

Outdoor Child-Centered Play Therapy: A Pilot Study on Outcomes

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Children experience a multitude of benefits in response to interactions with nature. Despite documented effects, children have increasingly spent less time outdoors over the past century and experienced higher rates of physical and emotional illnesses. Although child-centered play therapy (CCPT) is a culturally and developmentally responsive mental health treatment for children, researchers have limited study of environmental structure and materials employed in the therapeutic process of CCPT. In this study, the researcher sought to further research on the integration of nature with CCPT by providing CCPT in an outdoor, contained playroom equipped with traditional CCPT toys and additional nature materials. Participants were 13 children in the southwestern United States with parent-reported attentional or self-regulation concerns (nine males, six females; ages 5–10, $M = 8$). Parents reported participants' racial identities were 13% Black ($n = 2$), 13% Latinx ($n = 2$), 7% Turkish ($n = 1$), and 67% White ($n = 10$). Participants received 8 weeks of twice-weekly CCPT in an outdoor playroom. Results of two repeated-measures analysis of variances revealed statistically significant improvement in attention on the Brown Executive Function/Attention Scales and in social-emotional competencies on the Social Emotional Assets and Resilience Scales-Parent. Results of this study illustrate the possible benefits of theoretically integrating CCPT and nature and the clinical impacts the novel approach could have on children's attention and social-emotional competencies. The study also provided insight into the viability of providing an outdoor CCPT intervention at a larger scale and some problems that may arise in creating and maintaining an outdoor playroom.

Keywords: child-centered, nature, attention, social-emotional competencies, repeated measures

Nature can be found nearly anywhere from indoors with pets and houseplants to outdoors in a remote wilderness area of a national park or a neighbor's well-landscaped backyard.

Research on the effects of nature interaction on humans has grown exponentially within the past 30 years (Twohig-Bennett & Jones, 2018). Twohig-Bennett and Jones (2018) calculated that 96% of the studies, in their systematic review of greenspace exposure and health, were published between 2008 and 2018 with no articles found before 1984. Researchers have established many beneficial effects in adults for encounters, observations, and other types of exposure to animals, plants, landscapes, and wilderness (Twohig-Bennett & Jones, 2018).

Furthermore, researchers established a multitude of beneficial effects children experience due to interactions with nature (Dankiw et al., 2020). Children who live in higher greenspace areas exhibit lower blood pressure levels and parents report higher overall general health (Chawla, 2015). Greater exposure to nature in childhood is

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associated with increased attention (Ulset et al., 2017), increased working memory (Torquati et al., 2017), decreased attention-deficit hyperactivity disorder (ADHD) symptom severity (Taylor & Kuo, 2011; Yang et al., 2019), increased self-regulation (Bakir-Demir et al., 2019; Weeland et al., 2019), decreased peer relationship problems (Hinkley et al., 2018), and spiritual experiences (C. Robinson, 2019).

Despite documented beneficial effects of nature exposure (Dankiw et al., 2020), children have increasingly spent less time outdoors over the past century (Louv, 2008; Rivkin & Schein, 2014). Increasing indoor-based play combined with a shift in children's use of neighborhood greenspace has transformed childhood outdoor play into being more planned, time limited, and often adult controlled or supervised (Skår & Krogh, 2009). Furthermore, pressure on teachers to ensure academic success has led to outdoor recess in schools being cut in favor of more time for structured classroom lessons since the 1980s (Rivkin & Schein, 2014). Simultaneously, governments and housing associations restricted children's access to nature through the criminalization of structures such as forts and treehouses without permits, the closure of lands, and the limitation of the kinds of nature interactions the public is allowed to have on public property (Louv, 2008). To describe the cultural shift away from nature, Louv (2008) coined nature-deficit disorder. He did not consider it as a medical diagnosis but rather defined it as "the human costs of alienation from nature, among them: diminished use of the senses, attention difficulties, and higher rates of physical and emotional illnesses" (p. 36). Louv (2008) believed that nature-deficit disorder could be reversed if meaningful nature interactions increased.

