic researchers is to replicate the research methodology used in the present study including using (a) the specific effect size formula, (b) the same HLM technique, (c) multiple strategies for assessing publication bias, and (d) appropriate indices for ensuring study quality.
The formulas employed in almost all other meta-analytic reviews were based on the mean difference between experimental and control groups at posttest divided by either pooled standard deviation or control group standard deviation, both of which require the assumption of the homogeneity of pretest scores between groups. However, in the present meta-analysis, I utilized the effect size formula in which the mean difference from pretest to posttest scores between the experimental and control groups was divided by the pretest pooled standard deviation. This formula takes into account outcome data of both pretest and posttest scores, and I accordingly believe it is more stringent. Future meta-analysts are encouraged to consider this formula.

The present study also demonstrated the use of HLM techniques in a meta-analytic review. Instead of calculating an average effect size for each collected study, which is likely to sacrifice precious information in the averaging process, HLM techniques allow meta-analysts to utilize multiple effect sizes for each individual study without violating the assumption of independent data in statistical analyses. Although the HLM method appears to be a complicated statistical technique and requires higher-level statistical skill and knowledge, this advanced statistical method is still recommended to future meta-analysts due to its usefulness in including more thorough information and providing more meaningful results.

The funnel plot graphical technique is one of the most widely used strategies for assessing possible publication bias in a meta-analysis. However, the funnel plot technique has been criticized for over reliance on the subjective judgment of the researchers (Light & Pillemer, 1984; Rothstein, 2007). I thus used both the funnel plot technique and linear regression method in this present study. Future meta-analysts are also encouraged to use multiple strategies for examining publication bias to avoid overly subjective judgment.
Another common limitation of meta-analytic reviews involves the quality of the collected studies (Eysenck, 1994). In this study, I carefully defined treatment integrity and randomization, which are important elements in study quality (Nezu & Nezu, 2008), as two independent variables in order to explore the relationship between study quality and overall treatment effect. Future meta-analytic researchers should also design appropriate indices for accessing study quality.

Conclusion

Although CCPT has been in use since the 1940s and has a long history of research dating back almost that far, critics have questioned its sound empirical evidence and its place in the broader field of child psychotherapy (Bratton et al., 2005). The meta-analyses of LeBlanc & Ritchie (2001) and Bratton et al. responded to the critics by showing that the treatment effect for play therapy appeared comparable to other well-established child therapy interventions. However, Bratton et al. acknowledged that many of the early play therapy studies included in their meta-analysis would not be considered rigorous by today’s standards, and urged contemporary researchers to use more stringent research methods. Ray and Bratton (2010) reviewed outcome studies in the present decade, noting a surge in well-designed and methodologically rigorous research. In response, the purpose of the present meta-analysis was to investigate the effects of play therapy based on contemporary research, and specifically to limit included studies to those using CCPT methodology. Further the present study was designed to demonstrate a high level of methodological rigor including meticulous coding procedures, multiple strategies for accessing publication bias, adoption of the HLM technique, and the use of stringent effect size calculation formula.
Results in this present meta-analytic review of 52 CCPT outcome studies revealed that children who received CCPT interventions improved from pretreatment to posttreatment by approximately one-half of a standard deviation more than children who did not receive CCPT treatment. This finding supports CCPT as a beneficial mental health intervention for children. However, as noted previously, interpreting the magnitude of the treatment effect based on traditional methods (Cohen, 1988) is hindered by the non-traditional statistical methods and effect size calculation formula used in the present study. Additionally, the differences in statistical methodology among the reviewed meta-analyses limit a strict comparison of the effects of CCPT relative to other child therapy interventions.

Statistically significant relationships between effect sizes and study characteristics reveal that the age of the child, child ethnicity, caregiver involvement, and presenting issue appear to be important moderators of the outcome of play therapy. Specifically, while CCPT can be considered effective across presenting issues, it demonstrated the greatest benefit for broad spectrum behavioral problems, child self-esteem, and caregiver/child relationship stress. This result indicates that clinicians should consider CCPT as a viable treatment for children presenting with these concerns. Regarding child’s age, CCPT showed greater benefits for younger children than for children 8 years and above. This finding is particularly noteworthy in light of the paucity of evidence-based child therapy interventions for young children, particularly without full parent involvement (Association for Behavioral and Cognitive Therapies and Society of Clinical Child and Adolescent Psychology, 2010a), and answers the call for interventions designed to meet the mental health needs of young at-risk children (Subcommittee on Children and Families, 2003). The impact of child ethnicity on treatment outcome was another interesting and notable finding. Non-Caucasian children demonstrated substantially
greater improvement as a result of play therapy than their Caucasian counterparts. While more research is needed to explain this result, a possible explanation lies in play’s ability to transcend language barriers for non-Caucasian children, thus allowing them a non-verbal means of expressing their inner feelings, thoughts, and experiences they may be unable to express fully in an English-speaking world. Regardless, the present finding strongly suggests that practitioners can confidently consider CCPT as a culturally responsive intervention.

The present study findings were consistent with other meta-analytic reviews and confirmed the additional benefits of CCPT modalities, such as filial therapy and CPRT, in which caregivers are trained as treatment providers under close supervision over CCPT interventions provided by mental health professionals. Although practitioners are encouraged to involve caregivers in their children’s therapeutic process, practitioners should consider the severity levels of children’s presenting issues as well as caregivers’ emotional readiness before recommending CCPT interventions with full caregiver involvement. When caregivers are struggling with personal issues or the children’s severity levels exceed caregivers’ capacity, they may be unable to meet children’s needs (Bratton et al., 2005).

Overall findings support CCPT’s beneficial treatment effect. Specifically, CCPT can be considered a developmentally and culturally responsive mental health intervention that is effective across presenting issues. Further, these results indicate that CCPT deserves recognition as a viable treatment within the field of child psychotherapy.
APPENDIX A

