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Research Article

Effects of a sandplay therapy program at a childcare center on children with externalizing behavioral problems

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ABSTRACT

A study was conducted to determine whether a sandplay therapy program conducted with children at a childcare center had an effect on the aggression and the peer interactions for participants for whom externalizing behavioral problems were in evidence. Twenty children aged 4–5 years who had externalizing behavioral problems were assigned to one of two groups based on their age and gender with ten children in the experimental group and ten children in the control group. The experimental group received 30 min of sandplay therapy twice a week at their childcare center, for a total of 16 sessions. The control group did not receive any therapy or placebo treatment.

Mann-Whitney tests were conducted to confirm the homogeneity between the two groups prior to the initiation of the program. Results indicated that the sandplay therapy program was effective in reducing aggression and negative peer interactions. The usefulness of sandplay therapy programs conducted in childcare centers is presented and discussed.

Introduction

The Republic of Korea's free childcare policy for infants was implemented in 2012 as a way to help families better manage the demands of work and family care. The number of children attending educational services at an earlier age has therefore sharply increased since that time. Given the increase in the use of infant childcare centers by approximately 10% of parents in 2012 (Suh & Lee, 2014), after the policy's implementation, the children in this country are more likely to be cared for in a childcare center at an earlier age. Several studies (Andersson, 1992; NICHD Early Child Care Research Network, 2001; Volling & Feagans, 1995) have reported that early experience in childcare centers foster infants' pro-sociability and cognitive development, such as academic achievement. However, other studies have reported an association between childcare experience and internalizing and externalizing behavior problems in some infants, depending on the quality of the childcare (Belsky, 2001; NICHD Early Child Care Research Network, 2003; NamKung & Choi, 2008). When children are away from their parents for a long time during infancy, a crucial time for establishing secure attachments, there is the chance that they will experience emotional instability and difficulty adapting to everyday life (Berk, 2009). It has been reported that children who attend all-day classes display more problematic behaviors than children in half-day classes (Kim & Han, 2013; NICHD Early Child Care Research Network, 2003).

In order to minimize such negative effects, it is urgent to improve the quality of childcare environments (NICHD Early Child Care Research Network, 2001). In reality, however, limitations, such as teachers' work hours, financial status, and work environments distract teachers from concentrating on matters regarding the quality of the childcare and teachers' expertise (Kim, Jang, & Cho, 2013). Therefore, if children exhibit psychological and behavioral problems, teachers might not be able to respond adequately due to a lack of time to provide support to infants on a one-to-one basis, or to give special education services to infants who have psychological problems (Lee & Cho, 2014). When children's problematic behaviors are not attended to until the end of early childhood, these behaviors can continue into the elementary-school period, and may contribute to difficulties during adolescence. This can then affect personality formation contributing to lifelong challenges (Emond, Ormel, Veenstra, & Oldehinkel, 2007; Sourander & Helstela, 2005). Therefore, considering the long-term consequences, early intervention for problematic behavior in early childhood is an important issue to address (Khaleque & Rohner, 2002), and there is a need to improve the quality of childcare services.

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Childcare centers mainly focus on providing protective care and educational programs. Therefore, the provision of diverse services in the children's environment is often overlooked (Yang, 2003). Although many counseling and parent educational services have been established in local communities to solve this problem, they are not yet widely established; so, accessibility is still limited (Shin, 2008; Yoo, Yang, & Song, 2012). Therefore, professional psychotherapy services for psychological and emotional issues are needed in childcare centers. If psychological services are situated within the childcare environment to intervene in problematic behaviors during the early childhood period, prior to school age, there is an opportunity to prevent problematic behaviors from occurring in the future (Durlak, 1997). Such interventions have the advantage of reducing the costs of psychological and emotional issues that, if not resolved, could be much higher in the future (Brand & Price, 2000; Zelman, 1996). Moreover, psychological services in childcare centers where many children spend most of their day, can promote consistency in the implementation of psychological interventions for children who need them. These services can also benefit children who cannot afford to receive services at a psychological center (Yang & Han, 2014). Given these consequences, it is necessary to be concerned not only about providing education and care, but also about providing therapeutic psychological services and devising cooperative solutions to promote the healthy psychological development of children (Yang & Han, 2014).

