

## Research Article



# Effect of Sand Play Therapy on Aggression and Emotional Adjustment of Children with Hearing Impairment

Mohsen Saeidmanesh , Farangis Demehri\* , Zohreh Alipour Esmaeili Anari

Department of Psychology, Science and Arts University, Yazd, Iran



**Citation:** Saeidmanesh M, Demehri F, Alipour Esmaeili Anari Z. Effect of Sand Play Therapy on Aggression and Emotional Adjustment of Children with Hearing Impairment. Aud Vestib Res. 2023;32(3):198-203.

<https://doi.org/10.18502/avr.v32i3.12935>

## Highlights

- Sand play therapy is a good method for emotional management
- Children with hearing loss have weak performance in emotional adjustment
- Aggression in children with hearing loss can be managed with sand play therapy

## Article info:

**Received:** 05 Nov 2022

**Revised:** 27 Jan 2023

**Accepted:** 14 Feb 2023

## \* Corresponding Author:

Department of Psychology, Science and Arts University, Yazd, Iran.  
farangis\_demehri@yahoo.com

## ABSTRACT

**Background and Aim:** Sand Play Therapy (SPT) is a psychotherapy and nonverbal method used for people with trauma, disabilities, and distress. The present study aimed to investigate the effect of SPT on aggression and emotional adjustment of children with a hearing impairment aged 5–7 years.

**Methods:** In this quasi-experiment study with a pretest-posttest design and a control group, 30 children aged 5–7 years with hearing impairment participated. They were randomly assigned into two groups: control and experimental. The research instruments were Sinha and Singh adjustment questionnaire and the Shahim aggression questionnaire. The obtained data were analyzed using multivariate covariance analysis.

**Results:** There were statistically significant differences (score decrease) between the two study groups after the SPT in terms of aggression ( $p < 0.05$ ) and the emotional adjustment of children ( $p < 0.05$ ).

**Conclusion:** The results showed that SPT could decrease aggression and improve emotional adjustment in children with hearing loss. This method can be used to rehabilitate these children.

**Keywords:** Hearing impairment; emotional adjustment; aggression; sand play therapy



## Introduction

**H**earing impairment is the most common sensorineural defect in humans, and among 1000 newborn children, one is born with severe to profound hearing loss [1]. These sensory disabilities are sometimes associated with behavioral-emotional problems, called externalized behavioral problems [2]. Children with hearing loss mature in a predominantly hearing world, with hearing families. Because of lower communication with others, these children have fewer opportunities to participate in either explicit or incidental learning, so they experience less and acquire a lower quality language skill development [3]. These communication difficulties are assumed to affect the social-emotional adjustment of these children. They may show more aggression toward others [4]. It has been suggested that children with a higher degree of hearing loss may show more severe externalizing (aggression) behavioral problems than normally hearing peers. But if they undergo early implantation and attend regular post-operative rehabilitation programs, their aggression status will improve seriously [5].

Aggression is a behavior that begins to show before children reach the age of two, and this behavior reaches a peak between the age of two and four. Children with hearing loss cannot communicate with others as normal children, so they experience more aggression [6]. Reactive aggression is likely to show itself more in children with hearing loss because they attribute twice as many hostile intentions to story characters in ambiguous and benign social situations as their normal-hearing peers [7]. Adjustment is a way that people require while facing stressful situations. In addition, it is a way for people to adapt to their environment and improve their physical and mental health. Social and emotional adjustment are the most significant dimensions that can be achieved by changing oneself or the environment [8]. Emotional adjustment is associated with good mental health, satisfaction with personal life, and the harmony of feelings and thoughts. Emotional adjustment uses the mechanisms that give a person emotional stability [9]. When people can process and regulate their emotional states, the relationship between negative emotions experienced and their external behavior will change [10].