SUMMARIES OF 52 IDENTIFIED CONTROLLED OUTCOME STUDIES
<table>
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<tr>
<th>AUTHORS</th>
<th>PARTICIPANTS / METHODS</th>
<th>FINDINGS</th>
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<tr>
<td>Beckloff, D. R. (1998). Filial therapy with children with spectrum pervasive development disorders. <em>Dissertation Abstracts International: Section B. Sciences and Engineering</em>, 58(11), 6224.</td>
<td>N = 23 parents of 3- to 10-year-olds identified with Pervasive Developmental Disorder; assigned to treatment groups based on parents’ schedules C = 11 no treatment wait-list E = 12 CPRT CPRT group received 10 sessions of CPRT training (1/wk, 2 hrs) and conducted 7 play sessions with their children (1/wk, 30 mins) quasi-experimental design</td>
<td>Compared to the control group, CPRT-trained parents made statistically significant gains from pre-to post-testing in their ability to recognize and accept their child’s need for autonomy and independence. Although not statistically significant, parents reported a greater increase in their overall acceptance of their child, compared to the control group.</td>
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<tr>
<td>Blanco, P. J. (2010). The impact of school-based child centered play therapy on academic achievement, self-concept, and teacher-child relationship stress. <em>Dissertation Abstracts International: Section A. Humanities and Social Sciences</em>, 70(11).</td>
<td>N=43, academically at-risk 1st graders; randomly assigned by school site to 2 groups C=20 no treatment wait-list E=21 children received 16 sessions of CCPT (2/wk, 30 mins) experimental design</td>
<td>Compared to the control group, children in the experimental group demonstrated a statistically significantly greater improvement on academic achievement composite scores, which indicated children’s overall academic abilities increased.</td>
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<td>*Blanco, P., &amp; Ray, D. (in press). Play therapy in the schools: A best practice for improving academic achievement. <em>Journal of Counseling and Development</em>.</td>
<td>N= 26 children referred by parents or teachers as having adjustment difficulties, ages 4-6. E=13 CCPT (randomly selected from two university clinics) C=13 no treatment control (randomly selected from an elementary school) CCPT group received 7-10 CCPT sessions (1/wk, 45 min) quasi-experimental design</td>
<td>According to parent reports, children in CCPT group demonstrated a statistically significant decrease in internalizing behavior problems, as compared to control group over time. Although not statistically significant, parents of children in CCPT group reported a remarkably larger decrease in parenting stress, as compared to control group over time.</td>
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<tr>
<td>Brandt, M. A. (2001). An investigation of the efficacy of play therapy with young children. <em>Dissertation Abstracts International: Section A. Humanities and Social Science</em>, 61(07), 2603.</td>
<td>N=26 children referred by parents or teachers as having adjustment difficulties, ages 4-6. E=13 CCPT (randomly selected from two university clinics) C=13 no treatment control (randomly selected from an elementary school) CCPT group received 7-10 CCPT sessions (1/wk, 45 min) quasi-experimental design</td>
<td>Compared to the control group, CPRT-trained parents made statistically significant gains from pre-to post-testing in their ability to recognize and accept their child’s need for autonomy and independence. Although not statistically significant, parents reported a greater increase in their overall acceptance of their child, compared to the control group.</td>
</tr>
<tr>
<td>Reference</td>
<td>N = 43 single parents of 3- to 7-year-olds identified with behavioral concerns; random drawing to treatment groups</td>
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<td>CPRT group received 10 sessions of CPRT training (1/wk, 2 hrs) and conducted 7 play sessions with their children (1/wk, 30 mins)</td>
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<td>Between group differences over time revealed that parents in the CPRT group demonstrated a statistically significant increase in empathic interactions with their children as directly observed by independent raters. CPRT parents also reported a statistically significant gain in parental acceptance, as well as statistically significant reductions in parent-child relationship stress and in their children’s behavior problems, compared to the control group over time.</td>
<td>Between group differences over time revealed that children in CCPT group demonstrated a statistically significant improvement in their externalizing behaviors, aggressive behaviors, ADHD behaviors, oppositional defiant behaviors as reported by their teachers.</td>
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<thead>
<tr>
<th>Reference</th>
<th>N = 54 preschool children, ages 3-4, identified with disruptive behaviors; random drawing to treatment groups</th>
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<td>C = 27 active control</td>
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<td>E = 27 CCPT</td>
<td>E = 27 CCPT</td>
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<td>Experimental group received 16-20 sessions of individual CCPT (2/wk, 30 mins)</td>
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<td>Active control group received 16-20 sessions of bibliomentoring (2/wk, 30 mins)</td>
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<td>Between group differences over time revealed that children in CCPT group demonstrated a statistically significant improvement in their externalizing behaviors, aggressive behaviors, ADHD behaviors, oppositional defiant behaviors as reported by their teachers.</td>
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<th>Reference</th>
<th>N = 48 immigrant Hispanic parents of Head Start children identified with behavioral problems; random drawing to treatment groups</th>
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<td>C = 24 no treatment wait-list</td>
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<td>E = 24 CPRT</td>
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<td>CPRT group received 11 sessions of culturally-adapted CPRT training (1/wk, 2 hrs) and conducted 7 play sessions with their children (1/wk, 30 min); CPRT curriculum translated and sessions conducted in Spanish</td>
<td>CPRT group received 11 sessions of culturally-adapted CPRT training (1/wk, 2 hrs) and conducted 7 play sessions with their children (1/wk, 30 min); CPRT curriculum translated and sessions conducted in Spanish</td>
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<td>Compared to the control group over time, CPRT-trained parents reported statistically significant improvement in: a) their children’s externalizing and internalizing behavior problems, and b) parent-child relationship stress. CPRT showed a large treatment effect on all dependent variables. 85 percent of children in the CPRT group moved from clinical or borderline behavior problems to normal levels; 62 percent of parents reported a reduction from clinical levels of parenting stress to normative functioning. Findings were discussed in light of culturally relevant observations.</td>
<td>Compared to the control group over time, CPRT-trained parents reported statistically significant improvement in: a) their children’s externalizing and internalizing behavior problems, and b) parent-child relationship stress. CPRT showed a large treatment effect on all dependent variables. 85 percent of children in the CPRT group moved from clinical or borderline behavior problems to normal levels; 62 percent of parents reported a reduction from clinical levels of parenting stress to normative functioning. Findings were discussed in light of culturally relevant observations.</td>
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<td>Study</td>
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<td>Chau, I. (1996). Filial therapy with Chinese parents.</td>
<td><strong>Dissertation Abstracts International: Section A. Humanities and Social Sciences, 57(04), 1498.</strong></td>
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<td></td>
<td>* Chau, I., &amp; Landreth, G. (1997). Filial therapy with Chinese parents: Effects on parental empathic interactions, parental acceptance of child and parental stress. <em>International Journal of Play Therapy, 6(2), 75-92.</em> N = 34 immigrant Chinese parents of 2- to 10-year-olds; parents assigned to treatment groups based on random drawing and parents’ schedules C = 16 no treatment wait-list E = 18 CPRT CPRT group received 10 sessions of CPRT training (1/wk, 2 hrs) and conducted 7 play sessions with their children (1/wk, 30 min) quasi-experimental design Compared to the control group over time, parents in the CPRT group demonstrated a statistically significant increase in empathic interactions with their children as directly observed in play sessions by independent raters. From pre to post, parents in the CPRT group also reported a statistically significant increase in parental acceptance and a statistically significant decrease in parent-child relationship stress, compared to the control group.</td>
<td></td>
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<tr>
<td>Costas, M. (1999). Filial therapy with non-offending parents of children who have been sexually abused.</td>
<td><strong>Dissertation Abstracts International: Section A. The Humanities and Social Sciences, 59(07), 2359.</strong></td>
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<td>* Costas, M., &amp; Landreth, G. (1999). Filial therapy with nonoffending parents of children who have been sexually abused. *International Journal of Play Therapy, 8(1), 43-66. N = 26 non-offending parents of sexually abused 5- to 9-year-olds; assigned to treatment groups based on random drawing and location C = 12 no treatment wait-list E = 14 CPRT CPRT group received 10 sessions of CPRT training (1/wk, 2 hrs) and conducted 7 play sessions with their children (1/wk, 30 min) quasi-experimental design Between group differences over time revealed that parents receiving CPRT training 1) demonstrated statistically significant gains in their empathic interactions with their children as rated by independent raters, 2) reported a statistically significant increase in acceptance of their children, and 3) reported a statistically significant reduction in parent-child relationship stress. Although not statistically significant, CPRT-trained parents reported a marked improvement from pre- to post-testing in their children’s behavior problems, anxiety, emotional adjustment, and self-concept.</td>
<td></td>
</tr>
<tr>
<td>Danger, S. (2004). Child-centered group play therapy with children with speech difficulties.</td>
<td><strong>Dissertation Abstracts International: Section A. The Humanities and Social Sciences, 64 (9), 3202.</strong></td>
<td></td>
</tr>
<tr>
<td>Reference</td>
<td>N=21 Pre-K to K children referred for speech problems, ages 4-6</td>
<td>Random drawing to two groups</td>
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<tr>
<td>Doubrava, D. A. (2005). The effects of child-centered group play therapy on emotional intelligence, behavior, and parenting stress. Dissertation Abstracts International: Section B. The Sciences and Engineering, 66(03), 1714.</td>
<td>N=19 children with at least one DSM-IV Axis I diagnosis, ages 7-10</td>
<td>Random drawing to two groups</td>
</tr>
<tr>
<td>Fall, M., Balvanz, J., Johnson, L., &amp; Nelson, L. (1999). A play therapy intervention and its relationship to self-efficacy and learning behaviors. Professional School Counseling, 2(3), 194-204.</td>
<td>N=62 5-9 year-old children whose coping mechanisms did not facilitate learning behaviors</td>
<td>C=31 no-treatment control</td>
</tr>
<tr>
<td>Flahive, M. (2006). Group sandtray therapy at school with preadolescents identified with behavioral difficulties. Dissertation Abstracts International: Section A. The Humanities and Social Sciences, 66(11).</td>
<td>N=56 4th &amp; 5th graders</td>
<td>C=28 no-treatment control</td>
</tr>
<tr>
<td>Source</td>
<td>experimental design</td>
<td>children in control group across time.</td>
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<td>N=29  K-5th grade Hispanic children, identified at-risk, ages 5-11  C=14 small group guidance curriculum  E=15 CCPT  Random drawing to groups 15 sessions (1/wk, 30 min)  Both groups were facilitated by bilingual counselors.</td>