Child-Centered Play Therapy and Nature

Child-centered play therapy (CCPT) is an effective developmentally appropriate therapeutic intervention for children experiencing a wide range of mental health concerns (Bratton et al., 2005; Lin & Bratton, 2015; Ray et al., 2015). Research to support the use of CCPT as an effective mental health intervention for young children exhibiting a range of concerns is well-documented in meta-analyses (Bratton et al., 2005; Lin & Bratton, 2015; Ray et al., 2015). Multiple randomized controlled trial studies

examined the effectiveness of CCPT with children who experienced social-emotional deficits and disruptive behavior problems (Cheng & Ray, 2016; Wilson & Ray, 2018). Furthermore, individual studies explored the effectiveness of CCPT with children who experienced symptoms of ADHD and attention problems with positive outcomes (Ray et al., 2007; A. Robinson et al., 2017; Schottelkorb & Ray, 2009).

Although a literature base exists to support CCPT as an effective intervention, researchers have limited study of environmental structure and materials employed in the CCPT therapeutic process (Ray et al., 2013, 2022). Swank and Shin (2015) developed nature-based CCPT (NBCCPT) to integrate the healing value of exposure to nature into CCPT and enhance the therapeutic process by expanding holistic treatment. In their approach, Swank and Shin emphasized CCPT principles and focused on the child's relationship with nature. Although empirical research has focused primarily on taking CCPT processes into nature with different materials, some researchers have conceptualized integrating natural materials indoors into an existing CCPT playroom (Swank et al., 2020). No research has explored the possibility of combining traditional CCPT toys with natural toys in an outdoor playroom.

Purpose of Study

A primary goal of the present study was to explore the use of nature in CCPT further. Many researchers have focused on whether CCPT is an effective intervention across populations and presenting concerns. However, few researchers have shared insights into how the parts of CCPT, such as the space, toys, and materials, work in the therapeutic process. Furthermore, although the research regarding the benefits of exposure to nature for children is growing (Dankiw et al., 2020), research for the inclusion of nature into CCPT is limited (Swank et al., 2015, 2020). CCPT and exposure to nature have been separately associated with improved attention and self-regulation in children. However, no research has combined CCPT and nature to explore effects on attention and social-emotional competencies. This study sought to further research on the integration of nature with CCPT by providing CCPT in an outdoor, contained playroom equipped with traditional CCPT toys based on Landreth's (2012) suggestions and additional

nature materials based on Swank and Shin's (2015) NBCCPT. The specific research question of interest was: What is the impact of CCPT in an outdoor playroom on improving executive functioning/attention and social-emotional competencies in children 5–10 years old?

Methodology

We utilized a single-group repeated-measures analysis of variance (ANOVA) to analyze outcomes on attentional and social-emotional competencies. Due to the exploratory nature of the study's intervention, we chose a single-group design in accordance with accepted steps to pilot exploratory interventions to discern feasibility of large-scale implementation and potential effects on outcomes of the intervention (O'Reilly et al., 2013). We chose to use repeated measures as a way to increase the rigor and strength of the study. Repeated-measures designs are an effective way to investigate individual's growth over time, particularly when looking at changes over time in clinical populations (Lix & Keselman, 2019).

Participants

The present study was conducted through a university center focused on play therapy services in the context of the 2020 COVID-19 pandemic. Because of the pandemic, in-person services terminated. The center served as a referral bank to help caretakers identify play therapy services. Once the outdoor playroom was established and COVID-19 safety protocols were established, the center offered participation in the present study, which included free play therapy services to caretakers interested in on-site services. COVID-19 safety protocols included toy and equipment disinfection between sessions, face masks worn by clients and counselors at all times, social distancing, hand sanitization for clients and counselors prior to and following sessions, and 30-min breaks between sessions during which the counseling space could not be used and consecutively scheduled clients were prevented from coming into contact with each other.

