



Original Article

The Effectiveness of Puppet Play Therapy on Social Skills of Children with Cochlear Implantation

Sedigheh Rezaei Dehnavi¹, PhD ¹Department of Psychology, Payame Noor university, Tehran, Iran

ARTICLE INFO

Article History:

Received: 03/01/2024

Revised: 28/02/2024

Accepted: 11/05/2024

Keywords:

Cochlear implants

Disability

Hearing impairment

Puppet play therapy

Social skills

Please cite this article as:

Rezaei Dehnavi S. The Effectiveness of Puppet Play Therapy on Social Skills of Children with Cochlear Implantation. JRSR. 2025;12(2):90-94. doi: 10.30476/jrsr.2024.101245.1459.

ABSTRACT

Background: Learning social skills presents a significant challenge for Hearing Impaired Children (HIC). Play therapy is a recommended intervention to facilitate and accelerate social-emotional development. This study aimed to evaluate the effectiveness of Puppet Play Therapy (PPT) on the social skills of male children aged 6 to 9 years with Cochlear Implants (CI).

Methods: This quasi-experimental study utilized a pretest-posttest design with a control group. A total of 24 male students aged 6 to 9 years with CI were randomly assigned to the experimental (n=12) and control (n=12) groups. The experimental group received cognitive-behavioral play therapy using puppets in ten 45–60-minute sessions. Social skills were assessed using the Gersham and Eliot Social Skills Rating System during the pretest and posttest.

Results: The findings indicated that the mean scores of three social skills subscales, including cooperation ($P<0.001$), assertion ($P<0.001$), and self-control ($P<0.001$), were significantly higher in the experimental group after receiving PPT.

Conclusion: The results suggest that Puppet Play Therapy is an effective intervention for enhancing social skills in children with CI, and it can serve as a valuable supplementary rehabilitation approach.

2025© The Authors. Published by JRSR. All rights reserved.

Introduction

Social skills play a pivotal role in the successful lives of individuals with hearing loss [1]. Although crucial for the development of all children, not all children naturally acquire these skills. Hearing-impaired children (HIC) frequently lack the necessary social skills for positive and purposeful interactions [2]. In particular, HICs often face difficulties in mastering verbal social skills, such as understanding social rules and taking turns [3]. These challenges hinder their ability to develop and maintain friendships with their hearing peers, often leading to social rejection [4].

In 1990, cochlear implantation (CI) emerged as a

valuable medical intervention for the rehabilitation of children with severe-to-profound sensory hearing impairment [5]. Studies have demonstrated that CI has significant positive effects on enhancing hearing perception, language skills, and overall quality of life [6, 7]. However, a significant criticism of the CI program is the limited progress in the psychosocial development of children compared to their hearing peers. While children with CI often excel in language acquisition and maintaining conversations in controlled settings, they may continue to struggle in challenging listening environments or when relying on lip-reading [8].

Research indicates that children with CI often face difficulties in social and emotional domains and communication challenges with their peers. This occurs despite achieving nearly comparable academic performance to their hearing peers in inclusive school settings [9]. Studies, such as those by Dehnavi et al.,

*Corresponding author: Sedigheh Rezaei Dehnavi, Department of Psychology, Payame Noor university, Tehran, Iran.

Email: srezaidehnavi@pnu.ac.ir

have also shown that children with CI experience more significant challenges in forming friendships compared to those using hearing aids [8, 9].

Additionally, studies confirm that interacting with peers is a significant concern for parents of children with CI. Merely receiving a cochlear implant does not guarantee integration into typical peer groups [8]. Parents often expect their child with hearing loss to behave typically after implantation, yet they come to realize the need for extensive rehabilitation to foster social skills development [10]. While proficiency in one-on-one spoken communication can sometimes mask challenges, these difficulties become apparent in group settings or multi-participant contexts. These issues persist across various age groups, with children with CI socially functioning as hard of hearing. From an educational perspective, they require accommodations in class organization, communication, and learning strategies similar to those typically provided for students with hearing difficulties [8].

Recent research, including studies by Zaidman-Zait and Most, Ketelaar, and others, highlights that despite significant advancements in the oral language skills of children with CI, social competence remains an important concern [10-14]. Katz and McClellan describe socially competent youth as those who can engage in rewarding interactions and activities with both adults and peers [p.1] [15]. This ability to navigate social contexts effectively is rooted in fundamental social skills, which serve as the foundation for social competence [16].

