

The Efficacy of School Sandplay Group Counselling on the Attachment of Elementary School Students with Early Self-injury Behavior: A Preliminary Study

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The purpose of this study was to investigate the effects of school sandplay group counselling on self-injury behavior and attachment to elementary school students showing early self-harm behavior. The study consisted of 22 students in the sixth grade of elementary school located in a small and medium-sized city with a population of 870,000, and group counselling for school sandplay was conducted once a week for a total of 8 times, 40 minutes. In order to verify the effectiveness of group counselling for school sandplay, self-harm function evaluation (FASM) and attachment (ECR-R) were conducted before and after, and significant changes were observed in self-harm behavior ($t=-3.823$, $P=.001$) and unstable attachment ($t=-3.078$, $P=.006$).

Keywords: Elementary school students, self-injury, attachment, and school sandplay group counselling

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Attachment, proposed by Bowlby (1969), is a strong emotional bond that infants feel during interactions with their parents. Mother-child relationship interactions early in life are important for individual development. Infants form secure attachments through sensitive and appropriate responses from their parents and explore the world using their parents as a safe base (Ainsworth, 1989). Attachment is related to many developmental functions during an infant's growth process, such as social relationships, emotion regulation, and curiosity (Sroufe, 2005). Attachment affects a child's self-concept and view of the social world (Collins & Read, 1990), and continues to influence relationships with others throughout an individual's life and even after becoming an adult. (Ainsworth, 1989; Kobak & Sceery, 1988).

The pattern of attachment effects appears similar across age, gender, and racial groups, and adolescents with a secure attachment report overall superior functioning across multiple developmental domains compared to those in the insecure attachment group (Cooper, Shaver, & Collins, 1998). Secure attachment affects adolescents' ego resilience (Kobak & Sceery, 1988). Children who have formed insecure attachment relationships with their parents react with anger, claiming that they have been rejected, that others dislike them, and that they will act aggressively (Lee, Seo, & Jin, 2000). Insecure attachment affects not only adolescents' externalizing behavior problems such as aggression and delinquency, but also their internalizing behaviors such as depression, anxiety,

and immature behavior (Park & Lee, 2008). Children with an insecure attachment have higher levels of anxiety and depression than those with a secure attachment (Muris, Mayer, & Meesters, 2000).

The beginning of self-injury is related to attachment anxiety (Tatnell, Kelada, Hasking, & Martin, 2014). Self-injury is related to unstable relationships with primary caregivers, including physical and sexual abuse and emotional neglect (Kim, 2020). Trust and communication with mothers are associated with self-injury (Gandhi et al., 2016; Claes, De Raedt, Van de Walle, & Bosmans, 2016). Research on domestic adolescents also reports that maternal attachment has a direct effect on self-injury behavior (Hong & Park, 2022).

Family environmental factors such as attachment type and parenting influence the development of anger/hostility in adolescents (Muris, Mayer, & Meesters, 2004), and adolescents with high levels of anger and anxiety have a high frequency of self-harm (Kwon, 2014) and social Loneliness due to isolation can cause or worsen self-injury (Guertin, Lloyd-Richardson, Spirito, Donaldson, & Boergers, 2001; Kim et al., 2022). Additionally, impulsivity is a major factor in self-injury (Herpertz, Sass, & Favazza, 1997; Kim, 2019).

In general, the function of self-injury is to escape emotional states such as anxiety, sadness, and anger, or to escape negative cognitive states such as bad thoughts and bad memories (Nock, Prinstein, & Sterba, 2009). Self-injury is a means of avoiding unwanted emotional experiences

(Chapman, Gratz, & Brown, 2006), and is often done to regulate emotions (Kwon, 2014). It also has a social communication function to gain the attention of people around you or avoid your obligations or responsibilities (Nock & Prinstein, 2004). It is also related to the purpose of self-punishment due to negative self-worth (Hooley & Germain, 2014). A study of 188 domestic adults reported that the more people seek stimulation when alone or with someone else, or injury themselves for the purpose of self-punishment, the more likely they are to belong to the self-injury maintenance group (Kim et al., 2020). In a study of 153 self-harming students in 4th to 6th grade of elementary school in Korea to determine the function of self-injury, the most common reason children self-injury was 'because they were annoyed' at 62.24%, followed by 'to soothe their anxious minds' at 48.98%. 41.84% said 'to escape from a bad mood', 38.78% 'because I was bored', and 32.65% 'trying to express my difficult feelings through my body' (Jeong et al., 2023).