Children who have externalizing behavioral problems tend to exhibit conflict through behaviors, such as aggression, hyperactivity, distraction, lying, and kleptomania (Achenbach & Edelbrock, 1983; Achenbach & Rescorla, 2001). Having externalizing behavior problems is associated with disharmonious relationships with teachers (Whittaker & Harden, 2010) and malad justment to childcare centers, and socialization (Chi & Kim, 2014).

Moreover, children with externalizing behavioral problems have trouble socializing because of negative peer interactions, such as aggression due to poor social skills, and their refusal to join peer groups (Arsenio, Cooperman, & Lover, 2000). Therefore, children with externalizing behavioral problems have a higher likelihood of developing a negative self-concept based on the negative evaluations of others (Maughan & Rutter, 1998). Considering the research finding that externalizing behavioral problems during childhood affects one's adaptability during adolescence and adulthood (Mathiesen & Sanson, 2000), it is crucial to intervene with children who display externalizing behavioral problems at an early stage as part of a preventive approach.

Children with externalizing behavioral problems manifest them due to their lack of appropriate skills to regulate emotions and behaviors so that express their negative feelings such as anger in improper ways or do harms to others; thus, one of the main features of this behavioral pattern is aggression (Achenbach & Rescorla, 2001). Although manifesting anger in proper way is necessary, when one manifest anger improper ways so that do harms to others, we can say that as aggression. Children who can regulate their behaviors inhibit socially undesirable negative reactions or impulsive aggression (Eisenberg, Fabes, Guthrie, & Reiser, 2000). And many studies showed that emotional and behavioral self-regulation plays an important role in reducing internalizing and externalizing problems like anger, anxiety, and aggression (Moon & Moon, 2011; Park & Song, 2011). Aggression occurs when one do harms to others physically or psychologically with intention because one cannot regulate his/her emotions and expresses them in undesirable ways (Han, 2005). As a result, aggression has a negative effect on one's interactions with peers and peer relationships. Aggression can also be defined as a behavioral problem manifested as a physical or relational negative expression to others that is intentional (McEvoy, Estrem, Rodriguez, & Olson, 2003; Shaffer & Kipp, 2013); it is referred to as physical or relational aggression. Physical aggression is focused on physical elements, such as objects or other living beings, and it mainly involves external expressions, such as pushing and hitting (Berkowitz, 1993). Relational aggression refers to harming others intentionally, for example, by damaging their reputations or manipulation, which often involves spreading rumors and excluding others from a group (Crick & Grotpeter, 1995; Putallaz et al., 2007). In fact, studies of aggression mostly involve physical aggression (Berkowitz, 1993; Kim, 2009). However, a previous study of elementary school violence (Park, 2013) reported that most incidents of school violence involve relational aggression i.e., doing harm to others by ostracizing them or manipulating social relationships within a group. Relational aggression is more difficult to identify without careful observation (Baek, 2013) because it is not a noticeable aggressive behavior.

Relational aggression in children can be observed through careful observation of their interactions with others, including their verbal interactions. Because it may be on the rise with other social problems, such as bullying, relational aggression deserves further attention (Ostrov & Crick, 2005).

An overall examination of the literature on aggression shows that it is a critical signal or predictor of delinquency on adolescence (Dodge & Coie, 1987). Aggressive adolescents tend to engage in delinquent behaviors and drop out of school more frequently because of negative attitudes about school life and their low motivation for academic achievement (Mathiesen & Sanson, 2000; Tremblay, 2000). Previous studies (Belfield & Levin, 2007; Rumberger, 2011) have found that adolescents who dropped out of school because they were unable to adapt to it were at risk for having difficulties getting a job, finding themselves in financial straits, or becoming involved in crime. Thus, we can infer with caution, the possibility that aggression in early childhood may be connected to difficulties with social adaptation in adolescence and adulthood. Therefore, aggression should to be investigated beginning in early childhood for prevention.