In one study, the relationship between cognitive coping strategies and goal adjustment on symptoms of depression and anxiety in people with acquired hearing loss was investigated. The consequence of this study showed that ruminative and catastrophizing ways of coping were

related to the reporting of more symptoms of depression and or anxiety. In contrast, refocusing attention to more pleasant issues, emancipating from unattainable goals, and re-engaging in the alternative, meaningful goals were related to reporting fewer symptoms [11]. Compared to normal peers, children with hearing loss show lower self-esteem and fewer prosocial and more withdrawn behaviors in the company of their peers [12]. Children with hearing loss show less understanding of social rules and goals associated with friendship, so they show fewer adoption behaviors. The results of one research showed that psychodrama could positively influence the communication skills of adolescents with hearing loss because they can see their situation from an outside perspective [13].

Sand Play Therapy (SPT) is a psychotherapeutic method introduced by Lowenfeld. SPT is applied to children, adolescents, and adults with a theoretical background in psychodynamic theories of play therapy. SPT is derived from the background of play techniques in the psychoanalytic treatment of children. The forefather of this method is Lowenfeld (1920), but Kalff (2003) promoted this technique and introduced it as SPT. In this method, a tray filled with sand and a wide variety of play figures is offered to the child to create a picture of their inner world [14].

Some of the studies showed the process of sand play therapy impacts children's emotional management and their opportunity to create their world in an individual sandbox [15, 16]. SPT is frequently applied to improve a child's mental health, and it is used to externalize their aggressive behavior [14], attention deficit hyperactivity problems [17], and emotional and attachment problems in connection with family problems such as separation from parents [18].

In the research on SPT, the specification of symbols and patterns in sand play pictures in connection with certain psychological syndromes and disorders has become a field of intensive study. Considering that the effectiveness of the sand play method has not been investigated on hearing-impaired children, the purpose of this study was to examine SPT on aggression and social adjustment of children aged 5–7 years with hearing impairment.

## Methods

### Study design and research community

The current research was quasi-experimental with a control group. Our study population included children

aged 5 to 7 years with hearing impairment who were referred to hearing rehabilitation clinics in Yazd City, Iran. Of whom, 20 children were randomly selected and assigned to two experimental and control groups (10 children in each group). There were 13 boys and 7 girls in these groups. The inclusion criteria were the impairment in hearing at low to moderate levels and lacking mental disabilities.

### Intervention

In this program, sand play therapy was used. This program is derived from Kalff's SPT [19].

The intervention group received SPT at ten 90-min sessions, while the control group received no treatment. This intervention used toys like fences, war soldiers, guns, wild animals, and cars. The sessions of this protocol are shown in Table 1.

### Study measures

#### Shahim's aggression questionnaire

This questionnaire was created by Shahim [20], and its validity was evaluated in children of Shiraz City, Iran. It has 21 items in the field of relational and overt aggression and is scored by the Likert method. This questionnaire has three subscales of physical aggression (7 items), verbal reactive aggression (7 items), and relational aggression (7 items). The correlation coefficient between the items and the total score of the physical aggression component varied from 47% to 82%. The correlation coefficient between the relational aggression and the total reactive and hyperactive aggression component score ranged from 2% to 63%. The Cronbach  $\alpha$  coefficient for the whole questionnaire is reported to be 91% and very favorable. This coefficient has been reported for physical aggression (85%), relational aggression (89%), and reactive aggression (83%).

#### Sinha and Singh adjustment questionnaire

Sinha and Singh (1993) compiled this questionnaire to evaluate students' overall adjustment in three emotional, social, and academic dimensions. The total scores show the person's general adjustment and the scores in the individual's emotional, educational, and social adjustment in these fields. A low score indicates a higher adjustment, and a high score indicates a lower individual adjustment. The reliability coefficient of this test was reported through binomialization for total, emotional, and social adjustment as 94%, 95%, and 93%, respectively. In Iran, the validity of this questionnaire was reported

for educational, emotional, and social dimension as 0.07, 0.68, and 0.65, respectively [21].

### Statistical analysis

All data were described as mean and Standard Deviation (SD). Covariance analysis was conducted to determine whether the two groups had a statistical difference in the study variables. Levene's test was carried out to assess the quality of variances. The statistical analyses were carried out in SPSS 17. The significant level was set at 0.05.

### Results

In the present study, three girls and seven boys were in the experimental group, and four girls and six boys were in the control group.

Table 2 presents the mean scores of aggressions and emotional adjustment of children with hearing impairment.