<td>According to parent report, from pre to post testing, Hispanic children receiving CCPT from a bilingual counselor showed statistically significant decreases in externalizing behavior problems with a large treatment effect as compared to the curriculum-based treatment group across time. Although the results revealed no statistically significant between group differences, the CCPT demonstrated a medium treatment effect on children’s internalizing behavioral problems.</td>
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<td>N = 21 Native American parents of 3- to 10-year-olds, living on a reservation in western U.S.; parents assigned to treatment groups based on location they lived on the reservation  C = 10 no treatment wait-list  E = 11 CPRT  CPRT group received 10 sessions of CPRT training (1/wk, 2 hrs) and conducted 7 play sessions with their children (1/wk, 30 min)</td>
<td>Compared to the control group over time, parents in CPRT group demonstrated a statistically significant increase in their empathic interactions with their children as directly observed in play sessions by independent raters, and their children also demonstrated a statistically significant increase in desirable play behaviors with their parents (independent raters). CPRT-trained parents also reported an increase in parental acceptance and a decrease in parent-child relationship, and their children reported increased self-concept, although these results were not statistically significant.</td>
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<p>| Source | quasi-experimental design | |
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<tr>
<th>Reference</th>
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<tr>
<td>Grskovic, J., &amp; Goetze, H. (2008). Short-term filial therapy with German mothers: Findings from a controlled study. <em>International Journal of Play Therapy, 17</em>(1), 39-51.</td>
<td>N= 33 German mothers in a 2-week residential treatment facility. Children’s ages ranged from 4-12 years. C= 18 in control group E= 15 in filial group, entire training program lasted 2 weeks, pertaining consisted of two 90-min sessions, mothers were encouraged to have at least five play sessions with their children throughout the 2 weeks. According to parent reports, children of the parents in filial therapy group demonstrated statistically significant improvements on the total behavior and internalizing problems, as compared to the control group over time. Also, parents in filial therapy group showed a statistically significant increase on their positive attention toward their children, as compared to parents in the control group.</td>
</tr>
<tr>
<td>Hacker, C. C. (2009). <em>Child Parent Relationship Therapy: Hope for Disrupted Attachment.</em> (Unpublished doctoral dissertation). University of Tennessee, Knoxville, TN.</td>
<td>N = 30 foster children (2- to 8-year-olds); 30 foster parents C = 15 children/8 parents (Parent Support Group) E = 15 children/15 parents CPRT CPRT group received 5 sessions of CPRT training (1/wk, 3 hrs) and conducted 6 play sessions with their children (2/wk, 30 min) Although the results showed no statistically significant differences of changes across time between children in CPRT and comparison groups, foster children in both group demonstrated improvement on their attachment difficulties according to parent reports.</td>
</tr>
<tr>
<td>Harris, Z. L. (1996). Filial therapy with incarcerated mothers. <em>Dissertation Abstracts International: Section A. The Humanities and Social Sciences, 56</em>(08), 3002.</td>
<td>N = 22 incarcerated mothers of 3- to 10-year-olds; assigned to treatment groups in cycles (based on number of mothers entering the county jail at a given point) through a combination of random drawing and selection of parents to groups to maintain equal number of subjects in each group C = 10 no treatment wait-list E = 12 CPRT CPRT group received 10 sessions of CPRT (2/wk, 2 hrs) and conducted 7 play sessions with their children at the jail during visitation (2/wk, 30 min) Compared to the control group over time, mothers in the CPRT group demonstrated a statistically significant increase in their empathic interaction with their children as directly observed by independent raters, and reported statistically significant gains in their parental acceptance and a statistically significant decrease in their children’s behavior problems.</td>
</tr>
<tr>
<td>* Helker, W. P., &amp; Ray, D. (2009). The impact child-teacher relationship training on teachers’ and aides’ use of relationship-building skills and the effect on student classroom behavior. <em>International Journal of Play Therapy, 18</em>(2), 70-83.</td>
<td>N = 24 Head Start teachers (12 teacher-aide pairs) of at-risk preschoolers identified with behavior problems; teachers assigned to treatment groups based on random drawing and teachers’ schedules; children (n = 32) assigned to treatment group based on teachers’ group assignment C = 12 (6 pairs) active control E = 12 (6 pairs) CTRT CTRT group received teacher adapted 10-session CPRT protocol, followed by 8 weeks (3/wk, 15 min) in-class coaching Companion study with Morrison (2007) quasi-experimental design</td>
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<td>Holt, K. (2011). <em>Child-Parent Relationship Therapy with Adoptive Children and Their Parents: Effects in Child Behavior, Parent-Child Relationship Stress, and Parental Empathy. Dissertation Abstracts International: Section B. Sciences and Engineering, 71</em>(8).</td>
<td>N = 61 adoptive or foster-to-adopt parents of 2- to 10-year-olds C = 29 no treatment wait-list E = 32 CPRT CPRT group received 10 sessions of CPRT training (1/wk, 2 hrs) and conducted 7 play sessions with their children (1/wk, 30 min) experimental design</td>
</tr>
<tr>
<td>Jang, M. (2000). Effectiveness of filial therapy for Korean parents. <em>International Journal of Play Therapy, 9</em>(2), 39-56.</td>
<td>N = 30 Korean mothers of 3- to 9-year-olds C = 16 no treatment wait-list E = 14 adapted CPRT CPRT group received 8 sessions of CPRT (2/wk, 2 hrs) and conducted 7 play sessions with their children quasi-experimental design</td>
</tr>
<tr>
<td>Johnson-Clark, K. A. (1996). The effect of filial therapy on child conduct behavior problems and the quality of the parent-child relationship. <em>Dissertation Abstracts International: Section B. Sciences and Engineering, 57</em>(4), 2868.</td>
<td>N= 52 mother-child pairs (children’s ages 3-5) E1 = 17 filial therapy group (mothers received ten 2-hr weekly filial training sessions and conducted seven 30-min weekly play sessions with their children.) E2 = 18 play-only group (mothers conducted seven 30-min weekly play sessions with their children, without receiving any training) C = 17 non-treatment control group experimental design</td>
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<td>N=30 7-11 year-old children diagnosed with insulin-dependent diabetes mellitus (IDDM) C= 15 no treatment E= 15 CCPT (14 children received 12 sessions during the 3-week, one child received 10 sessions) random drawing to groups</td>
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<td>Compared to control group, children in CCPT group demonstrated a statistically significant improvement in diabetes adaptation from pretest to posttest, according to parent reports. However, both CCPT and control groups demonstrated minimal change in diabetes adaptation at follow-up. Although the between group difference over time was not statistically significant, parents of children in CCPT group reported a remarked improvement in their behavior problems.</td>
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<td>N = 31 junior &amp; senior high school students enrolled in year-long peer mentoring courses; 1 class randomly drawn to receive CPRT protocol; other class assigned to traditional PALS curriculum (children randomly drawn to treatment groups) C = 15 PALS curriculum E = 16 adapted CPRT (to fit year-long course structure) 26 children (ages 4 to 6) randomly assigned to experimental group (e=14) or control group (c=12) Both groups of mentors received training during reg. class time and conducted approx. 20 play sessions with children (ages 4 to 6) identified at-risk for achieving academic success by teachers. CPRT mentors’ weekly 20-min. play sessions were directly supervised by professionals trained in play therapy &amp; CPRT protocol. Data from both Jones (2002) and Rhine (2002).</td>
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<tr>
<td>Compared to PALS group over time, parents of children in the CPRT group reported statistically significant decreases in their children’s internalizing and total behavior problems. Although not statistically significant, parents of children in CPRT group also reported a marked improvement in their children’s externalizing behavior, as compared to PALS group over time. According to teacher reports, children in CPRT group also demonstrated a remarked increase in desirable behaviors over time but children in PALS group only showed a slight increase, although no statistically significant differences were found between CPRT and PALS groups.</td>
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<tr>
<th>Jones, L. (2002). Effectiveness of filial/play therapy training on high school students’ empathic behavior with young children. <em>DAI: Section A. The Humanities and Social Sciences</em>, 63(02), 508.</th>
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<td>N = 30 7-11 year-old children diagnosed with insulin-dependent diabetes mellitus (IDDM) C= 15 no treatment E= 15 CCPT (14 children received 12 sessions during the 3-week, one child received 10 sessions) random drawing to groups</td>
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<td>Compared to control group, children in CCPT group demonstrated a statistically significant improvement in diabetes adaptation from pretest to posttest, according to parent reports. However, both CCPT and control groups demonstrated minimal change in diabetes adaptation at follow-up. Although the between group difference over time was not statistically significant, parents of children in CCPT group reported a remarked improvement in their behavior problems.</td>
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<td>Kale, A. L. (1998).</td>
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<td>Kale, A. L., &amp; Landreth, G. (1999).</td>
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<td>Kaplewicz, N. L. (2000).</td>
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<td>Kellam, T. L. (2004).</td>
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<td>Kidron, M, &amp; Landreth, G. (2010). Intensive child parent relationship therapy with Israeli parents in Israel. <em>International Journal of Play Therapy, 19</em>(2), 64-78.</td>
</tr>
<tr>
<td>Quasi-experimental design</td>
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<tr>
<td>Kot, S. (1996). Intensive play therapy with child witnesses of domestic violence. <em>Dissertation Abstracts International: Section A. The Humanities and Social Sciences, 56</em>(08), 3002.</td>
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<td>Quasi-experimental design</td>
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<td>Lobaugh, A. (1992). Filial therapy with incarcerated parents. <em>Dissertation Abstracts International: Section B. Sciences and Engineering, 53</em>(04), 2046.</td>
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<td>N = 32 immigrant Korean parents of 2- to 10-year-olds; random drawing to treatment groups C = 15 no treatment wait-list E = 17 CPRT CPRT group received 10 sessions of CPRT training (1/wk, 2 hrs) and conducted 7 play sessions with their children (1/wk, 30 min)</td>
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<td>N=29 Kindergartners identified with adjustment difficulties, aged 5 and 6. C=14 no treatment wait-list E=15 group CCPT Children in experimental group received 12 sessions of child-centered group play therapy (1/wk, 40 min) Control group data from Baggerly (1999)</td>
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<td>N = 24 Head Start teachers (12 teacher-aide pairs) of at-risk preschoolers identified with significant behavior problems; teachers assigned to treatment groups based on random drawing and teachers’ schedule; children (n = 52) were assigned to treatment group based on teachers’ group assignment C = 12 (6 pairs) active control E = 12 (6 pairs) CTRT CTRT group received teacher adapted 10-session CPRT protocol, followed by 8 weeks (3/wk, 15 min) in-class coaching</td>
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*Experimental design