Children who exhibit externalizing behavioral problems tend to have a negative relationship with their peers because they often exhibit aggressive behaviors. Studies have reported that children who displayed aggression and distracted behavior had difficulty with peer interactions due to a lack of socialization skills with peers (Fantuzzo, Sekino, & Cohen, 2004; Franco, Perucchini, & March, 2009). In particular, children with physical and relational aggression were found to be more susceptible to difficulties interacting with their peers because they had a poor understanding of pro-social behavior (Ha & Edwards, 2004). Peer interaction is divided into positive and negative interaction behaviors. Positive peer-interaction behaviors refer to pro-social behaviors, such as cooperating, helping, complimenting, and approaching, whereas negative peer interaction behaviors refer to antisocial behaviors, such as attacking, disregarding, provoking, and threatening (Fantuzzo, Coolahan, Mendez, McDermontt, & Sutton-Smith, 1998). Children's peer interactions are a crucial part of their lives (Harrist & Bradley, 2003) because difficulties with peer interactions experienced by children with externalizing behavioral problems make them feel unable to adapt psychologically, and lead to factors that exacerbate externalizing behavioral problems, such as low self-esteem, anger, aggression, and conduct disorder (Snyder et al., 2003).

Play therapy is one of the interventions used for maladaptive behavior among children. Play therapy helps children recover from emotionally maladaptive behavior and progress to the use of adaptive behavior by using play as a medium (Landreth, 2002). It is also used to prevent maladaptive behavior in children (Schaefer, 2010). Child-centered play therapy is one of several theoretical models and approaches that have been adopted by play therapists. It emerged through humanistic principles as an approach focused

on the therapist's clinical relationship with the child rather than specific therapy skills (Landreth, 2002).

However, sandplay therapy, which utilizes sandplay equipment as a medium, has received recognition for its effectiveness (Han, 2011; Kalff, 1993). Sandplay therapy refers to an approach in which the therapist provides equipment, such as a sandbox and water, so that children can make use of miniatures to express their inner desires in a limited space. Sandplay therapy enables clients to make, talk about, modify, and change their inner thoughts and emotions by using sand, water, miniatures, and their hands. In this context, the miniatures and materials serve as the official language, providing clients with a means to express emotional content deep inside of them. Therefore, sandplay therapy is a way to guide clients to experience healing through a therapeutic process (Boik & Goodwin, 2000).

Sandplay therapy based on child-centered play therapy focuses on the attitude of the therapist and the relationship between the therapist and the child (Campbell, 2004; Kim & Kim, 2013; Landreth, 2002). As the approach to sandplay therapy begins in an unstructured way, it does not excessively limit the behaviors of children who display externalizing behavioral problems. Instead, it provides opportunities for children to free themselves of deep-seated negative emotions and suppressed emotions by letting them candidly express their inner thoughts and to feel accepted (Kim & Kim, 2013). In particular, sandplay can be a pleasurable sensory experience and a developmentally appropriate way for children to connect with peers, express emotions, and engage in exploration using natural processes. These activities facilitate the natural expression of emotions in children with externalizing behavioral problems. Therefore, sandplay therapy can help children with externalizing behavioral problems reduce problematic behavior by expressing and regulating their negative emotions (Kim, 2006). In order to address the fundamental problem, there needs to be an approach that releases children's minds and helps them express themselves as much as they wish. Since sandplay therapy is a playful approach to deal with the inner and fundamental psychology of children that is not exposed, various studies of the effects of sandplay therapy on children with externalizing behavioral problems have been conducted (Ferreira, Eloff, Kukard, & Kriegler, 2014; Kim & Kim, 2013; Sim, 2012).

However, as psychotherapy services are not provided at this time in childcare centers, the availability of sandplay therapy is limited. Sandplay therapy that is conducted in childcare centers involves sending sandplay therapists to the centers where they can provide sandplay therapy to the children there. Although this service has the advantage of providing therapy that children need by linking therapists with parents, teachers, and social workers, and providing early prevention by widening the range of problematic behaviors receiving attention, it has not been established in Korea (Yang, 2003). In contrast, a study conducted in the US reported the effectiveness of introducing play therapy in a school for students who had problems with anger management and aggression (Drewes, Carey, & Schaefer, 2010). That study's findings suggested the value of school-based play therapy, given the positive effects of this therapeutic service. School-based play therapy refers to the provision of play therapy in the school setting, in cooperation with teachers, parents, and peers colleagues (Drewes et al., 2010). Using this system in a childcare center, which is a school for younger children, can be viewed as a method of early prevention and intervention for aggression.