Gresham and Elliot emphasized that cooperation, assertiveness, and self-control are critical skills that contribute to overall social competence [17]. Research indicates that children with CI often exhibit less effective self-control strategies and lower levels of social competence compared to their hearing peers [18]. Consequently, identifying and applying effective communication and intervention strategies for children with CI is essential. Numerous studies underscore the importance of early intervention for children with hearing impairments, covering areas such as speech perception, language development, cognitive abilities, and social behaviors. These interventions have been shown to enhance their overall quality of life significantly [19].

Education and therapy through play have been identified as the most effective interventions for children with disabilities. Play is a powerful tool that fosters children's intellectual, social, physical, and emotional development [20, 21]. Puppet Play Therapy (PPT), a versatile and engaging form of play therapy, has proven to adapt effectively to various circumstances [22, 23].

PPT enables children to project their emotions through puppet interactions, bridging communication gaps and allowing therapists to gain insights into their daily lives, thought processes, communication styles, and preferences [24]. Hand puppets, with their small size and human-like features—such as eyes, mouths, and distinct limbs—act as primary stimuli to encourage communication. This makes puppets an effective medium for integrating children into therapeutic programs. Studies consistently highlight the positive effects of play, including puppet play, in enhancing social interaction and development,

demonstrating its transformative role in improving children's social skills [23, 25-27].

Considering that children with CI often exhibit weaknesses in social skills and that Puppet Play Therapy (PPT) has proven effective in improving social interaction development, this study aimed to investigate the effectiveness of PPT on social skills in children with CI.

Methods

Research Design and Participants

This study evaluated the effectiveness of Puppet Play Therapy (PPT) on the social skills of children with Cochlear Implants (CI). The study employed a quasi-experimental design with a pretest-posttest setup. A total of 24 children with CI implanted in one medical center in Shiraz City were selected based on the inclusion criteria. Participants met the following criteria: female, pre-lingual hearing impairment, completion of at least 6 months of speech therapy after implantation, and absence of other disabilities (e.g., visual, intellectual, physical-motor impairments, or autism). All eligible children were invited to participate and randomly assigned to the experimental or the control (waiting) group.

The experimental group received PPT over 10 sessions (two sessions per week), while the control group did not receive any intervention during this period. Teachers completed the Social Skills Rating Scale for participants at the pretest and posttest stages. To ensure ethical compliance, written consent was obtained from the parents of all participants; Participants' confidentiality and privacy were assured; the study adhered to the moral principles and national norms for conducting medical research in Iran, and The project was reviewed and approved by the Research Ethics Committee of Payame Noor University, with the approval code IR.PNU.REC.1401.142.

Instruments

The Persian version of Gresham and Elliot's Social Skills Rating System (SSRS) was utilized to evaluate social skills in children with Cochlear Implants (CI). This system offers forms tailored for preschool, primary, and secondary students. For this study, the teacher form for primary students was employed. The primary form consists of 47 items, with 30 explicitly addressing social skills such as cooperation, assertiveness, and self-control.

Only the 30 social skill-related items were included in this investigation. The possible scores range from 0 to 60, where a higher score indicates better social skills. Previous studies have reported internal consistency values between 0.7 and 0.9 for the subscales in children with hearing impairments. A psychometric analysis of the Persian teacher form was conducted by Beh-Pajooh, Ghobari-Bonab, and Khanzadeh on 160 hearing-impaired children (HIC), confirming its reliability and validity [28, 29]. For this study, the calculated Cronbach's alpha values for subscales were 0.7, 0.65, 0.76, and 0.8 for cooperation, assertiveness, self-control, and total scores, respectively.