To be eligible for participation, participants had to (a) be between the ages of 5–10 years, (b) experience attentional or self-regulation concerns as reported by parents, (c) score in the moderately or markedly atypical range on the total composite score of the Brown Executive Function/Attention

Scales (Brown EF/A Scales) or score in the at risk or high risk range on the total score of the Social Emotional Assets and Resilience Scales (SEARS), and (d) be comfortable with in-person services in an outdoor environment. According to G*Power a priori power analysis based on α of .05, medium effect size of 0.25, and power of 0.8, 21 participants were needed. However, due to restrictions following COVID-19 precautionary procedures, only a total of 15 participants could be served.

Participants' ages ranged from 5 to 10 years, with a mean age of 8.0. When asked about race, parents reported participants' racial identities were 13% Black ($n = 2$), 13% Latinx ($n = 2$), 7% Turkish ($n = 1$), and 67% White ($n = 10$). When asked about ethnicity, parents reported participants identified as 7% African ($n = 1$), 7% Black ($n = 1$), 52% Caucasian ($n = 8$), 27% Hispanic ($n = 4$), and 7% Turkish ($n = 1$). When asked about sex and gender separately, each parent reported the same answer for both demographic questions. Parents reported participants identified were 60% male ($n = 9$) and 40% female ($n = 6$).

Instruments

Demographic Questionnaire

Each participant's guardian completed a demographic questionnaire containing multiple-choice and open-ended questions. The demographic questionnaire included the following: child's age, sex, gender, race, ethnicity, average number of hours spent outdoors on a weekday and on a weekend day, and average number of hours of screen time on a weekday and on a weekend day. The four questions regarding outdoor time and screen time were asked during the intake and following the participant's final session.

Brown Executive Function/Attention Scales

The Brown EF/A Scales are a set of assessments measuring executive functions related to ADHD in people ages 3 years and older (Brown, 2019). The Brown EF/A Scales measure attention as a group of executive functions and potential impairments. In this study, the Brown EF/A Scales Parent Form–Early Childhood for children ages 3–7 years and the Brown EF/A Scales Parent Form–Child for children ages 8–12 years were utilized. The Brown EF/A Scales Parent Forms were scored using computer scoring software.

Reliability estimates were considered strong with internal consistency ranging from .77 to .97. Test–retest reliability estimates at an interval of 7–28 days between ratings were strong and ranged from .71 to .92.

Social Emotional Assets and Resilience Scales

The SEARS is a strength-based assessment measuring social–emotional competencies of children and adolescents ages 5–18 years from multiple perspectives (Merrell, 2011). The SEARS measures adaptive characteristics important for a child’s success at school, with peers, and in other environments from a strength-based perspective. In this study, the SEARS–Parent (SEARS-P) was utilized. The SEARS-P was scored using computer scoring software. Reliability estimates were considered strong with internal consistency ranging from .87 to .96. Test–retest reliability estimates at a 2-week interval were strong and ranged from .88 to .93.

Procedure

First, we obtained human subjects approval from the Institutional Review Board. Participants were recruited with convenience sampling through the center via a flyer posted on social media pages and sent to all elementary school counselors in a local school district. Participants contacted the center to schedule an intake appointment. After receiving informed consent from participant guardians, they completed the demographic questionnaire, the age-appropriate Brown EF/A Scales, and the SEARS-P. If the child met inclusion criteria, a researcher scheduled play therapy sessions for the participant.

Play therapists provided CCPT to participants in the outdoor playroom. Participants received two 30-min CCPT sessions per week for 8 weeks or until as close to a total of 16 sessions were completed. Guardians completed the Brown EF/A Scales and the SEARS-P during Sessions 4, 8, 12, and 16. Thus, five total points of measurement were completed over the study with approximately 2 weeks between each measurement point.

Due to compliance with COVID-19 precautionary measures, the outdoor room was closed on Thanksgiving. Thus, some participants were unable to complete 16 sessions. Of the 15 participants, 10 participants completed all

16 sessions, three participants completed 15 sessions, one participant completed 13 sessions, and one participant completed 12 sessions. The parents of the three participants who completed 15 sessions filled out final assessments during what would have been the sixteenth session even though their child was unable to be seen on that day due to the restriction of the closure. Thus, a total of 13 participants completed all five measurements points.