In the present study, we examined the effect of sandplay therapy that was conducted in childcare centers. Undergraduate students who majored in child development and therapists certified to conduct child-centered play therapy and sandplay therapy were sent to childcare centers to provide sandplay therapy to children with externalizing behavioral problems. A section of each childcare center was renovated to function as a sandplay therapy room. Questionnaires about the students, which were administered before and after the sandplay therapy program, were analyzed to assess the effect of sandplay therapy on externalizing behavioral problems, such as aggression and peer interactions. This intervention was implemented with ten children ages 4–5 years who displayed externalizing behavioral problems. Sixteen sandplay therapy sessions were conducted to analyze their effects on the children's aggression levels and their peer interactions.

The research questions were as follows:

1. Does childcare center-based sandplay therapy have an effect on reducing aggression?

2. Does childcare center-based sandplay therapy have an effect on peer interactions?

2-1. Does it increase positive peer interactions?

2-2. Does it reduce negative peer interactions?

Methods

Participants and design

The participants in this study were children ages 4–5 years who were identified by six kindergartens in Seoul as having externalizing behavioral problems. First, we explained the study's aims, rationale, and procedures to the teachers who recommended 28 children who met the study's eligibility criteria for participation. Among the children whose parents gave consent for their participation, 20 children without any type of overlapping therapy were selected as research participants and were divided into two study groups: ten children (8 males and 2 females) in the experimental group and ten children (8 males and 2 females) in the control group. The assignment of the children to the experimental and control groups was based on age and gender. We considered gender first, and assigned the children by age to each group at an equivalent rate, as much as possible.

Research procedure

The 10 students in the experimental group received 30 min of sandplay therapy twice a week, for a total of 16 sessions at their childcare center, while the control group did not receive any therapy. The sandplay therapy sessions were scheduled based on the center's activities and on Sweeney's (1997) theoretical claim that therapy for children is most effective when it lasts between 30 and 45 min and occurs 2 to 5 times a week.

The sandplay therapy that was implemented in this study was based on the principles of child-centered play therapy, which focuses on the attitude of the play therapist and the relationship between the therapist and the child.

The overall framework of the sandplay therapy program was based on Gisela De Dominico's (1988) treatment phases. Our program consisted of 6 stages and 16 sessions of sandplay therapy, following De Dominico's original stages: (1) Creating the world, (2) Experiencing and rearranging, (3) Therapy, (4) Documentation, (5) Transition, and (6) Dismantling the world. The content outline for each stage is shown in Table 1.

The two main researchers were doctoral candidates who majored in child development & counselling and had clinical experience as registered play therapists. Five research assistants participated in the program under the supervision of the two main researchers. The research assistants were graduate students who majored in child development & counselling and also received training in the analysis of sandplay, play therapy, and sandplay therapy during an internship. They received 10 h of orientation to this research. Afterwards, each of them was sent to kindergartens to

Table 1
Content Outline of the Sandplay Therapy Program.

Stage		Content	The Role of the Therapist
1	Creating the World	- Once the client has agreed to create a sand tray, introduce the client to the sand trays, the objects, and the process. - The client creates a scene in the sand with or without objects and water.	- Avoid providing interpretations, insights, ideas, or questions that could in any way lead or influence the client. Therapist should be reflective only. - Make the client feel safe, in a protected space. - Ask the client for permission to record to recall client's world as client creates the world.
2	Experiencing and Rearranging	- Encourage the client to observe the world from different angles or positions. - Provide the chance to alter the placement of objects and/or remove or add objects (if the client wishes.)	- Dismiss the evaluation of client's world. - Use only reflective responses if clients choose to speak at this time.
3	Therapy	- Share client's world verbally with therapist if the client agrees on it.	- Commence questioning about the client's world, but do not urge the client to answer if the client has none. - Begin by asking question using the client's nonverbal cues as a guide.
4	Documentation	- Give the client an opportunity to record the symbolic image by taking a photograph. - Whether the client takes the photograph or therapist takes it, give the client the choice of angle from which the picture is taken.	- Ask for permission to take a photograph for the therapist to recall client's world, after the client has taken the picture.
5	Transition	- Encourage the client to recognize the connection between what transpired in the tray and the realities of everyday occurrences. - Encourage the client to be aware during their daily life of how the experiences are like what happened in this sandplay. - Discuss ways to integrate client's world into the client's consciousness in the event that they occur.	- Therapist's questions or comments will reflect what transpired in the session, depending on what emerged for the client.
6	Dismantling the world.	- Give the client the choice of dismantling the scene before client leaves or leaving it intact. - Dismantle the world thoughtfully after the client has left the therapy room.	- Reflect on the client's process. Complete the notes.