Table 1: Summary of treatment plan of intervention sessions

Session	Content
1	Games played: Greetings game, meeting and saying welcome and human circle game.
2-3	Show the suitable behaviors through puppet models by trainee, repeat the scenario with child and puppet and present feedback.
4	Modeling entrance in peer 'group play, repeat the trained skills and present feedback about the weakness and strengths to do the skill successfully. Modeling the initiating dialogue with others, repeat the trained skills and present feedback about the weakness and strengths to do the skill successfully.
5	Modeling the Ask others for help, repeat the trained skills and present feedback about the weakness and strengths to do the skill successful.
6	Modeling the introducing him/herself to others, , repeat the trained skills and present feedback about the weakness and strengths to do the skill successful.
7	Modeling Get information from others repeat the trained skills and present feedback about the weakness and strengths to do the skill successful.
8	Modeling Get information from others repeat the trained skills and present feedback about the weakness and strengths to do the skill successful.
9	Providing feedback in the field of performing the taught skills. Reviewing the previous meetings and summarizing and preparing the group to finish the meetings.
10	Summarizing the taught skills in the previous session, playing the game with the aim of empowering children to respond appropriately to the behavior of others, repeating and practicing the skills taught and providing feedback in the field of performing the taught skills. Reviewing the previous meetings and summarizing and preparing the group to finish the meetings.

Intervention Program

The intervention program for this study involved PPT for children with CI, based on the play therapy protocol developed by Asghari Nekah and colleagues [30]. This cognitive-behavioral protocol was implemented over 10 sessions, each lasting 45 to 60 minutes, conducted twice a week. Table 1 summarizes the content of the training sessions.

Results

Table 1 presents the descriptive characteristics of participants. Participants were selected to be as homogeneous as possible based on factors that influence social skills, such as age, age at cochlear implantation (CI), and duration of rehabilitation. Tables 2 and 3 present the descriptive and inferential statistical data.

As shown in Table 4, the means of the experimental

and control groups differed in the pre-test and post-test steps. To assess the significance of these differences, an analysis of Covariance (ANCOVA) test was used.

Before conducting the ANCOVA, its assumptions were checked. The normality of the distribution was tested using the Kolmogorov-Smirnov test, which showed a result of $F=3.19, P>0.05$. Furthermore, the homogeneity of variances was verified using Levene's test, which yielded a result of $F=6.21, P>0.05$. The homogeneity of regression slopes was also tested, with $F=86.641, P>0.05$. Since the significance levels for all these tests were above 0.05, there were no violations of assumptions, allowing for the valid use of univariate ANCOVA analysis.

Table 2 shows significant differences in the subscale scores of cooperation, assertion, and self-control skills between the experimental and control groups ($P<0.0001$). The results of the ANCOVA (presented in Table 2) indicated that Puppet Play Therapy (PPT) had

Table 2: Descriptive data before and after intervention in experimental and control groups

Variables	Group	Pre-test		Post-test	
		Mean	SD	Mean	SD
Cooperation	Experimental	17.91	2.15	19.50	2.43
	Control	23.41	4.48	13.33	4.20
Assertion	Experimental	18.16	1.85	19.75	2.70
	Control	19.41	4.35	20.41	4.62
Self-control	Experimental	18.83	2.44	19.58	2.35
	Control	20.83	2.32	20.50	3.35

Table 3: Univariate covariance analysis to compare the total score of social skills of the control and experimental groups

Source	Dependent variables	SS	Df	MS	F	η^2
Pre-test	Cooperation	167.5	1	167.5	45	0.99
	Assertion	78.2	1	78.2	8.5	0.87
	Self-control	8.5	1	8.5	1.5	0.81
Group	Cooperation	78.1	1	78.1	7.1	0.72
	Assertion	35.1	1	35.1	3.8	0.66
	Self-control	9.8	1	9.8	3.7	0.74

Table 4: Demographic information of experiment and control groups

Variable	Experiment	Control
Age(M±SD)	8±7.96	8±0.90
Age of Ci		
Under 2 years old	8	9
Above 2 years old	4	3
Rehabilitation duration		
6-12 months	5	6
Above 12 months	7	6

a significant and positive effect on cooperation ($F=7.1$, $P<0.0001$), assertion ($F=3.8$, $P<0.0001$), and self-control ($F=3.7$, $P<0.0001$).

Discussion

This study aimed to examine the impact of Puppet Play Therapy (PPT) on enhancing social skills in children with hearing impairment. Data analysis revealed a significant positive effect of this approach on social skills improvement. These results are consistent with the findings of Movallali, Jalil-Abkenar, and A'shouri, who also demonstrated the effectiveness of group play therapy in enhancing the social skills of children with hearing impairment [27]. Moreover, this study's findings align with those of Ashori and Shamsi, who established that play therapy significantly mitigates social isolation in children with hearing impairment. Additional prior research corroborates the efficacy of play therapy in bolstering social skills in students with varying degrees of disability, including moderate to severe cases [21], and improving adolescent social interaction [26].