Quasi-experimental design

Quasi-experimental design
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<tr>
<th>Source</th>
<th>Title</th>
<th>Participants</th>
<th>Design</th>
<th>Findings</th>
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<tbody>
<tr>
<td>Packman, J. (2003).</td>
<td>Group activity therapy with learning disabled preadolescents exhibiting behavior problems. DAI: Section A. The Humanities and Social Sciences, 63(12), 4234.</td>
<td>N= 24 4th and 5th graders aged from 10-12 identified with behavioral difficulties; random drawing to treatment groups C=12 no-treatment control E=12 Group CCPT/Activity Therapy CCPT group received 1-hour/wk play therapy sessions in a period of 12 weeks</td>
<td>Experimental design</td>
<td>In comparison with children in control group, children in experimental group demonstrated statistically significant improvement across time on their total behavior and internalizing problems, according to parent reports. Although statistically significant differences were not found between children in two groups on the improvement of externalizing problems across time, children in experimental group demonstrated noteworthy improvement on their delinquent and aggressive behaviors.</td>
</tr>
<tr>
<td>Packman, J., &amp; Bratton, S. C. (2003).</td>
<td>A school-based group play/activity therapy intervention with learning disabled preadolescents exhibiting behavior problems. International Journal of Play Therapy, 12, 7-29.</td>
<td>N=168 at-risk 4th-6th graders, aged 9-12 years old C=91 no treatment control E=77 CCPT CCPT group received play therapy, 1-25 (mean=4) sessions (1/wk). No random drawing</td>
<td>Quasi-experimental design</td>
<td>Found a statistically significant difference between CCPT and control groups over time on children’s self-esteem. More precisely, the overall self-esteem in children in CCPT group remained approx. the same, but children in control group showed deterioration in overall self-esteem. Although no statistically significant between group differences were found over time, the locus of control of children in CCPT group remained approximately the same, but children in control group showed remarkable deterioration in their locus of control.</td>
</tr>
<tr>
<td>Post, P. (1999).</td>
<td>Impact of child-centered play therapy on the self-esteem, locus of control, and anxiety of at-risk 4th, 5th, and 6th grade students. International Journal of Play Therapy, 8(2), 1-18.</td>
<td>N = 17 teachers of at-risk preschoolers with behavioral concerns; study logistics did not allow for random assignment of teachers or children to treatment groups C=8 no treatment; E=9 adapted CPRT CPRT teachers got a total of 23 wks of intervention: 10 wks of adapted CPRT group sessions (1/wk, 2 hrs) in which they conducted 7 weekly 30-minute play sessions with an identified student &amp; received 45 min. of individual supervision; the next 13 wks of group intervention focused on helping teachers to generalize CPRT skills to classroom (1/wk, 2 hrs)</td>
<td>Quasi-experimental design</td>
<td>According to teacher reports children in the experimental group, compared to the control group over time, demonstrated a statistically significant improvement in adaptive, internalized, and overall behavior. CPRT-trained teachers demonstrated a statistically significant increase in empathic interactions and use of target play therapy skills in 1-on-1 play sessions with children and in the classroom (assessed through direct observation by raters blinded to study).</td>
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E1=32 CCPT  
children received 16 CCPT sessions (2/wk, 30 min)  
E2=29 teacher consult (TC)  
teachers received 8 TC sessions (1/wk, 10 min)  
E3=32 CCPT + TC  
children received 16 CCPT sessions (2/wk, 30 min); teachers received 8 TC sessions (1/wk, 10 min)  
Random drawing to groups  

**experimental design**  

Although no statistically significant between group differences across time were found, teachers in all three groups reported statistically significant improvement over time in teacher-child relationship stress. According to teacher reports, among 22 children identified at or above the clinical levels on ADHD domain at pretest, 11 children were identified below clinical levels at posttest; 7 out of 13 children who were identified at or above the clinical levels at pretest on Student Characteristics domain were identified with below clinical levels at posttest. |}

C= 22 no treatment wait-list  
E=19 CCPT  
Children first referred to PT were assigned in CCPT group and received 14 sessions over 7 weeks (2/wk, 30min)  
Only 32 parents completed pretest and posttest (E=15, C=17). Teachers completed pretest and posttest for all 41 children.  

**quasi-experimental design**  

Although between group differences over time were not statistically significant, teachers of children in CCPT group reported a remarkably larger decrease in children’s aggressive behaviors as compared to children in control group. |}

C=29 Reading Mentoring (RM);  
E=31 CCPT  
Children in CCPT group received 16 CCPT sessions (1/wk, 30 min)  
Children in RM group received 16 sessions individual reading mentoring (1/wk, 30 min)  
Randomly drawing to groups  

**quasi-experimental design**  

No statistically significant between group differences were found on children’s ADHD symptoms. Compared to RM group over time, teachers of children in CCPT group reported statistically significant improvements on children’s stress towards teachers in personal characteristics, which also indicated moderate treatment effect of CCPT on reducing children’s emotional distress, anxiety, and withdrawal difficulties. |}

C = 25 no treatment wait-list  
E = 25 CPRT  
CPRT group followed 10 session outline for CPRT training (1/wk, 2 hrs) and conducted play sessions with their children.  