Intervention

Four play therapists provided services to participants as a part of this study. Each play therapist was in a Council for Accreditation of Counseling and Related Educational Programs (CACREP) accredited program and had completed two CCPT courses with at least one semester of supervised experience in CCPT. Play therapists were a White female counselor educator, a White female who was a fourth year doctoral student, an East Asian female who was a second year doctoral student, and a Chinese female who was a second year doctoral student.

Prior to implementing services for this study, all play therapists attended a 1 h orientation. The orientation reviewed CCPT philosophy and skills, introduced the outdoor playroom’s structural components and the natural materials that were added, and addressed implications of the space and natural toys such as limit-setting concerns. The orientation also included information related to the COVID-19 safety plan protocols for disinfecting toys and equipment, face masks, social distancing, and hand sanitization. All play therapists were required to follow a CCPT protocol (Ray, 2011) for the study duration and record all sessions.

Before we analyzed data, one session per participant was randomly selected to be reviewed by an outside auditor to ensure adherence to the CCPT protocol. The auditor was a Master’s level student in a CACREP-accredited counseling program who took at least two play therapy courses and received one semester of supervised CCPT supervision. Furthermore, the auditor was trained in fidelity procedures and had previous experience completing the fidelity analysis. The auditor utilized Ray et al.’s (2017) CCPT—Research Integrity Checklist to tabulate therapist responses according to the categories listed with particular attention to non-CCPT responses.

A 98.9% agreement among all sessions for following the CCPT protocol was met.

Data Analysis

To answer this study's primary research question, we planned two repeated-measures ANOVAs using total composite score on the Brown EF/A Scales and total score on the SEARS-P as the dependent variables. Prior to running the analyses, the data set was examined and determined to meet all assumptions for a repeated-measures ANOVA. Because G*Power indicated a necessary sample size of 21 participants, postpower analysis was run on each ANOVA to address credible effects.

For the purpose of this study, statistical significance was determined by a p value of less than 0.05. After running the repeated-measures ANOVA analysis in SPSS, the output was examined to determine if there was a statistically significant difference across time. Post hoc pairwise comparison analyses were completed to determine between which points of measurement significant changes occurred. To test for practical significance, Cohen's d effect sizes were calculated for the dependent variable to determine the magnitude of the differences between the measurement points. Clinical significance results were examined by noting the change in clinical categories among participants between measurements.

Results

Separate repeated-measures ANOVAs were conducted for each dependent variable to evaluate the impact of CCPT in an outdoor playroom across five points of measure. A decrease in scores on the Brown EF/A Scales and an increase in scores on the SEARS indicate improvement. Time served as the independent variable, including points of measure at the intake session and during Sessions 4, 8, 12, and 16. Group means, standard deviations, and range of scores are reported in Table 1.

Brown EF/A Scales Total Composite

The first repeated-measures ANOVA assessed the impact of outdoor CCPT on participants' executive functioning/attention scores on the Brown EF/A Scales across time as reported by

Table 1

Mean Scores of Each Dependent Variable Across Time (N = 13)

Assessment points of measure	<i>M</i>	<i>SD</i>	Range
Brown EF/A Scales			
total composite score			
Intake	67.77	7.30	55–81
Session 4	63.54	9.61	49–78
Session 8	62.23	9.05	49–79
Session 12	58.23	8.60	47–74
Session 16	56.92	7.90	46–70
SEARS-P total score			
Intake	38.31	6.13	31–50
Session 4	41.92	7.16	30–52
Session 8	42.46	7.15	31–55
Session 12	45.23	7.38	32–55
Session 16	44.62	7.16	33–56