implement one-to-one sandplay therapy with one to three children in the experimental group in a quiet setting. After each session was finished, we photographed the children's sandbox arrangements and recorded our observations of their verbal and physical interactions in a written summary. Moreover, we also consulted with the children's teachers and parents face-to face or via phone after every session to understand the children from a multilateral perspective. The research assistants were supervised more than 3 times by the two main researchers, who used the recorded data.

Measures

Aggression levels

The Korean version of the Preschool Social Behavior Scale-Teacher Form (PSBS: Crick, Casas, & Mosher, 1997; Kim, Chung, Kwon, & Min, 2009) was used to assess the children's aggression levels. The scale consists of 19 items designed for teachers' ratings. Two sub-scales were used to measure relational aggression levels (7 items) (Cronbach's α= 0.85) and physical aggression levels (Cronbach's α = 0.88).

Peer interactions

The Penn Interactive Peer Play Scale (PIPPS; Fantuzzo et al., 1998; Choi & Lee, 2005) was used to obtain teachers' ratings of the children's peer interactions. The scale consists of 8 items measuring positive peer interactions (Cronbach's α = 0.75) and 12 items measuring negative peer interactions (Cronbach's α = 0.87).

Data collection

The researchers visited the kindergartens to distribute and collect the teachers' ratings on the measures of aggression and peer interactions of the experimental and control groups two weeks prior to the start of the program (2 visits) and after the program's completion (2 visits).

Data analysis

Prior to the sandplay intervention, we performed Mann-Whitney tests to confirm the homogeneity of the aggression levels and peer interaction between the experimental and control groups. The Wilcoxon signed-rank test was performed to examine the

Table 2
Homogeneity of Aggression Levels between the Two Study Groups (Pre-program).

Classification	Groups	*N*	Average Rank	Sum of Ranks	Mann-Whitney U	Z	*p*
Relational Aggression	Therapy	10	11.80	118.00	37.00	−0.996	0.353
	Control	10	9.20	92.00			
Physical Aggression	Therapy	10	11.05	110.50	44.50	−0.417	0.684
	Control	10	9.95	99.50			
Aggression	Therapy	10	11.60	116.00	39.00	−0.834	0.436
	Control	10	9.40	94.00			

Table 3
Homogeneity of Peer Interaction Between the Two Study Groups (Pre-program).

Classification	Groups	*N*	Average Rank	Sum of Ranks	Mann-Whitney U	Z	*p*
Positive Peer Interactions	Therapy	10	125.50	118.00	29.50	−1.563	0.123
	Control	10	8.45	84.50			
Negative Peer Interactions	Therapy	10	12.10	121.00	34.00	−1.213	0.247
	Control	10	8.90	89.00			

Table 4
Wilcoxon Signed-rank Test for Aggression Level.