Children with CI often exhibit lower social skills compared to children using hearing aids or those with typical hearing abilities [9]. Some authors have suggested that the use of CI may lead to children with implants not being perceived as disabled, which could result in a lack of essential auditory input needed for social development from their environment [11]. Consequently, children with CI face considerable obstacles in engaging meaningfully within the deaf community and with peers in the hearing population [19].

It is important to note that CI is frequently implemented unilaterally, which aids speech comprehension in quiet settings but creates immense difficulty in discerning verbal communications amidst noisy or complex social situations. This unilateral implantation limits the individual's ability to leverage bilateral hearing to enhance auditory comprehension and vocal identification, as auditory input is received from only one ear [20].

Engaging in PPT provides children with a valuable opportunity to role-play social scenarios in a calm and controlled setting. It allows them to develop and practice the key skills to establish and nurture successful social connections. These skills range from initiating interactions to maintaining relationships and understanding various aspects of social dynamics [25-27]. Using puppets as symbolic tools, PPT helps reduce the child's anxiety in social situations, offering a low-pressure environment where they can comfortably explore and practice these skills [25].

As Landreth stated, "Play and activity represent the innate mode of communication for children" [22]. Teaching social skills through playful engagement transforms the learning experience into an exciting and enjoyable process, motivating the child to develop complex skills with genuine enthusiasm rather than enduring monotonous, formal instruction [22]. Toys, as an extension of a child's expression, serve as a natural medium for communication, and through play, therapists can guide children in acquiring more adaptive behaviors,

especially in addressing challenges related to emotional or social skills [20]. Play also fosters creativity, allowing children to expand their imagination, enhance motor skills, and improve their overall physical, emotional, and cognitive development. By facilitating these facets of growth, play is instrumental in shaping well-rounded, healthy children and supports their cognitive, physical, social, and emotional well-being [23].

For children, play serves as a medium for expressing feelings, exploring relationships, describing experiences, and disclosing wishes. Developmentally, young children often lack the cognitive and linguistic abilities to convey their emotions accurately and may find it challenging to focus on the intensity of what they feel in a manner suitable for verbal communication. Therefore, children communicate more fully and honestly through self-initiated, instinctive play. By utilizing toys, children can express what they cannot verbalize and engage in activities they might otherwise find uncomfortable [23].

The conclusions drawn from this study should be considered in light of the following limitations: Firstly, the research was conducted specifically on male children with unilateral cochlear implants; therefore, caution should be exercised when extrapolating the results to other children with hearing impairments.

Conclusion

PPT is efficacious in improving the social skills of children with CI. In conjunction with other rehabilitation programs, this method can help children with CI develop better social skills.

Acknowledgment

The author of this study extends gratitude to all the participants involved in this research, especially Mrs. Aghdas Rangani, a Ph.D. student at the University of Isfahan, for her valuable assistance in implementing the intervention.

Conflict of Interest: None declared.

References

1. Cawthon SW, Fink B, Schoffstall S, Wendel E. In the rearview mirror: Social skill development in deaf youth, 1990–2015. *Am Ann Deaf* 2018;162(5): 479-85. Available from: <https://www.jstor.org/stable/26382405>.
2. Quevedo RFd, Andretta I. Social skills in children and adolescents: Differences between deaf and hearing. *Developmental Psychology* 2020; 30:1-8 [Available from: <https://doi.org/10.1590/1982-4327e3030>].
3. Hoffman MF, Cejas I, Quittner AL, CDaCI Investigative Team. Comparisons of longitudinal trajectories of social competence: Parent ratings of children with cochlear implants versus hearing peers. *Otology & Neurotology*. 2016; 37(2):152-9. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4712083/>.
4. Xie YH, Potměšil M, Peters B. Children who are deaf or hard of hearing in inclusive educational settings: A literature review on interactions with peers. *Journal of deaf studies and deaf education*. 2014; 19(4):423-37. Available from: <https://academic.oup.com/jdsde/article/19/4/423/2937171>.
5. Lloyd S, Tremblay A. No hearing without signals: imagining and reimagining transductions through the history of the cochlear implant. *The Senses and Society*. 2021;16(3):259-77. Available