The proportion of adolescents who experienced self-injury behavior was 48.57% in a study of 315 4th to 6th grade elementary school students in a domestic community (Jeong et al., 2023), and 50.7% in a study of 150 students in 5th to 6th grade. (Shin & Kim, 2021), 7.0% (Lee et al., 2023) was investigated in a study targeting 229 first-year middle school students.

Self-injury increases the risk of suicidal behavior (Klonsky, & Olino, 2008; Anestis, Pennings, Lavender, Tull, & Gratz, 2013; Guan, Fox, & Prinstein, 2012). In a survey using

semi-structured interviews with 8,000 adolescents in the United States, considering that 70% of adolescents who engage in non-suicidal self-injury behavior have actually attempted suicide (Nock & Kessler, 2006), and it's a serious problem.

Adolescents are influenced by their peers' self-harming behavior (Nock & Prinstein, 2005). Adolescence is a key period in the process of transferring attachment objects from one primary caregiver to another (Hazan & Shaver, 1994). Attachment to parents increases adolescents' ego resilience and stable peer relationships, thereby reducing anxiety and avoidance in peer relationships (Kim & Kwon, 2014). When secure attachments are formed with peers, behavioral contagion among adolescents appears to be low, whereas groups that have formed insecure attachments are vulnerable to behavioral contagion such as self-injury (Lee JH, Choi SM, & Yoo IH, 2021 ; Lee ,Choi , & Yoo ,2021). Additionally , a study on domestic adults reported that loneliness ,exposure to interpersonal relationships ,and exposure to media all affect the severity of non-suicidal self-injury (Kim et al.,2022).This is why we need to pay attention to the self-injury behavior of elementary school students in the insecure attachment group.

Supportive relationships between adolescents and their mothers can promote a better sense of self by leading to identity integration and reduced confusion, and can reduce vulnerability to self-injury behavior (Gandhi et al., 2016). The more children build trust with their parents, communicate smoothly, and receive appropriate attention from their parents, the higher the child's

ability to control their anger (Lee, 2017). A longitudinal study of 1,973 students aged 12 to 18 recruited from 40 Australian high schools reported that greater family support was associated with decreased self-injury behavior (Tatnell, Kelada, Hasking & Martin, 2014). In a study targeting third-year middle school students in Korea, results showed that a high level of parental support can reduce the influence of impulsivity on self-injury behavior (Kim, 2019). In a study targeting 5th and 6th grade elementary school students in Korea, it showed that family support is a protective factor that reduces self-injury behavior in upper grade elementary school students (Shin & Kim, 2021).

Therefore, when counselling adolescents, counselling intervention should take into account not only the level of problem behavior but also the unstable attachment that is expected to have influenced the manifestation of the behavior (Park & Lee, 2008). Sandplay therapy allows the client to demonstrate self-healing power through a relationship between the counselor and client that completely trusts and loves each other like a mother and child. Clients safely express their suppressed inner emotions in a free and protected space (Kalff, 2003). Counselors listen actively and non-judgmentally to clients and promote secure attachment (Green, Myrick, & Crenshaw, 2013). In this way, sandplay therapy is effective for a wide range of psychological problems and disorders, including psychological trauma, beyond verbal communication and cognitive insight (Roesler, 2019; Freedle, 2007; Miyuki, 2017).

Sandplay therapy is a useful tool with clinical evidence for school counselors in school settings

(Carmichael, 1994; Allan & Berry, 1987; Goss & Campbell, 2004; Banwarth, S. I. 2007).

School sandplay group counselling is effective in reducing negative emotions and problem behavior in elementary school students (Kwak et al., 2018; Jeon, Lee, & Kwak, 2022; Lee & Kim, 2020). In a study of 70 high school students in the Adolescent Personality and Mental Health Problems Screening Questionnaire (AMPQ) risk group, it was reported that school sandplay group counselling reduced depression and aggression and had an effect on positive attachment (Ahn, 2021). Another study targeting 68 high school students in the AMPQ risk group reported that it is an effective treatment method for improving not only internalized problems such as depression, anxiety, and self-esteem, but also externalized problems such as attention deficit, hyperactivity, and impulsivity (Lee, 2024). In addition, there is a study that shows that school sandplay group counselling has a significant clinical effect on the sensory processing function and suicidal thoughts of elementary school students with suicidal thoughts (Kim, Kim, & Ahn, 2024).

Based on these previous studies, This study aims to confirm changes in the target group after conducting school sandplay group counselling for anxiously attached elementary school students who reported self-injury behavior.

The hypothesis of this study was set as follows.

◁Hypothesis 1▷ School sandplay group counselling will reduce self-injury behavior in elementary school students.