Table 2 lists the differences between the posttest and pretest of variables, so we used the covariance method to investigate if these differences are statistically significant.

Data analysis was also done using the Kolmogorov-Smirnov test, and the variables' non-significance showed that their distribution was normal ( $p > 0.05$ ). Based on Levene's test and the non-significance of all variables, the condition of equality of inter-group was also observed for aggression ( $p \leq 0.05$ ,  $F(14,1) = 0.32$ ) and emotional adjustment ( $p \leq 0.05$ ,  $F(14,1) = 0.1$ ). Also, the variance-covariance materials condition was established based on Box's M test, which was not significant for all variables (Box's  $M = 4.12$ ,  $F(14,1) = 0.56$ ). The results of multivariate analysis of covariance to compare aggression and emotional adjustment in experimental and control groups show a significant difference between the experimental group's aggression and emotional adjustment scores posttest and pretest ( $p \leq 0.05$ ,  $F(14,1) = 5.01$ ). Also, the results of the inter-group effects test show emotional adjustment ( $p \leq 0.05$ ,  $F(14,1) = 7.10$ ) and aggression ( $p \leq 0.05$ ,  $F(14,1) = 5.55$ ).

The differences in the means of aggression and emotional adjustment of children in the experimental group after the sand play intervention were significant. Children in the experimental group showed less aggression and higher emotional adjustment.

**Table 1.** Summary of treatment plan of intervention sessions

Session	Sand play therapy
1	Interview parents, explain SPT, complete the questionnaire
2	Explaining to the children what they should do in the sand playroom. Emphasizing that there is nothing wrong to play
3	Learn children they can create whatever they want with sand and form any object and body
4	Be familiar with the sandbox and the toys in it. Ask children to make a scene with them
5	The children were told whatever they made, this picture was like a world and that this picture was a special place. Get up and walk around it and see the world from all different angles
5	Asking children to explain about the world they make; if any questions, they ask the therapist
6	Asking children about what they make. Children can speak about what they think and their emotions
7	Asking children to make another thing with new toys
8	Children with the therapist make a landscape and ask children to say with which toys they want to complete it
9	The therapist recorded the contents of the sand tray; the toys the children used. The children, with the help of their mother, make another landscape
10	The therapist, with the help of the mothers, completes the questionnaires

## Discussion

This research investigated the effectiveness of SPT on the emotional adjustment and aggression of children with hearing impairment. According to the study findings, SPT was effective and could decrease aggression and improve children's hearing impairment adjustment. This finding is consistent with the Zolmajd et al. [22], who showed SPT was effective in aggression in children with hearing disabilities. Sand play occurs where the children can transfer their emotions to another environment. It is seen as a source of creativity and an expression of the real self because it merges the experience of inner objects with control over real things; it provides maturation [23].

So, when children with hearing impairment use sand to build different things, it helps them contact the world and express their emotions. When people can express their emotions, they can better manage them, and their aggressive behavior would be decreased [24]. When children with hearing loss have the chance to improve their creativity and spontaneity, like in psychodrama, they can express their emotions and manage their behavioral responses in connection with others [13]. Children with hearing impairment have fewer communication skills, so when they can communicate to others without speaking, like with toys, play, or role-play, they get more motivated to participate and adjust their behavior [13]. Play with sand or toys help the trainer to identify what stimulates in the environment is annoying for the child. So the trainer can better support the children's behavior management [12].

**Table 2.** Mean and standard deviation of emotional adjustment and aggression scores in two groups (experimental and control)

Variable	Group	Step	Mean (SD)
Emotional adjustment	Control	Pre-test	4.36 (1.36)
		Post-test	4.81 (1.43)
	Experimental	Pre-test	4.28 (1.43)
		Post-test	7.11 (2.55)
Aggression	Control	Pre-test	10.70 (4.07)
		Post-test	10.10 (4.38)
	Experimental	Pre-test	11.63 (4.40)
		Post-test	9.54 (4.31)