**quasi-experimental design**  

Compared to the control group, CPRT parents reported a statistically significant increase pre to post in parental acceptance. While not statistically significant, CPRT trained parents reported a reduction in parent-child relationship stress as well as their children’s behavioral problems, compared to control group parents. |
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<tr>
<th>Study</th>
<th>Sample</th>
<th>Design</th>
<th>Results</th>
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<tr>
<td>Rennie, R. L. (2003). A comparison study of the effectiveness of individual and group play therapy in treating kindergarten children with adjustment problems. Dissertation Abstracts International: Section A. The Humanities and Social Sciences, 63(09), 3117.</td>
<td>N=42 Kindergartners identified with adjustment problems C=13 no treatment E1=1 individual CCPT E2=15 group CCPT Individual CCPT group received 10-12 30-min weekly sessions in 12 wks Group CCPT group received 12-14 45-min weekly sessions in 14 weeks Random drawing to E1 and C; E2 data from McGuire (1999) quasi-experimental design</td>
<td>Compared to no treatment control group over time, parents of children in individual CCPT group reported statistically significant improvements on children’s total behavior and externalizing behavior problems. No statistically significant differences were found between individual and group CCPT treatment interventions.</td>
<td></td>
</tr>
<tr>
<td>Schumann, B. R. (2005). Effects of child-centered play therapy and curriculum-based small-group guidance on the behaviors of children referred for aggression in an elementary school setting. Dissertation Abstracts International: Section A. The Humanities and Social Sciences, 65(12), 4476.</td>
<td>N=37 aggressive K – 4th graders, ages 5-12 E=20 CCPT C=17 curriculum-based small-group guidance group CCPT group received 12-15 CCPT sessions (1/wk, 30 min) Small-group guidance group received 8-15 group sessions. Randomly drawing to groups experimental design</td>
<td>No statistically significant differences between CCPT group and small-group guidance group were found. However, more children in CCPT group demonstrated improvement in aggressive behaviors than in small-group guidance group, according to parent reports.</td>
<td></td>
</tr>
<tr>
<td>* Schumann, B. (2010). Effectiveness of child-centered play therapy for children referred for aggression. In J. Baggerly, D. Ray, &amp; S. Bratton’s (Eds.), Child-centered play therapy research: The evidence base for effective practice (pp.193-208). Hoboken, NJ: Wiley.</td>
<td>N=10 children identified with emotional disorder, ages 5 to 10 E=5 nondirective PT C=5 no treatment PT group received 10 nondirective PT sessions, and the caretakers received 2-3 family counseling sessions. Caretakers in control group only received 1 family counseling session. experimental design</td>
<td>Statistically significant differences were not found at pretest between no treatment control group and nondirective PT group, but parents and teachers of children in PT group reported statistically significantly lower concerns on children’s overall behaviors and emotional as well as behavioral problems as compared to control group at posttest.</td>
<td></td>
</tr>
<tr>
<td>Shashi, K., Kapur, M., &amp; Subbakrishna, D. K., (1999). Evaluation of play therapy in emotionally disturbed children. NIMHANS Journal, 17(2), 99-111.</td>
<td>N=10 children identified with emotional disorder, ages 5 to 10 E=5 nondirective PT C=5 no treatment PT group received 10 nondirective PT sessions, and the caretakers received 2-3 family counseling sessions. Caretakers in control group only received 1 family counseling session. experimental design</td>
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<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>N = 23 low income African American parents of Head Start children identified with behavioral problems; random drawing to treatment groups C = 10 no treatment wait-list E = 13 CPRT CPRT group received 10 sessions of CPRT training (1/wk, 2 hrs) and conducted 7 play sessions with their children (1/wk, 30 min)</td>
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<tr>
<td>Findings indicated that when compared to the no treatment control group, the CPRT group demonstrated statistically significant improvements over time in children’s overall behavior problems and parent-child relationship stress. Treatment effects were large. Cultural considerations were discussed in light of the findings.</td>
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<tr>
<td>N=30 3rd – 6th graders identified with high-risk maladjustment, ages 8-12 years C=15 no-treatment control E=15 child-centered group PT Random drawing to groups CCPT group received group play therapy for 4 weeks (2-3/wk, 40 min)</td>
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<td>Compared to control group over time, children in experimental group demonstrated statistically significant decreases in their overall anxiety, physiological anxiety, worry/oversensitivity, and suicide risk. The results also indicated large overall treatment effects of child-centered group play therapy on reducing children’s anxiety, worry, and oversensitivity, and small to medium treatment effect on reducing children’s suicide risk.</td>
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<td>N = 24 teachers of deaf and hard of hearing 2- to 6-year-olds; classrooms assigned to treatment groups based on stratified random drawing to ensure groups were equal on children’s age C = 12 no treatment wait-list E = 12 CPRT CPRT teachers received 10 training sessions (1/wk, 2 hrs) and conducted 7 play sessions with identified students (1/wk, 30 min)</td>
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</tbody>
</table>
| Between group differences over time revealed that children in the CPRT group made statistically significant improvement in behavior problems and social-emotional functioning. Compared to control teachers, CPRT-trained teachers demonstrated statistically significant gains in their empathic interactions with students (direct observation by blinded raters) and also reported statistically significant increases in acceptance of their students.
<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Title</th>
<th>Year</th>
<th>Methods</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smith, N. (2002)</td>
<td>A comparative analysis of intensive filial therapy with intensive individual play therapy and intensive sibling group play therapy with child witnesses of domestic violence. DAI: Section A. The Humanities and Social Sciences, 62(07), 2353.</td>
<td>2002</td>
<td>N = 44 4- to 10-year-olds who had witnessed domestic violence C = 11 children in no treatment comparison (from Kot et al., 1998) E1 = 11 children of mothers receiving CPRT E2 = 11 children in individual play therapy (from Kot et al., 1998) E3 = 11 children in sibling group play therapy (from Tyndall-Lind et al., 2001) CPRT group received 12 sessions (1.5 hrs) of CPRT training over 2-3 weeks and conducted an average of 7 play sessions (30 min) with their children quasi-experimental design</td>
<td>Compared to no treatment control over time: 1) CPRT-trained parents reported statistically significant decreases in their children’s behavior problems, and 2) children in CPRT group reported a statistically significant increase in self-esteem. Additionally, CPRT parents demonstrated a statistically significant increase from pre to post in their empathic interactions with their children (direct observation by blinded raters). Results across treatment groups revealed no statistically significant differences between interventions.</td>
</tr>
<tr>
<td>*Smith, N., &amp; Landreth, G. (2003). Intensive filial therapy with child witnesses of domestic violence: A comparison with individual and sibling group play therapy. International Journal of Play Therapy, 12(1), 67-88.</td>
<td>2003</td>
<td>N= 19 2nd graders reading below grade level C=11 no treatment control E=8 CCPT random drawing to groups children in CCPT group received 14 individual CCPT sessions (1/wk, 30 min) experimental design</td>
<td>Although no statistically significant between group differences over time were found, the mean scores of both experimental and control groups on DRA revealed improvements in reading ability across three testing periods. The mean scores of both groups on RR also revealed improvements over the treatment period although no statistical analyses were conducted on the assessment results.</td>
<td></td>
</tr>
<tr>
<td>Swanson, R. C. (2008). The effect of child centered play therapy on reading achievement in 2nd graders reading below grade level. Master Abstracts International: Section A: Humanities and Social Sciences, 46(5).</td>
<td>2008</td>
<td>N = 23 parents of hospitalized, chronically ill 3- to 10-year-olds; parents assigned to treatment groups based on parents’ schedule C = 11 no treatment wait-list E = 12 CPRT CPRT group received 10 sessions of CPRT training (1/wk, 2 hrs) and conducted 7 play sessions with their children (1/wk, 30 min) quasi-experimental design</td>
<td>Compared to control group, CPRT-trained parents reported a statistically significant reduction in parent-child relationship stress and in their children’s behavior problems. CPRT parents also reported a statistically significant increase in parental acceptance, compared to control parents over time.</td>
<td></td>
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<tr>
<td>Tew, K. (1997). The efficacy of filial therapy with families with chronically ill children. DAI: Section A. The Humanities and Social Sciences, 58(03), 754.</td>
<td>1997</td>
<td>N = 23 parents of hospitalized, chronically ill 3- to 10-year-olds; parents assigned to treatment groups based on parents’ schedule C = 11 no treatment wait-list E = 12 CPRT CPRT group received 10 sessions of CPRT training (1/wk, 2 hrs) and conducted 7 play sessions with their children (1/wk, 30 min) quasi-experimental design</td>
<td>Compared to control group, CPRT-trained parents reported a statistically significant reduction in parent-child relationship stress and in their children’s behavior problems. CPRT parents also reported a statistically significant increase in parental acceptance, compared to control parents over time.</td>
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</table>