Classification	Groups	Pre Test M(SD)	Post Test M(SD)	Negative Rank N	Negative Rank Average Rank	Negative Rank Sum of Ranks	Positive Rank N	Positive Rank Average Rank	Positive Rank Sum of Ranks	Z (*p*)
Relational Aggression	Therapy group	20.60 (4.60)	18.80 (4.73)	7	4.00	28.00	0	0.00	0.00	−2.388 (0.017)*
	control group	18.00 (3.94)	15.60 (3.20)	5	6.80	34.00	4	2.75	11.00	−1.368 (0.171)
Physical Aggression	Therapy group	14.80 (5.09)	13.40 (4.54)	6	3.50	21.00	0	0.00	0.00	−2.226 (0.026)*
	control group	13.80 (4.54)	12.70 (4.16)	4	6.50	26.00	4	2.50	10.00	−1.136 (0.256)
Aggression	Therapy group	35.40 (9.10)	32.30 (8.58)	7	3.00	35.00	1	1.00	1.00	−2.383 (0.017)*
	control group	31.90 (8.03)	28.30 (5.60)	5	6.80	34.00	4	2.75	11.00	−1.368 (0.171)

Note. *$p < 0.05$; A negative rank means that the aggression level was higher before sandplay therapy; a positive rank means that the aggression level was higher after sandplay therapy.

effectiveness of the sandplay therapy program on the participants' aggression levels and peer interactions.

Ethical considerations

We met with the parents of the 28 children, explained the study to them, informed them that the data collected were for research purposes only, and that they could withdraw their child from the study at any time. We obtained written consent from the children's parents prior to the first sandplay therapy session. Only the data from the children whose parents gave consent for their participation were analyzed.

Results

Homogeneity verifications

Homogeneity verification of the children's aggression levels

The results of the Mann-Whitney test to confirm the homogeneity of the aggression levels between the experimental and control groups are presented in Table 2. On the measure of aggression and its two sub-scales (physical aggression and relational aggression), there were no significant differences between the two groups.

Homogeneity verification of the children's peer interactions

The results of the Mann-Whitney test to confirm the homogeneity of peer interactions between the experimental and control groups are presented in Table 3. On the measures of positive and negative peer interactions, there were no significant differences between the two groups.

Effects of the sandplay therapy program

Evaluation of the effects of the sandplay therapy program on the children's aggression levels

The results of the Wilcoxon signed-rank test of the effectiveness of the sandplay therapy program on the children's aggression levels are shown in Table 4.

The aggression level of the experimental group showed a significant decrease ($Z = -2.383$, $p < 0.05$). The scores on the sub-scales of aggression, physical aggression, and relational aggression levels of the experimental group also decreased significantly ($Z = -2.226$, $p < 0.05$). The aggression level of the control group showed no significant change (Table 4). These results confirmed the effectiveness of the sandplay therapy program in decreasing the aggression level of the children with externalized behavioral problems.

Evaluation of the effects of the sandplay therapy program on peer interactions

The results of the Wilcoxon signed-rank test on the effectiveness of the sandplay therapy program on peer interactions are presented in Table 5.

The negative peer interactions of the experimental group showed a significant decrease ($Z = -1.965$, $p < 0.05$). However, the positive peer interactions of the experimental group showed no significant change and the peer interactions of the control group showed no significant change. These results support the effectiveness of the sandplay program in decreasing the negative peer interactions of children with externalized behavioral problems. Moreover, it can be inferred that as students' aggression levels decreased, aggressive peer interactions also decreased.

Table 5
Wilcoxon Signed rank Test for Peer Interactions.

Classification	Groups	Pre test M(SD)	Post Test M(SD)	N	Negative Rank Average Rank	Sum of Ranks	N	Positive Rank Average Rank	Sum of Ranks	Z (p)
Positive Peer Interactions	Therapy group	8.90 (3.31)	9.00 (3.74)	2	4.75	9.50	5	3.70	18.50	−0.775 (0.439)
	control group	6.60 (3.06)	7.00 (2.36)	3	3.50	10.50	4	4.38	17.50	−0.595 (0.552)
Negative Peer Interactions	Therapy group	18.70 (6.95)	16.70 (6.48)	7	5.57	39.00	2	3.00	6.00	−1.965 (0.049)*
	control group	15.30 (3.65)	14.10 (4.23)	3	6.00	18.00	4	2.50	10.00	−0.690 (0.490)

Note. $^{*}p < 0.05$; A negative rank means that the aggression level was higher before sandplay therapy; a positive rank means that the aggression level was higher after sandplay therapy.