SPT enables children to express their emotions, consciously and unconsciously, to make them visible and accessible for reflection. On the other hand, in converting emotional content into a sand play picture, children can directly modify and change their inner thoughts and emotions, restructuring their inner world and establishing order [25]. In this research, every child had a sandbox with objects, toy animals, and machines and had the chance to play with them and shape the sand. Shaping the sand improves creativity and problem-solving, so the child, with a trainer's help, learns how to solve their problems more easily, and they experience less aggression [6]. The process of establishing a sandbox is appealing to children and includes indirect expression without speaking. Focusing on creative and non-verbal activities and putting them into action reinforces the brain's right hemisphere [26]. Hearing-impaired children use non-verbal methods to communicate, and it seems that the technique used in this research, due to its non-verbal and indirect nature, can solve behavioral problems, especially aggression.

This study had some limitations, including using a test of emotional adjustment that was not normalized for children with hearing loss and the limitation of SPT equipment for the children. In future studies, SPT's effectiveness on the tolerance of these children can be investigated.

## Conclusion

Sand play therapy is useful for decreasing the aggression of children with hearing impairment and improving their emotional adjustment. This method, along with traditional cognitive behavioral therapy, can help these children have better emotional management and communication with others.

## Ethical Considerations

### Compliance with ethical guidelines

It should be noted that this article has code of Ethics from science and Arts university of Yazd (IR.ACECR. JDM.REC.1401.077)

### Funding

This research did not receive any grant from funding agencies in the public, commercial or nonprofit sectors.

### Authors' contributions

MS: Study design and interpretation of results; FD: Study design, corresponding author, statistical analysis, interpretation of results and drafting the manuscript; ZAEA: Acquisition of data, statistical analysis, drafting manuscript.

### Conflict of interest

The authors declare that they have no conflict of interest.

### Acknowledgements

The authors of this study would like to thank all the participate who participated in this study.

## References

- [1] Topol D, Girard N, St Pierre L, Tucker R, Vohr B. The effects of maternal stress and child language ability on behavioral outcomes of children with congenital hearing loss at 18-24 months. *Early Hum Dev.* 2011;87(12):807-11. [DOI:10.1016/j.earlhumdev.2011.06.006]
- [2] Quittner AL, Barker DH, Cruz I, Snell C, Grimley ME, Botteri M; the CDaCI Investigative Team. Parenting Stress among Parents of Deaf and Hearing Children: Associations with Language Delays and Behavior Problems. *Parent Sci Pract.* 2010;10(2):136-55. [DOI:10.1080/15295190903212851]
- [3] Ambrose SE, Walker EA, Unflat-Berry LM, Oleson JJ, Moeller MP. Quantity and Quality of Caregivers' Linguistic Input to 18-Month and 3-Year-Old Children Who Are Hard of Hearing. *Ear Hear.* 2015;36 Suppl 1(0 1):48-59S. [DOI:10.1097/AUD.000000000000209]
- [4] Broekhof E, Bos MGN, Rieffe C. The Roles of Shame and Guilt in the Development of Aggression in Adolescents With and Without Hearing Loss. *Res Child Adolesc Psychopathol.* 2021;49(7):891-904. [DOI:10.1007/s10802-021-00769-1]
- [5] Saki N, Bayat A, Moniri S, Moogahi NK. The influence of cochlear implantation on aggression behaviors in children. *Int J Pediatr Otorhinolaryngol.* 2019;127:109669. [DOI:10.1016/j.ijporl.2019.109669]
- [6] Girard LC, Tremblay RE, Nagin D, Côté SM. Development of Aggression Subtypes from Childhood to Adolescence: a Group-Based Multi-Trajectory Modelling Perspective. *J Abnorm Child Psychol.* 2019;47(5):825-38. [DOI:10.1007/s10802-018-0488-5]
- [7] Torres J, Saldaña D, Rodríguez-Ortiz IR. Social Information Processing in Deaf Adolescents. *J Deaf Stud Deaf Educ.* 2016;21(3):326-38. [DOI:10.1093/deafed/enw030]