* indicates a study involving filial therapy.
<table>
<thead>
<tr>
<th>Study</th>
<th>Sample Details</th>
<th>Results/Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tyndall-Lind, A. (1999).</td>
<td>N=32 child residents of domestic violence shelters, ages 4-10</td>
<td>Compared to control group over time, children in experimental group demonstrated statistically significant enhancement on their self-concept according to self-reports, and statistically significant improvements on their total behavior problems, externalizing behavior problems, aggressive behaviors, and anxious and depressed behaviors according to parent reports. However, no statistically significant differences over time were found between experimental and comparison groups, which revealed similar treatment effects on two treatment interventions.</td>
</tr>
</tbody>
</table>
C=11 no treatment wait list  
E1=10 sibling group CCPT  
E2=11 individual CCPT  
E1 (experimental group) received 12 sibling group CCPT sessions (45 min) within 12 days  
E2 (comparison group) received 12 individual CCPT sessions (45 min) within 12 days  
Children were assigned to E1 and control groups according to the time periods of their residence in shelters. | |
| Villarreal, C. E. (2008). | N = 13 Hispanic parents of 4- to 10-year-olds; random drawing to treatment groups  
C = 7 no treatment wait-list  
E = 6 CPRT  
CPRT group received 10 sessions of CPRT training (1/wk, 1.5 hrs) and conducted 7 play sessions with their children (1/wk, 30 min) | CPRT-trained parents reported a statistically significant decrease in their children’s internalizing problems from pre- to post-testing as compared to parents in control group. While not statistically significant, CPRT-trained parents also reported a greater decrease in their children’s externalizing problems over the control group. |
| Watson, D. (2007). | N=30 pre-K - 1st graders identified with externalizing behavior problems, ages 4-7  
random drawing to groups  
C=15 no treatment control (treatment as usual)  
E=15 Group PT  
Experimental group received 16 group play therapy sessions (2/wk, 30 min) | Paired sample t tests were conducted individually for both control and experimental groups. The results indicated no statistically significant differences over time for control group on children’s social skills and problem behaviors. The experimental group demonstrated statistically significant improvements over time on social skills, but not on problem behaviors. However, no between group differences were analyzed in this study. |
| Yuen, T. C. (1997). | N=30 child residents of domestic violence shelters, ages 4-10  
C=11 no treatment wait list  
E1=10 sibling group CCPT  
E2=11 individual CCPT  
E1 (experimental group) received 12 sibling group CCPT sessions (45 min) within 12 days  
E2 (comparison group) received 12 individual CCPT sessions (45 min) within 12 days  
Children were assigned to E1 and control groups according to the time periods of their residence in shelters. | |


<table>
<thead>
<tr>
<th>N = 35 immigrant Chinese parents of 3- to 10-year-olds; random drawing to treatment groups</th>
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<tbody>
<tr>
<td>C = 17 no treatment wait-list</td>
</tr>
<tr>
<td>E = 18 CPRT</td>
</tr>
<tr>
<td>CPRT group received 10 sessions of CPRT training (1/wk, 2 hrs) and conducted 7 play sessions with their children (1/wk, 30 min)</td>
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</tbody>
</table>

**Between group differences over time revealed that parents in the CPRT group demonstrated a statistically significant increase in empathic interactions with their children as directly observed in play sessions by independent raters. Statistically significant between group results in favor of CPRT were also found for increased parental acceptance, a reduction in parent-child relationship stress, and reduced child behavior problems.**

*Note.* Treatment groups are denoted by E = Experimental, C= Control or Comparison. * Indicates a journal article published from a study originally completed for a dissertation. The format and majority of information in this chart are from Bratton, (2010), Bratton, Landreth, and Lin (2010), and Ray and Bratton (2010).
APPENDIX B

CODING MANUAL
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**Filial Study Section**

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59. Number of effect sizes calculated on dependent variables \([N\_\text{EF}]\) ......................... p. 8
60. Practical finding reported or not \([\text{PRAC}\_\text{FINDINGS}]\) ........................................ p. 8
61. Primary statistical analysis conducted \([\text{STAT}\_\text{ANAL}]\) ........................................ p. 8
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63. Effect size \([\text{ES}]\) ................................................................................................... p. 9
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4. Type of data effect size based on \([\text{ES}\_\text{TYPE}]\) .........................................................

5. \(F\)-value \((df\) for the numerator must = 1) \([\text{F}\_\text{VALUE}]\) ........................................ p. 10
6. \(t\)-value \([\text{T}\_\text{VALUE}]\) ....................................................................................... p. 10
Coding Manual

Coder Name ____________  Author(s) and Year ________________

Study-level Coding Form (Variable names in brackets)

Complete 1 form for each study. Put the full reference for each study. Read the study carefully and find the appropriate information for each item. Follow the instruction and select appropriate code or write down appropriate information needed in each item. If “Other” is chosen, specify it in the following blank. Provide appropriate description if there is “Description: ___” in the item. Write down questions or concerns in the “Note: ___”. If the item is inapplicable, put N/A in the Note: ___. In the page# box, write down page number of the specific information located in each study.

Attention: For the study published as a dissertation and a journal article, put both full references. Start with journal article first and then go to dissertation for gaps or questions. If any discrepancy noticed, use the information according to the most current report.

1. Type of publication and publication year [PUBINFO]
   Circle the type of publication. If two separate reports are being used to code a single study, circle both relevant codes. Put the publication year in the following blank. Indicate with * for the primary source of data.
   1) Book chapter  Year: ______  2) Journal article  Year: ________________
   3) Thesis or dissertation  Year: ______  4) Technical report  Year: ________________
   5) Conference paper or report  Year: ______  6) Other (specify): ______ Year: ________________

Sample Descriptors (Attach all demographic tables here)

2. Mean age of child participants [CH_MEANAGE] [Page #] 
   Specify the approximate or exact mean age (years) at the beginning of the intervention. (For example, 5 years and 6 months is coded as 5.5) Code the best information available; estimate mean age from grade levels if necessary. Code “99.9” if the mean age cannot be determined.

   Note: ____________________________________________

3. Ethnicity of child participants [CH_ETHN] [Page #]
   Circle and write down the number of participants according to each specific ethnicity.
   1) Caucasian _______  2) African American _______  3) Hispanic/Latino ______
   4) Asian/Asian American _______  5) Other minority ______
   6) Mixed _______  9) Insufficient information/Unclear  10) Not stated

   Note: ____________________________________________

4. Gender of child participants [CH_GENDER] [Page #]
   Write down the number of participants according to each gender.
   1) Male _______  2) Female _______  9) Insufficient information/Unclear  10) Not stated

   Note: ____________________________________________
5. Family characteristics of child [FAMILYCHAR]

Circle the code that best describes the family characteristics of the sample.

1) Biological parents  
2) Foster parents  
3) Adoptive parents  
4) Grandparents  
5) Single parent  
6) One biological parent and one step-parent  
7) Other  
9) Insufficient information/Unclear  
10) Not stated

Note: __________________________________________

6. Income level/SES [SES]

Circle the code that best describes the SES level of the sample.

1) Children are qualified or below the line of poverty  
2) Children are enrolled in Title 1 schools  
3) Other  
9) Insufficient information/Unclear  
10) Not stated

Note: __________________________________________

7. Education of child participants [CHILD_ED]

Circle the code that best describes the education level of the sample during study.

1) Never attended school  
2) Pre-school or pre-kindergarten  
3) Kindergarten  
4) 1st - 2nd grade  
5) 3rd - 4th grade  
6) 5th – 6th grade  
7) 7th – 8th grade or middle school  
8) High school or higher  
9) Insufficient information/Unclear  
10) Not stated

Note: __________________________________________

8. Setting of the study [SETTING]

Circle the code that best describes the setting of the study.

1) School  
2) Hospital  
3) Crisis Settings/Shelters  
4) Prison  
5) Church  
6) Institution  
7) Other  
9) Insufficient information/Unclear  
10) Not stated

Note: __________________________________________

9. Population focus of the study [POPULATION]

Write down the specific population of participants. List all descriptors. For example, child of low-income immigrant Hispanic single mothers residing in a domestic violent shelter … etc. Be careful, it’s about the population, not the presenting problem, but in some studies there may be an overlap of information in #9 & #10.

Please specify & be very specific: __________________________________________

Note: __________________________________________
10. Category of presenting issues or target behaviors. [TARGETBEH]

Write down the specific presenting issues or target behaviors of participants. These should typically be the same as dependent variables in the study. However, most studies may have more than 1 dependent variable. For example, a study may focus the impact of PT on children with ADHD and also investigate the effect of PT on stress in teacher-child relationship or children’s academic performance or self-esteem.