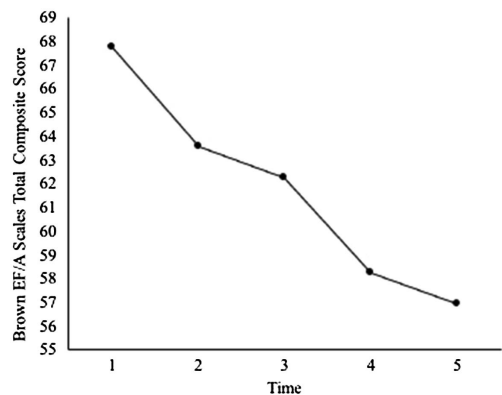
Note. A decrease in mean scores on the Brown EF/A Scales indicates improvement in executive functioning/attention symptoms. An increase in mean scores on the SEARS-P indicates improvement in social-emotional competencies. Brown EF/A Scales = Brown Executive Function/Attention Scales; SEARS-P = Social Emotional Assets and Resilience Scales-Parent.

parents. When examining the means of participants over time (see Figure 1), observation indicates a decrease in the average Brown EF/A total composite scores from intake to Session 16, marking overall improvement in children's executive functioning/attention.

There was a statistically significant effect for time, Wilks' Lambda = .21, $F(4, 9) = 8.447$, $p = .004$, and observed power = .96. Thus,

Figure 1

Means Over Time on Brown EF/A Scales Total Composite



Note. Brown EF/A Scales = Brown Executive Function/Attention Scales.

a statistically significant decrease in total composite scores across the five points of measurement was found. Because a statistically significant result was obtained, a pairwise comparison analysis utilizing the Bonferroni method was completed to determine where the difference in scores occurred. Cohen's d was calculated for each statistically significant difference. Statistically significant differences were found between Time points 1 and 3 with a medium effect ($p = .043$, $d = .674$), 1 and 4 with a large effect ($p < .001$, $d = 1.196$), 1 and 5 with a large effect ($p < .001$, $d = 1.427$), 3 and 4 with an approaching medium effect ($p = .031$, $d = .453$), and 3 and 5 with a medium effect ($p = .025$, $d = .625$). In summary, there was a statistically significant difference in total composite scores between the first and last points of measure with a large effect.

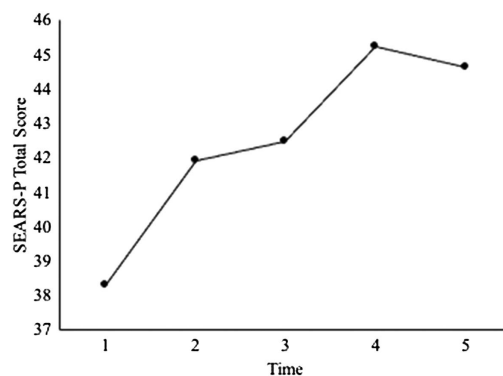
When examining participants' means over time, results indicate clinically significant change in executive functioning/attention. On average, children's scores at the first time measurement ($M = 67.77$) were in the moderately atypical range signifying a significant problem with attention-related behaviors. At the final time measurement, children's scores had improved ($M = 56.92$) and were in the somewhat atypical range signifying a possible significant problem with attention-related behaviors. This decrease in scores represented a one-tier decrease in the classification of clinical severity of symptoms reported by parents.

SEARS-P Total Score

The second repeated-measures ANOVA assessed the impact of outdoor CCPT on participants' social-emotional competencies scores on the SEARS-P across time as reported by parents. When examining the means of participants over time (see Figure 2), observation indicates an increase in the average SEARS-P total scores from intake to Session 16, marking overall improvement in children's social-emotional competencies.

There was a statistically significant effect for time, Wilks' Lambda = .16, $F(4, 9) = 11.809$, $p = .001$, and observed power = .99. Thus, a statistically significant decrease in total scores across the five points of measurement was found. Because a statistically significant result was obtained, a pairwise comparison analysis

Figure 2
Means Over Time on SEARS-P Total Score



Note. SEARS-P = Social Emotional Assets and Resilience Scales-Parent.

was completed to determine where the difference in scores occurred. Cohen's d was calculated for each statistically significant difference. Statistically significant differences were found between Time points 1 and 3 with a medium effect ($p = .016$, $d = .623$), 1 and 4 with a large effect ($p = .011$, $d = 1.020$), 1 and 5 with a large effect ($p < .001$, $d = .947$), and 3 and 5 with a small effect ($p = .007$, $d = .302$). In summary, there was a statistically significant difference in total scores between the first and last points of measure with a large effect.