- [8] Hooshmand Z, Mirza Hosseini H, Zargham Hajebi M. [Comparing the effectiveness of individual counseling based on compassion therapy with family therapy counseling based on bowen's emotional system on social adjustment of depressed adolescent girls]. *EBNESINA*. 2021;23(3):85-92. Persian.
- [9] Zahed A, Rajabi S, Omid M. [A comparison of social, emotional and educational adjustment and self-regulated learning in students with and without learning disabilities]. *Journal of Learning Disabilities*. 2012;1(2):43-62. Persian.
- [10] Resurrección DM, Navas-Campaña D, Gutiérrez-Colosía MR, Ibáñez-Alfonso JA, Ruiz-Aranda D. Psychotherapeutic Interventions to Improve Psychological Adjustment in Type 1 Diabetes: A Systematic Review. *Int J Environ Res Public Health*. 2021;18(20):10940. [DOI:10.3390/ijerph182010940]
- [11] Garnefski N, Kraaij V. Cognitive coping and goal adjustment are associated with symptoms of depression and anxiety in people with acquired hearing loss. *Int J Audiol*. 2012;51(7):545-50. [DOI:10.3109/14992027.2012.675628]
- [12] Rieffe C. Awareness and regulation of emotions in deaf children. *Br J Dev Psychol*. 2012;30(Pt 4):477-92. [DOI:10.1111/j.2044-835X.2011.02057.x]
- [13] Nemati A, Demehri F, Saeidmanesh M. Effect of Psychodrama on Communication Skills of Adolescents with Hearing Loss. *Aud Vestib Res*. 2022;31(2):92-7. [DOI:10.18502/avr.v31i2.9113]
- [14] Roesler C. Sandplay therapy: An overview of theory, applications and evidence base. *Arts Psychother*. 2019;64:84-94. [DOI:10.1016/j.aip.2019.04.001]
- [15] Zoja EP. Sandplay Therapy in Vulnerable Communities: A Jungian Approach. 1<sup>st</sup> ed. London: Routledge; 2011. [DOI:10.4324/9780203817957]
- [16] Green EJ, Connolly ME. Jungian family sandplay with bereaved children: Implications for play therapists. *International Journal of Play Therapy*. 2009;18(2):84-98. [DOI:10.1037/a0014435]
- [17] Lee YJ, Jang M. The effects of sandplay therapy on the depression, anxiety and saliva cortisol of university students with ADHD tendencies. *J Sym & San Therapy*. 2012;3(1):31-47. [DOI:10.12964/jsst.120002]
- [18] Foo M, Freedle LR, Sani R, Fonda G. The effect of sand play therapy on the thalamus in the treatment of generalized anxiety disorder: A case report. *Int J Play Ther*. 2020;29(4):191. [DOI:10.1037/pla0000137]
- [19] Kalff DM. Sandplay: A Psychotherapeutic Approach to the Psyche. Cloverdale, CA: Temenos Press; 2003.
- [20] Shahim S. Relational Aggression in Preschool Children. *Iranian Journal of Psychiatry and Clinical Psychology*. 2007;13(3):264-71.
- [21] Tamannaefar M, Leis H. [The Relationship Between Emotional Intelligence, Self-Efficacy, Social Support and Adjustment in Students]. *Journal of Modern Psychological Researches*. 2015;10(39):25-52. Persian.
- [22] Zolmajd A, Borjali A, Arian K. [Impact of Sand Play Therapy on Reduction of Aggressive Behaviors]. *Journal of Exceptional Children*. 2007;7(2):155-68. Persian.
- [23] Pearson M, Wilson H. Sandplay Therapy: A Safe, Creative Space for Trauma Recovery. *Australian Counselling Research Journal*. 2019;13(1):20-4.
- [24] Babaroglu A. Aggression Behaviors in Children with and without Hearing Impairment. *Int J Psychol Stud*. 2016;8(2):14-27. [DOI:10.5539/ijps.v8n2p14]
- [25] Weinrib EL. Images of the Self: The Sandplay Therapy Process. 2<sup>nd</sup> ed. Cloverdale, CA: Temenos Press; 2004.
- [26] Turner BA. Introduction: what is Sandplay therapy? In: Turner BA, editor. *The Routledge International Handbook of Sandplay Therapy*. 1<sup>st</sup> ed. London: Taylor & Francis; 2017. p. 1-32. [DOI:10.4324/9781315656748-1]