Identify primary target behavior(s) and what behaviors/attitudes were perhaps of secondary importance:
1) Primary: ________________ 2) Primary: ________________
3) Primary: ________________ 4) Secondary: ________________
5) Secondary: ________________ 6) Secondary: ________________
7) Secondary: ________________ 8) Secondary: ________________

Note: ______________________

11. Severity levels of presenting issues at pre-test [SEVERITY]

Circle the code best describing the severity level of the primary presenting problem at the pre-test.
1) All participants scored in Clinical/Borderline/Elevated range (established my assessment)
2) All participants met specified severity criteria established by the researcher
3) Teacher/parent referred, but severity not specified
4) Other ________________ 9) Insufficient information/Unclear 10) Not stated

12. How participants are recruited [RECRUITMENT]

Circle how the participants were recruited.
1) Referred by parent
2) Referred by teacher
3) Referred by school counselor
4) Referred by legal system/CPS
5) Responded to advertisement/flyer
6) Other ________________ 9) Insufficient information/Unclear 10) Not stated

Note: ______________________

Research Design Descriptors

13. Research design [DESIGN]

Circle the type of research design.
1) Experimental 2) Quasi-experimental 9) Insufficient information/Unclear 10) Not stated

Note: ______________________

14. Type of assignment to conditions [ASSIGN]

Circle the code or multiple codes that best describe the random assignment of the sample.
1) Random drawing from random table of numbers (use random number table to assign participants to different groups)
2) Random drawing (randomly draw participants into different groups)
3) Random drawing within cycles (ex: random drawn from wait list at the beginning of each semester)
4) Stratified random assignment (randomly draw within subgroup of population; ex: qualifying children are randomly assigned to treatment groups within each grade level, or randomly assigned within each participating school in study)
5) Minimal random assignment (randomly assign intact groups into treatment or control group; for example, assign 4 classrooms into 2 different treatment groups, 2 classrooms for each group)
6) No random arrangement (random assignment was waived for some reason)
7) Other ________________ 9) Insufficient information/Unclear 10) Not stated
### Nature of the Group Descriptors

15. Experimental group intervention model [TREAT_MODEL]
   - Circle the code that best describes the play therapy intervention in experimental group. Also provide a brief description for the treatment model.
   1) CCPT
   2) Non-directive play therapy
   3) Humanistic play therapy
   4) Humanistic activity therapy/expressive arts/sandtray therapy (following CCPT)
   5) Guerney’s filial therapy model
   6) CPRT/Landreth’s filial therapy model
   7) other
   8) other
   9) Insufficient information/Unclear
   10) Not stated

   Description: __________________________________________________________

   Note: ______________________________________________________________

16. Total number of treatment groups [N_GROUP]
   - Indicate number of groups (including experimental, control and/or comparison groups).

   Note: ______________________________________________________________

17. Type of control/comparison groups [CONTROL_TYPE]
   - Circle the code that best describes the type of the control/comparison group. Also provide a brief description for the activity or alternative treatment.
   1) No treatment control/Wait list control
   2) Alternative/Comparison treatment group
      2nd Alternative/Comparison treatment group
      3rd Alternative/Comparison treatment group
   3) Active control/Placebo group
   4) Other
   5) Other
   6) Other
   7) Other
   8) Not stated
   9) Insufficient information/Unclear

   Note: ______________________________________________________________

18. Number of total participants [TOTAL_N]
   - Write down the total number of participants in the study. Put down “00” if insufficient information.

   Note: ______________________________________________________________

19. Number of participants in experimental group [EXP_N]
   - Write down the total number of participants in the experimental treatment group.

   Note: ______________________________________________________________

20. Number of participants in control/comparison groups [CONT_N]
   - Write down the total number of participants in each specific control/comparison group.

   ______ 1) No treatment control group
   ______ 2) Active control group
   ______ 3) Comparison group
   ______ 4) 2nd Comparison group
   ______ 5) 3rd Comparison group
   ______ 6) 4th Comparison group
21. Treatment integrity [TREAT_INTG] [Page# ]
Circle the code that best describes the treatment type of the experimental group using the following 3 criteria. Also provide a brief description of how treatment integrity was ensured:
- Use of a treatment manual
- Procedure for ensuring treatment integrity described
- Therapists training in CCPT procedures described
  1) Meet all the criteria described above
  2) Meet 2 of the criteria described above
  3) Meet 1 of the criteria described above
  4) No description of above criteria
  5) Other
  6) Insufficient information/Unsure
  7) Not stated

Description:
Note: ________________________________

22. Type of treatment [TREAT_TYPE] [Page# ]
Circle the code that best describes the treatment type of the experimental treatment group. Also provide a brief description for the treatment type if alternative wording used.
  1) Individual play therapy
  2) Group play therapy
  3) Individual activity therapy/expressive arts/sandtray therapy
  4) Group activity therapy/expressive arts/sandtray therapy
  5) CPRT/Filial therapy
  6) Other
  7) Insufficient information/Unsure
  8) Not stated

Description:
Note: ________________________________

23. Duration and intensity of experimental treatment [EXP_DURATION] [Page# ]
Please circle the treatment was conducted by: Therapists / Parents / Caregivers / Teachers / Mentors
Also, fill out the following information.
  1) Number of weeks of actual treatment
  2) Number of total treatment sessions
  3) Length of treatment session (in minute)
  4) Frequency of treatment session (how many times per week)
  5) Length of treatment period (in week)

Note: ________________________________

24. Duration and intensity of comparison group [COMP_DURATION] [Page# ]
Fill out the following information. Put “00” if insufficient information.
  1) Number of weeks of treatment
  2) Number of total treatment sessions
  3) Length of treatment session (in minute)
  4) Frequency of treatment session (how many times per week)

Note: ________________________________

25. Training / Education of professional therapists [TH_TRAIN] [Page# ]
Circle the code(s) that best describes the training of the therapists.
  1) Master’s level counseling graduate students n=
  2) Doctoral level counseling graduate students n=
  3) Earned master’s degree in mental health field but not currently a student n=
  4) Earned doctoral degree in mental health field n=
  5) Other
  6) Insufficient information/Unsure
  7) Not stated

Note: ________________________________
26. License or certification of therapists [TH_LICN]
   Circle the code(s) that best describes the license or certification of the therapists.
   1) Licensed mental health professional n=____  2) School counseling certificate n=
   3) Registered play therapist (RPT) n=____  4) Registered play therapy supervisor (RPT-S) n=
   5) Doctoral LPC-Intern n=____  6) Doctoral but licensure unspecified n=____
   6) Other ________  9) Insufficient information/Unclear  10) Not stated
   Note: _________________________________________________

27. Characteristics of experimental treatment provider [TH_CHAR]
   Circle the code that best describes the characteristics of the experimental treatment provider.
   1) Professional  2) Paraprofessional parents  3) Paraprofessional teachers
   4) Paraprofessional mentors  5) Paraprofessional other
   6) Non-professional  7) Other
   9) Insufficient information/Unclear  10) Not stated
   Note: _________________________________________________

28. Gender of experimental treatment provider [TH_GENDER]
   Write down the number of treatment provider according to each gender.
   ______ 1) Male _______ 2) Female _______ 9) Insufficient information/Unclear  10) Not stated

29. Please describe the parent/teacher involvement in the treatment process. [P_INV] For example, some studies highly involved parents in parent consultation, or some other studies encouraged therapists not to consult with teachers. Please describe it in detail: _________________________________________________

Filial Therapy Study Section (the following info is completed on non-child participants in study)

30. Paraprofessional play therapy treatment provider [FPT_PROVIDER]
   Circle the code that best describes the characteristics of play therapy treatment provider in filial therapy.
   1) Parent  2) Teacher  3) Mentor
   4) Other ________  9) Insufficient information / Unclear  10) Not stated
   Note: _________________________________________________

31. Gender of paraprofessional play therapy provider [FTH_GENDER]
   Write down the number of treatment provider according to each gender.
   ______ 1) Male _______ 2) Female _______ 9) Insufficient information/Unclear  10) Not stated

32. Education of participants receiving filial training [FTH_ED]
   Circle the code that best describes the education level of the filial therapy participants.
   1) Less than 9 years of education  2) Up to 12 years of education but no high school degree
   3) High school graduates  4) More education than high school but less than a bachelor degree
   5) Bachelor degree  6) Master degree or higher  7) Other
   9) Insufficient information/Unclear  10) Not stated
33. Mean age of filial therapy participants [FTH_ \text{AGE}] \[\text{Page #}\]

Specify the approximate or exact mean age (years) at the beginning of the intervention. (For example, 25 years and 6 months is coded as 25.5) Code the best information available; estimate mean age from grade levels if necessary. Code “99.9” if the mean age cannot be determined.