Discussion

The goal of this research was to investigate the effects of a sandplay therapy program conducted in childcare centers on the aggression and peer interactions of children who exhibited externalizing behavioral problems. Thus, 20 children ages 4–5 years from six kindergartens in Seoul, who displayed external behavioral problems, were assigned to two groups: ten children in the experimental group and ten children in the control group. Five graduate students who were qualified to participate in this research conducted 30-min sandplay therapy sessions for one to three children twice a week, for a total of 16 sessions, while the control group received no intervention.

In order to examine the effectiveness of the program, changes in the children's aggression level and peer interactions were measured. First, there was a significant post-test difference in the aggression level of the children with externalizing behavioral problems, who participated in the sandplay program. This result suggested that the sandplay therapy program provided children with opportunities to express their suppressed emotions, and the experience of expressing the negative emotions reduced their aggression levels. Therefore, the children's physical and relational aggression also decreased. Sandplay therapy was effective in reducing aggression in this sample of children, which is consistent with the findings of another study (Sim, 2012) that reported positive changes in children with attention deficits and aggressive behaviors. According to the authors of a previous study (Lee & Chae, 2010), when a person experiences psychological relaxation by emanating negative emotions, his/her level of aggression becomes lower. The emanating experiences of the children in our program are thought to have played a large role in reducing their aggression. In addition, the experience of sympathy felt through the children's relationship with their therapist in this study appeared to have a significant role in reducing their aggression. These findings are consistent with previous studies that found a reduction in children's aggression when perceived support from others was higher (Kim, 2009).

Second, after the completion of the sandplay therapy program in the childcare program, there was a significant difference in the negative peer interactions of the children with the externalizing behavioral problems. Considering previous research results that found intercorrelations between children's aggression and sociality (Greitemeyer & Rudolph, 2003; Marcus & Kramer, 2001), we suggest that the reduced aggression level after the sandplay therapy program had an effect on the children's negative peer interactions and behaviors. However, there was no significant difference in positive peer interactions. Positive peer interactions require a higher level of social skills, such as the ability to take another's perspective, empathy, and moral deduction because they involve pro-social behaviors that benefit others (Kail, 2006). However, 16 sessions of individual sandplay therapy was limited in its ability to enhance such peer interaction skills. Therefore, it is necessary to discover ways to raise children's positive peer interactions through group programs.

The significance of this study's findings is as follows. First, sandplay therapy was found to be effective in reducing aggression and negative peer interactions of children who displayed externalizing behavioral problems. It supported the premise that individual sandplay therapy in childcare centers can be an effective means to intervene with children who have difficulty in adapting to their environment due to aggression.

Second, this research implemented a sandplay therapy program by using a kindergarten as a space resource. This aspect of the study is significant because it provides a model for preventive psychotherapy that effectively makes use of kindergartens for children who display behavioral problems in these settings. Working with and evaluating children in a naturalistic versus a laboratory setting has implications for the conduct of the intervention and the evaluation of the child. It is possible that the results will be easier to generalize to children in similar settings. On a practical level, compared to hospitals and clinics, a childcare setting does not have the stigma of a psychiatric setting, and should therefore, be more comfortable for the child and the parent.

Third, the therapy in this study was conducted through the cooperation of the therapists, each of the child's parents, and the kindergarten. Thus, by having different experts and guardians involved, it was possible to understand and integrate the different impressions of the children. This is significant because it created more possibilities for growth in many areas related to the children.

Suggestions for follow up studies are as follows. First, this research was conducted with only ten children with externalizing behavioral problems in six kindergartens in Seoul. Therefore, a study limitation is the inability to generalize the findings of this research. In future studies, there should be more objective analyses and comparisons of the therapy's effectiveness by examining various group characteristics.

Second, this intervention was implemented for a total 16 sessions over ten weeks. However, the inability to conduct a follow-up evaluation of whether the program's effects were sustained is a limitation. Therefore, in follow-up studies, the implementation of a longer program and an evaluation of the program's sustainability are needed.

Third, this study found that sandplay therapy conducted in childcare settings was effective at reducing the aggression and negative peer interactions of the children who displayed externalizing behavioral problems. Follow-up studies should examine the therapeutic significance of sandplay therapy programs based in childcare settings by designing studies with longer interventions and a larger number of children that investigate specific characteristics of the sandplay program that are most effective in reducing aggression.

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