<Hypothesis 2> School Sandplay group counselling will reduce anxious attachment in elementary school students with self-harm behavior.

Methods

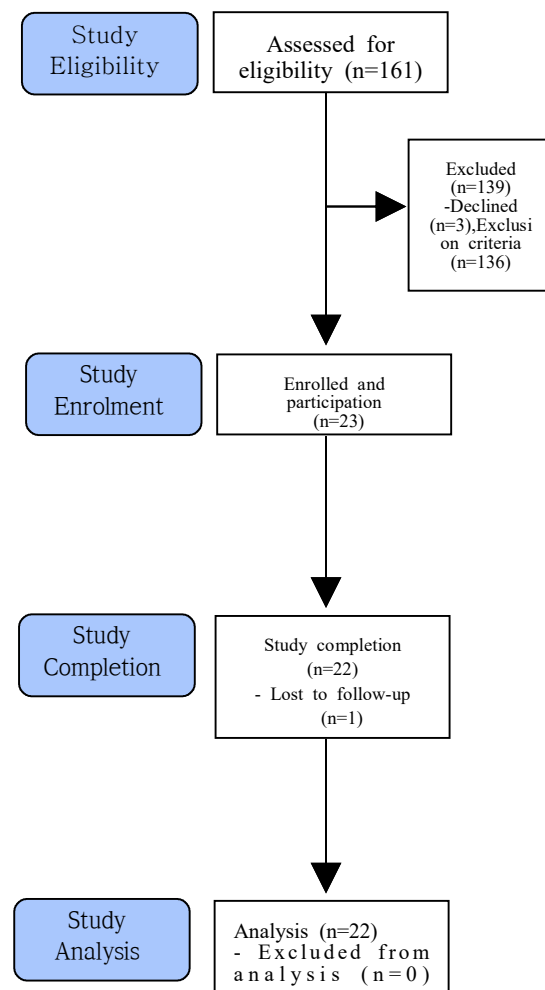
Research Subjects and procedures

The research team sent an official notice regarding the purpose of this study to school counselors at elementary schools in the community, and held a preliminary meeting with school counselors from schools that agreed to the purpose of the study. The elementary school is located in a small city with a population of 870,000. It is a dense residential area surrounded by apartment complexes with many single-parent families and multi-cultural families, and was receiving support from the Office of Education as a special school in emotional crisis.

After selecting 6th grade as the target grade at a pre-meeting, prior consultation was held with the teachers' meeting and parents' association of that grade, and an official letter regarding the pre-screening of students' self-injury behavior was sent to all parents of 6th grade students, and 161 students agreed to the self-harm behavior survey. A pre-test was administered to students.

Individual interviews were conducted with 26 students who responded to one or more self-harm behavior items in the survey, the survey results were delivered to parents, and measures for the mental health and safety of the students were guided. 23 students who agreed to the research purpose participated in the study. Additionally, one student who did not take the post-test due to

frequent absences was excluded from the statistical analysis. The flow of the research process is as shown in <Figure 1>, and the demographic characteristics of the participants in the study are as shown in <Table 1>.



<Figure 1> Flow diagram for study participation

<Table 1> Demographic characteristics of participants.

		Mean ± SD	Range	Frequency (%)
Sex	Male			10(45.5%)
	Female			12(54.5%)
Age		11.8±0.3	11.3-12.2	
Height (cm)		153.4±7.4	139-167	
Weight (kg)		46.2±11.2	30-73	
BMI		19.5±4.1	13.4-31.6	
Economic Level	High			5(22.7%)
	Middle			14(63.6%)
	Low			2(9.1%)

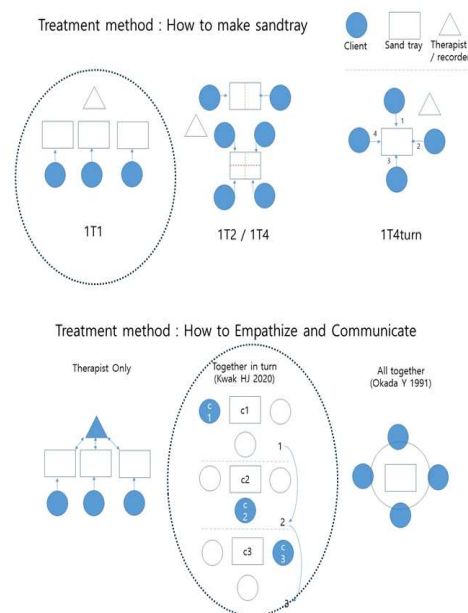
Treatment Method

This study is a field-based study to actively respond through prevention and treatment to the recently increasing risk of suicide and self-injury behavior in clinical settings such as schools. Therefore, considering the characteristics of the research environment and ethical issues, such as a school clinical site, One-Group Pretest-Posttest Design without a control group was adopted.