When examining the means of participants over time, results indicate clinically significant change in social-emotional competencies. On average, children's scores at the first time measurement ($M = 38.31$) were in the Tier 2 range signifying they were at risk for emerging deficits in social-emotional competencies (Merrell, 2011). At the final time measurement, children's scores had improved ($M = 44.62$) and were in the Tier 1 range signifying average to excellent social emotional competencies (Merrell, 2011). This decrease in scores represented a one-tier decrease in the classification of clinical severity of symptoms reported by parents.

Discussion

The present study results indicate that CCPT in an outdoor playroom may be a potential treatment modality to use when improving attention and social-emotional competencies in children. Previous research on the effects of nature exposure

indicates children who are diagnosed with attention disorders, specifically attention deficit disorder and ADHD, benefit from increased exposure to the natural world outdoors (Kuo & Taylor, 2004; Taylor et al., 2001; Yang et al., 2019). Taylor et al. (2001) found parents reported less severity in ADD/ADHD symptoms the greener their child's everyday play environment. Furthermore, Kuo and Taylor (2004) found parents reported significantly reduced ADD/ADHD symptoms following green outdoor activities. In addition, previous research on the effects of increased nature exposure indicates children experience social-emotional benefits, including increased emotional self-regulation (Bakir-Demir et al., 2019; Scott et al., 2018; Weeland et al., 2019) and decreased peer relationship problems (Amoly et al., 2014; Hinkley et al., 2018). Thus, the outdoor aspect of this study's intervention served to explore the effects of therapy in an outdoor environment further, indicating that CCPT presented in a nature-based setting resulted in improvement in participants' attention and overall social-emotional competencies.

CCPT Integration With Nature

The present study sought to ground CCPT in the outdoors to capitalize on the therapeutic benefits of both. Consistent with previous research (Swank & Shin, 2015; Swank & Smith-Adcock, 2018), findings from the present study affirm the establishment of CCPT in outdoor settings with children struggling with attention. When Swank et al. (2015) explored the implementation of NBCCPT with children exhibiting behavioral concerns related to attention, they found children demonstrated decreased total problems and increased on-task behavior following the integrated intervention. Furthermore, Swank and Smith-Adcock (2018) found NBCCPT improved on-task behaviors for children with reported ADHD diagnoses. Researchers have not investigated the impact of NBCCPT on social-emotional competencies in children. No quantitative studies examining the effect of an intervention based on CCPT principles in an outdoor playroom have been conducted to date. Thus, the present study results provide novel insight into possible improvement in children's social-emotional competencies through the continued exploration of nature integration with foundationally CCPT interventions. Placing

CCPT in an outdoor playroom allowed participants to cope with their attention deficits and strengthen their social-emotional competencies through an accepting, understanding relationship with a play therapist while in an environment where they could also experience fewer cognitive demands on attention and explore the edges of their social-emotional competencies through relationships with other living beings.

From this perspective of grounding nature in CCPT, the researchers sought to combine the therapeutic benefits of both while limiting the dilution of the factors comprising either one. Because research supported the effectiveness of both traditional CCPT (Bratton et al., 2005; Lin & Bratton, 2015; Ray et al., 2015) and NBCCPT (Swank & Smith-Adcock, 2018; Swank et al., 2015), researchers wanted to merge the kinds of spaces and toys utilized in both. Thus, the outdoor playroom had both a covered area and a free nature space. Children were also offered a combination of traditional CCPT toys defined by Landreth (2012) and natural toys including some of the ones suggested by Swank and Shin (2015). As the researchers endeavored toward greater theoretical integration and actively practiced play therapy from this lens throughout the study, two challenges for further consideration developed. One challenge involved a need to clarify the goals of play therapy from an integrated lens. The second challenge was to assess the present relationships with nature and determine the appropriate degree of interaction with them during sessions.