Note: ________________________________________________________________

34. Ethnicity of filial therapy participants [FTH_ \text{ETHN}] \[\text{Page #}\]

Write down the number of filial therapy participants according to each specific ethnicity.

- 1) Caucasian
- 2) African American
- 3) Hispanic/Latino
- 4) Asian/Asian American
- 5) Other minority
- 6) Mixed, more than 2 ethnicities
- 7) Other
- 8) Insufficient information/Unclear
- 9) Not stated

Note: ________________________________________________________________

Research Design / Analysis Coding Form

(Attach statistical tables and text from results section)

Dependent Measure Descriptors

35. Number of measurement points [N_ \text{MEAS}] \[\text{Page #}\]

Write down the number of measurement points (ex: pre, mid, post = 3).

36. Time period between pre and post (and follow-up) in weeks [TIME \text{PERIOD}] \[\text{Page #}\]

Write down the weeks for each specific time period.

- 1) Pretest to posttest (only 2 pts of measure)
- 2) Pretest to midtest (at least 3 pts of measure)
- 3) Pretest to posttest to follow-up (at least 3 pts of measure)
- 4) Posttest to follow-up (at least 3 pts of measure)
- 5) Other
- 9) Insufficient information/Unclear
- 10) Not stated

Note: ________________________________________________________________

37. Type of outcome measures (and source of measure) to measure child participants [CH_ \text{MEAS}] \[\text{Page #}\]

Circle the code that best describes the type of measures and describe source of measurement, when applicable.

1) Filial Problem Checklist source: caregiver
2) Child Behavioral Checklist (CBC) source: caregiver
3) Caregiver-Teacher Report Form (CTRF) source: teacher
4) Connor’s Rating Scales-Revised (CRS-R) source: teacher
5) Direct Observation Form (DOF) source: researcher, blind rater, not specified
6) Harter Self-Perception Profile source: child self-report
7) Piers-Harris Children’s Self-Concept Scale source: child self-report
8) Joseph Picture Self-Concept Scale source: child self-report
9) Achievement assessment source:
10) Other
11) Other
12) Other
38. Number of sources for measurement of target behavior [N_SOURCE] 

Indicate the number of sources for measurement of each target behavior (and describe).

__ Target behavior 1: ________________________________
__ Target behavior 2: ________________________________
__ Target behavior 3: ________________________________
__ Target behavior 4: ________________________________
__ Target behavior 5: ________________________________
__ Target behavior 6: ________________________________

Note: ________________________________

39. Type of outcome measures (and sources) used to measure non-child participants (filial studies) [AD_MEAS] 

Circle the code that best describes the type of measures and the source of parent participants.

1) Parental Stress Index (PSI) source: caregiver
2) Index of Teaching Stress (ITS) source: teacher
3) Measurement of Empathy in Adult-Child Interaction (MEACI) source:
4) Porter Parental Acceptance Scale (PPAS) source: caregiver
5) Other source:
6) Other source:
7) Other source:

40. Did participants (parents) or sources of measure (parents/teachers/school counselors) receive any stipend or indemnity for participating in the study or complete the assessments? ___ [STIP] Please describe in detail: ________________________________

Effect Size & Research Finding

(Attach the specific outcome finding chart here)

41. Clinical significant finding reported or not? [CLIN_FINDINGS]

1) Yes (Attach the finding here) 2) No

Note: ________________________________

42. Effect size(s) caculated or not? [EF_CAL]

1) Yes (Attach the finding here) 2) No

43. Number of effect sizes calculated—should = # of D.V. and post hoc tests (do not report pre-test analysis result)

Write down the number of effect sizes calculated [N_EF]: ________________________________

44. Effect size(s) interpreted or not? [PRAC_FINDINGS]

1) Yes (Attach the interpretation here) 2) No

Note: ________________________________

Means and Standard Deviations Info

(Attach the mean and standard deviation table for each Dependent Variable)

Calculated Effect Size Info

45. Primary statistical analysis conducted [STAT_ANAL]

Circle the code that best describes the type of primary statistical analysis

1) Repeated Measure ANOVA/Split-plot ANOVA 2) ANCOVA
3) MANOVA 4) MANCOVA 5) T-test 6) Other

Note: ________________________________
46. Statistical findings [STAT_FINDINGS]  
Circle the code that best describes the statistical findings in the study.

1) Statistically significant difference between group over time in favor of experimental group
2) No statistically significant difference found between groups over time
3) Statistical significant difference between group over time in favor of control group
4) SS main effect for time; post hoc 1-way ANOVA or t-test revealed SS within-group change pre to post for Exp group
5) Other

Note: ____________________________

47. Effect size [ES]  
Circle the specific type of effect size calculated in the study

1) Eta-square
2) Partial eta-square
3) Cohen’s d
4) Other

Note: ____________________________

Research Quality Info
48. The quality (validity) of study [QUALITY]

1) Type 1: These are the most rigorous and involve a randomized and prospective clinical trial. Such studies also involve comparison groups with random assignment, blinded assessments, clear presentation of exclusion and inclusion criteria, state-of-the-art diagnostic methods, adequate sample size to offer statistical power, and clearly described statistical methods.

2) Type 2: These are clinical trials in which an intervention is investigated, but some aspects of the Type 1 study requirement are missing. For example, a trial in which a double blind cannot be maintained; a trial in which two treatments are compared but the assignment is not randomized; and a trial in which there is a clear but not fatal flaw such as a period of observation that is felt to be too short to make full judgments on treatment efficacy. Such studies clearly do not merit the same consideration as Type 1 studies but often make important contributions and generally should not be ignored.

3) Type 3: There are clearly methodologically limited. Generally, Type 3 studies are open treatment studies aiming at obtaining pilot data. They are highly subject to observer bias and can usually do little more than indicated if a treatment is worth pursuing in a more rigorous design. Also included in this category are case-control studies in which patients are identified and then information about treatment is obtained from them retrospectively. Such studies can, of course, provide a great deal of naturalistic information but are prone to all of the problems of uncontrolled data collection and retrospective recall error.

4) Type 4: Reviews with secondary data analysis can be useful, especially if the data-analytic techniques are sophisticated. Modern methods of meta-analysis attempt to account for the fact that, for example, negative studies tend to be reported at a substantially lower rate than positive outcome studies.

5) Type 5: Reviews without secondary data analysis are helpful to give an impression of the literature but are clearly subject to the writer’s opinion and sometimes are highly biased.

6) Type 6: This encompassed a variety of reports that have marginal value, such as case studies, essays, and opinion papers.

Note: __________________________________________
49. The origin of data [DATA_ORG] 
   Please circle the appropriate code for the origin of data.
   1) Original study
   2) Follow-up study specify the original study:
   3) Companion study specify the companion study:
   4) Use data from previous study (studies) specify previous studies:

Statistics Portion:
1. Normality assumption met or not? 
   1) Yes  2) No  9) Insufficient information/Unclear  10) Not stated

Note: ________________________________

2. Homogeneity assumption met or not? 
   1) Yes  2) No  9) Insufficient information/Unclear  10) Not stated

Note: ________________________________

3. Effect size type [ES_TIME] 
   Circle the code that best describes the type of effect size. Specify the specific type if (5) other is chosen.
   1) Pretest to posttest comparison  2) Pretest to midtest comparison
   3) Pretest to posttest to follow-up comparison  4) Posttest to follow-up comparison
   5) Other  9) Insufficient information/Unclear  10) Not stated

Note: ________________________________

4. Type of data effect size based on [ES_TYPE] 
   Circle the code that best describes the data effect size is based on.
   1) Means and standard deviations  2) t-value or F-value  3) Other

Note: ________________________________

Significance Tests Info
5. F-value (df for the numerator must = 1) [F_VALUE] 
6. t-value [T_VALUE]
   Write down the statistic value of each significance test

\[ \alpha \text{-Level: .05 or .01 or } \]

Note: ________________________________
REFERENCES


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