School sandplay group counselling was conducted once a week for a total of 8 sessions between April and July 20XX. Each session lasted 40 minutes, and in the introduction stage, a 5-minute meditation session was held, along with promises of information protection such as 'keeping each other's secrets' and creating a safe group counselling atmosphere. Each participant was free to create their own sand work for 15 to 25 minutes, and a sharing time was held for the remaining 10 to 20 minutes to enjoy the work they created

together. Four participating students and one sandplay counselor formed a group, and six groups conducted group counselling simultaneously in one classroom. The overall program also applied the principles of school sandplay group counselling by Kwak, Ahn, and Lim (2020) in the case of school sandplay. In the method of creating and appreciating works of sandplay group therapy by Ahn, Kwak, and Kim (2021), a method was adopted in which one client works in one sandbox and appreciates each other's works in order.

The treatment method is as shown in <Figure 2>.



<Figure 2> Treatment Method

(Figure2 Source: Ahn, Kwak, Kim Review: Research Trends in Korean Journal of Sandplay Group Therapy. Sch. Couns. Sandplay 2021;3(2):66-84.

<https://doi.org/10.54084/SCS.2021.3.2.66>)

Measurement Tool

Self-injury Behavior (The Functional Assessment of Self-Mutilation; FASM).

The 'Korean version of the self-harm function evaluation sheet' was used developed by Lloyd et al. (1997) and adapted by Kwon and Kwon (2017). It is a 7-point Likert scale with 39 questions, and the higher the score, the higher the frequency of self-harm behavior for that item. This scale consists of self-harm methods, frequency and social and personal motivations. Cronbach's α in this study was .80.

Attachment (Experiences in close Relationship-revised; ECR-R).

ECR-RJ developed by Bemman et al. (1998) and adapted by Kim (2004) for adolescents, and modified for teenagers by Park (2008) was used. There are a total of 36 questions, and each question is rated on a 7-point Likert scale from 'strongly disagree' to 'strongly agree.' A higher score indicates anxious or avoidant attachment characteristics, and Cronbach's α in this study was .80.

Data Analysis

For the data collected in this study, SPSS 25.0 program was used to calculate descriptive statistics and Cronbach's α value for reliability analysis of each scale, and paired-sample t-test was performed.

Results

The results of Wilcoxon's signed-ranks test to determine the effect of school sandplay group

counselling on self-injury behavior and attachment of elementary school students are shown in <Table 2>.

As a result of analyzing FASM, there was a significant difference from the pre-average score of 12.14 to the post-average score of 7.41 ($t = -3.823$, $p = .001$). No significant changes were observed in the social and intrinsic motivations of self-injury.

Attachment (ECR-R) showed a significant difference from the pre-average score of 136.55 to the post-average score of 130.86 ($t = -3.078$, $p = .006$), and anxious attachment showed a significant difference from the pre-average score of 40.88 to the post-average score of 29.25 ($t = -3.004$, $p = .007$) showed a significant difference.

<Table 2> The scores on Validity scales and Clinical scales at pre- and post- treatment

Variable (N=22)	Mean	S.D	t	p	Cohen's d
Self Injury (FASM)	pre	12.14	-3.823	.001	0.422
	post	7.41			
Social Motivation	pre	4.59	-1.533	.140	0.383
	post	2.55			
Intrinsic Motivation	pre	3.09	-0.429	.672	0.078
	post	2.82			
Attachment (ecr-r)	pre	136.55	-3.078	.006	0.243
	post	130.86			
Anxious Attachment	pre	66.23	-3.004	.007	0.348
	post	59.64			
Avoidant Attachment	pre	70.32	0.389	.701	-0.067
	post	71.23			

* $p < .05$, ** $p < .01$

As a result of the analysis, self-injury behavior showed a medium effect size at ($d=.422$), attachment showed a small effect size at ($d=.243$), and anxious attachment showed a medium effect size at ($d=.348$).

In the case of self-injury, repeated measures ANOVA was performed on the difference in total self-injury score depending on the time point (pre, post), and a significant difference ($p=0.001$) was found. However, the interaction effect between time point and gender was not significant ($p=0.057$), and the results are shown in Table 3. In addition, when the difference in total attachment score according to the time point was tested using repeated measures ANOVA, a significant difference ($p=0.007$) was found. However, the interaction effect between time point and gender was not significant ($p=0.209$), and the results are shown in Table 4.