The first challenge was clarifying the goals of outdoor CCPT and why including nature in therapy mattered from an integrated perspective. When reviewing Landreth's (2012) therapeutic objectives of CCPT, all 10 focused on developing the child's understanding of self, including qualities such as self-concept and self-responsibility. However, returning to person-centered theory from which CCPT was adapted, Rogers (1951) discussed therapy in broader terms with a goal of resolving breaks in self-concept. Breaks result from a person having a significant degree of incongruence between their experience and self-concept. Rogers (1957) described the six conditions that he believed were necessary and sufficient for therapy to resolve incongruencies (i.e., both persons in psychological contact, client in state of vulnerability, therapist congruence, therapist unconditional positive regard, therapist

empathic understanding, and client perceives unconditional positive regard and empathic understanding). Considering Rogers's (1957) six conditions as the goals of person-centered therapy, and by extension as the goals for CCPT, the purpose of including nature in therapy starts to become clearer. First, the play therapist can increase their own congruence in the therapeutic relationship by recognizing congruence exists at many levels, including consistency between self, experience, and the world, also known as organismic integration (Cornelius-White, 2011). Therefore, the inclusion of nature allows the therapist to convey a higher level of congruence by acknowledging self as a part of nature and honoring the client as a part of the natural world as well. Second, the play therapist can increase their communication of empathic understanding of the child's experience because they attend to an additional aspect of that experience—the child's experience of nature and the natural world.

The second challenge of theoretically integrating CCPT and nature was how to assess relationships with nature and determine the appropriate degree of interaction with such relationships during sessions. From a nature-based perspective, nature serves as another therapeutic agent and as an input of nonverbal communication. In the present study, level of therapist awareness of this role of nature varied. Furthermore, when the play therapist noticed a communication source from nature, she had to decide what to bring to the child's awareness versus save for her own observations. For example, in one session, a child was processing grief from a family pet dying. As the child somberly created a grave scene, a butterfly flew into the canopy and rested on the frame. When the child shifted his play to a happier crafting activity, the butterfly left and did not return. Although the therapist was aware of how the butterfly sat with the child throughout his processing of grief, the therapist chose not to bring the child's attention to how the insect had found the playroom and the child's grief safe to rest with because the therapist did not think it matched the child's experience. In comparison, when a child pointed out a moth sitting on the ground, the therapist reflected the child had noticed the insect. Then, the moth flew away and the child took a plastic butterfly and mimicked the moth's flight pattern. The therapist reflected how the child seemed to

like how the moth flew so much that he wanted to fly too.

Greater theoretical integration of CCPT and nature will require play therapists to continue accruing play therapy experience from this lens. The two challenges described above continue to lack clear resolution. Thus, future play therapists should continue to examine the theoretical implications of what true integration would encompass.

Limitations

Although this study's intervention was exploratory in nature and a repeated-measures design improved credibility and rigor, some limitations impacted the interpretation of results. The primary limitation was the use of a single-group design. Given the study's exploratory nature and a lack of a control group, maturational effects cannot be ruled out. Without a control group, we cannot determine if participants' improvement in attention and social-emotional competencies is primarily due to the outdoor CCPT intervention or other extraneous variables.

Furthermore, the study consisted of a small sample size ($n = 13$). When calculating suggested sample size prior to data collection, a total of 21 participants were suggested. Although the suggested size was unable to be met, the observed power for both repeated-measures ANOVAs was .96 and .99. This observed power level suggests a high probability that the tests correctly rejected the null hypothesis and avoided a Type II error in interpreting the results, indicating that positive change over time in CCPT actually occurred.

Finally, the study occurred during the midst of COVID-19 when additional safety protocols were required. Although most participants had already transitioned back to in-person or hybrid school environments at the time of the study, all participants had a shared history of limited relational contact during the national quarantine response to the pandemic. Thus, without a control group, researchers cannot determine to what extent results may have been influenced by participants experiencing more relational contact following COVID-19 quarantines.

Implications

This study yielded many implications for clinical practice and future research in CCPT.