<Table 3> Repeated Measures ANOVA of variance for gender differences in self-injury

source	Type III Sum of Squares	df	Mean Square	F	p
time	235.882	1	235.882	13.662	.0001
time* Gen	7.882	1	7.882	.457	.507
Error	345.300	20	17.265		

<Table 4> Repeated Measures ANOVA of variance for gender differences in attachment

source	Type III Sum of Squares	df	Mean Square	F	p
time	326.012	1	326.012	8.978	.007
time* Gen	61.103	1	61.103	1.683	.209
Error	726.283	20	36.314		

Discussion

In this study, reports of self-injury behavior in the target group significantly decreased after Sandplay group counselling. This study is consistent with previous research (Ahn & Kwak, 2022) that reported clinically significant changes in the MMPI-2 symptom scale and symptoms of depression, anxiety, impulsivity, and aggression as a result of Sandplay group counselling with 22 adolescents who experienced suicidal incidents. This study supports the results of a previous study that found a significant effect on depression, suicidal thoughts, and self-esteem, which affect self-injury, in a study including a control group targeting 5th and 6th grade elementary school students (Lee, 2023).

In addition, it is consistent with the results of the school Sandplay group counselling conducted for elementary school students with experience of self-injury, in which the frequency of self-injury and the internal motivation scale of the self-injury function significantly decreased (Jeon, Lee, & Ahn, 2023).

On the other hand, there is a study (Shin & Lee, 2021) that reported a decrease in depression and anxiety after conducting school Sandplay group counselling for eight elementary school students who reported self-injury behavior. However, unlike this study, the results of directly measuring changes in self-injury behavior were not reported.

In this study, it was confirmed that the level of anxious attachment of the target group was significantly lowered through school sandplay group

counselling.

This study is consistent with a study that reported group Sandplay therapy had a significant effect on reducing anxiety and improving ego resilience in children (Yoo & Park, 2010), and a study that showed a significant effect on peer attachment in middle school students (Kim & Kim, 2015), and a study regarding a decrease in anxiety symptoms in elementary school students after school Sandplay group counselling (Kwak et al., 2018).

Attachment can improve adolescents' emotional regulation and lead to the prevention of self-injury. When adolescents form a secure attachment with their mothers, their interactions with peers and others improve, and when communication skills improve, feelings of interpersonal alienation are reduced, which can contribute to reducing self-injury behavior (Gandhi et al., 2016).

The results of this study suggest that school Sandplay group counselling provides adolescents who report self-injury behavior with the opportunity to reveal their feelings and receive acceptance, which can lead to the formation of stable attachment and cessation of self-injury behavior.

Limitations of this study and future research directions are as follows.

First, there are limitations in generalizing the results as all participants in this study were obtained by selecting only 6th grade students from a specific region and a specific elementary school.

Second, because this study was conducted with a small number of samples, gender differences could

not be examined. In a domestic school Sandplay group counselling study, impulsivity was found to decrease significantly more in women than in men (Lee, 2024). In other studies, women showed greater treatment effects on depression than men (Ahn, 2021). In future studies, it is necessary to examine whether there are significant differences by gender when Sandplay group counselling is conducted with elementary school students in the anxious attachment group who report self-injury behavior.

Third, depending on the attachment relationship formed by adolescents, it can be divided into father attachment, mother attachment, peer attachment, and teacher attachment. It is necessary to specifically explore changes in each attachment scale after school Sandplay group counselling.

Despite these limitations, considering that there are not many studies on the effectiveness of school Sandplay group counselling for elementary school students who report self-injury behavior, this study is significant meaning in light of confirming the results of improving attachment and reducing self-injury behavior in elementary school students.

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학교모래놀이 집단상담이 초기자해행동 초등학생의 애착에 미치는 효과:예비연구

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본 연구는 초기 자해행동을 보이는 초등학생들에게 학교모래놀이 집단상담을 실시하여 자해행동과 애착에 미치는 효과에 대해 알아보고자 하였다. 연구 대상으로는 인구 87만의 중소도시에 소재한 초등학교 6학년 22명의 학생들로 구성되었으며 학교모래놀이 집단상담은 주 1회, 40분씩 총 8회로 실시하였다. 학교모래놀이 집단상담의 효과를 검증하기 위하여 자해기능평가(FASM)와 애착(ECR-R)을 사전과 사후에 실시하였으며, 자해행동($t=-3.823$, $P=.001$)과 불안정 애착($t=-3.078$, $P=.006$)에서 유의한 변화가 관찰되었다.

주제어: 초등학생, 자해 행동, 애착, 학교모래놀이 집단상담

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