This study provides evidence that CCPT can be integrated into outdoor spaces and potentially has positive effects on children's attention and social-emotional competencies. Furthermore, this study helps expand the development of creative and theoretically grounded interventions, specifically the flexible application of CCPT principles within novel therapeutic contexts.

This study provided insight into the application of CCPT in an outdoor environment where the play therapist has less control over the space itself and may be confronted with unexpected environmental changes. Additional considerations ranged from expanding CCPT theoretical rationale to include a respect for nature in introducing the therapeutic space to overcoming obstacles related to weather exposure. As therapists were confronted with complications related to being outdoors, we helped create solutions that would maintain the theoretical integrity of CCPT while honoring the integration of nature into therapeutic practice.

Among multiple considerations, therapists and participants adjusted preparations for sessions based on changes in weather and time of day, something that would typically not occur for indoor sessions. Weather determined what kind of clothing participants needed to wear as well as what they might need during session to regulate their body's response to the environment. Whereas some therapists may set limits around bringing drinks to sessions indoors, children were allowed to bring water bottles to help regulate their body, especially in hot temperatures. Furthermore, caregivers were encouraged to consider sun and bug protection for children based on the time of day sessions were scheduled. Weather also affected how long therapists needed to set up the room at the beginning of the day. During colder weather, the clear vinyl roof took more effort to attach to the canopy. Therefore, on colder days, room set up was scheduled to start earlier. Similarly, when it was raining, set up took longer and the schedule adjusted to accommodate.

In addition to weather, outdoor considerations involved being in a less controlled environment. One of the most frequent occurrences outside of the therapists' control was noise including birds, vehicles passing on a nearby street, roofing repair of nearby buildings, and monthly weather siren tests. Whenever loud sounds occurred, therapists followed the child's lead in responding while also observing how the child reacted. One example

across participants was with birds that became more vocal during subsequent afternoon sessions. One participant responded to the loud bird noises by commenting her frustration about them to the therapist and continuing with her play despite the distraction. Subsequently, in the session, she shared that she thought the birds were having a meeting about something which demonstrated empathy for other living creatures. Another participant verbally expressed frustration at the loud sounds followed by taking the mallet and banging it on the trees at his eye level. This action caused the birds to stop and the child expressed satisfaction in his problem solving. In both situations, the therapists were able to gain insight into how both children approached conflict resolution in the moment.

Finally, outdoor sessions required protecting the space from other people breaching the confidential playroom. During the informed consent process at intake, we prepared participants' parents that sessions outdoors have a higher probability of people potentially walking closer to the canopy and overhearing their child before the therapist intervened. Parents appeared to be understanding of this added risk and no participants chose to opt out of services due to this information. Even with planning in place, one therapist did have to respond to a person interrupting a session. The therapist took on an active role, stood up, and placed herself between her client and the third person. The therapist communicated a limit to the third person and they left the space. During the interaction, the client continued their play and the therapist immediately returned to attending to the client following the interruption.

Although this study begins to explore the viability and impact of providing CCPT in an outdoor playroom, future studies need to be conducted to understand further the potential outcomes of integrating nature into CCPT treatment. Randomized controlled trials comparing the effects of CCPT in an outdoor playroom with outcomes from a waitlist control group and traditional CCPT are recommended. Such designs would determine the effectiveness of CCPT in an outdoor playroom and isolate the variable of nature inclusion to determine differences between treatment effects. In addition, randomized controlled trials would require a larger sample size and thus increase the generalizability of findings.

Conclusion

The present study illustrates the possible benefits of theoretically integrating CCPT and nature and the clinical impacts the novel approach could have on children's attention and social-emotional competencies. The study also provided insight into the viability of providing an outdoor CCPT intervention at a larger scale and some problems that may arise in creating and maintaining an outdoor playroom. Through CCPT in an outdoor playroom, children were reported to have reduced problematic symptoms affecting their daily functioning and also were provided the opportunity to explore what it was like to be understood holistically as an individual interconnected with the other-than-human world around them.

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