- from: <https://doi.org/10.1080/17458927.2021.1874194>.
6. Sharma SD, Cushing SL, Papsin BC, Gordon KA. Hearing and speech benefits of cochlear implantation in children: A review of the literature. *International journal of pediatric otorhinolaryngology*. 2020; 133:109984. Available from: <https://doi.org/10.1016/j.ijporl.2020.109984>.
 7. Tavakoli M, Jalilevand N, Kamali M, Modarresi Y, Zarandy MM. Speech Intelligibility in Children with Cochlear Implants Compared to Normal-Hearing Peers Matched for Chronological Age and Hearing Age. *Auditory and Vestibular Research*. 2022; 31(3): 232-237. [Available from: DOI: <https://doi.org/10.18502/avr.v31i3.9873>].
 8. Michael R, Attias J, Raveh E. Cochlear implantation and social-emotional functioning of children with hearing loss. *The Journal of Deaf Studies and Deaf Education*. 2019; 24(1):25-31. Available from: <https://doi.org/10.1093/deafed/eny034>.
 9. Rezaei-Dehnavi S, Rostami S, Mojaver S. Comparison of Social Skills in Hard-of-Hearing Children with Hearing Aids and Cochlear Implants in Shiraz, Iran. *Journal of Research in Rehabilitation Sciences*. 2017;12(6):318-23. Available from: https://jrns.mui.ac.ir/article_12018_00297763ea961282579989bf8663e60b.pdf.
 10. Hardman G, Kyle F, Herman R, Morgan G. Pre-linguistic social communication skills and post implant language outcomes in deaf children with cochlear implants. *Journal of Communication Disorders*. 2022; 100:106275. Available from: <https://doi.org/10.1016/j.jcomdis.2022.106275>.
 11. Zaidman-Zait A, Most T. Pragmatics and peer relationships among deaf, hard of hearing, and hearing adolescents. *Pediatrics*. 2020;146 Suppl 3: 298-303. Available from: <https://doi.org/10.1542/peds.2020-0242J>.
 12. Ketelaar L, Rieffe C, Wiefferink CH, Frijns JH. Social competence and empathy in young children with cochlear implants and with normal hearing. *The laryngoscope*. 2013;123(2):518-23. Available from: <https://doi.org/10.1002/lary.23544>.
 13. İkiş M, Yücel E. Examination of language, behavioral, academic, and social skills of cochlear implant users in early primary education. *Journal of the American Academy of Audiology*. 2022; 29: [Available from: <http://www.thieme-connect.com/products/ejournals/abstract/10.1055/a-1889-6534>].
 14. Kutlu S, Yücel E. An Examination of the Social Skills of Preschool-Age Children with Cochlear Implants. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Özel Eğitim Dergisi*. 2023;24(4):543-57. Available from: <https://dergipark.org.tr/en/pub/ozelegitimdergisi/issue/81146/1277447>.
 15. Katz LG, McClellan DE. Fostering children's social competence: The teacher's role. *National Association for the Education of Young Children*; 1997. [Available from: <https://psycnet.apa.org/record/2001-14077-000>].
 16. Gresham FM. Conceptual and definitional issues in the assessment of children's social skills: Implications for classifications and training. *Journal of clinical child psychology*. 1986; 15(1): 3-15. Available from: https://doi.org/10.1207/s15374424jccp1501_1.
 17. Gresham, F. M., & Elliott, S. N. (2014). Social skills assessment and training in emotional and behavioral disorders. In H. M. Walker & F. M. Gresham (Eds.), *Handbook of evidence-based practices for emotional and behavioral disorders: Applications in schools* (pp. 152–172). The Guilford Press [Available from: <https://psycnet.apa.org/record/2013-37704-008>].
 18. Wiefferink CH, Rieffe C, Ketelaar L, Frijns JH. Predicting social functioning in children with a cochlear implant and in normal-hearing children: The role of emotion regulation. *International journal of pediatric otorhinolaryngology*. 2012; 76(6):883-9. Available from: <https://www.sciencedirect.com/science/article/abs/pii/S0165587612001589>.
 19. De Giacomo A, Craig F, D'Elia A, Giagnotti F, Matera E, Quaranta N. Children with cochlear implants: Cognitive skills, adaptive behaviors, social and emotional skills. *International journal of pediatric otorhinolaryngology*. 2013; 77(12): 1975-9. Available from: <https://doi.org/10.1016/j.ijporl.2013.09.015>.
 20. Covey A, Li T, Alber-Morgan SR. Using behavioral skills training to teach peer models: Effects on interactive play for students with moderate to severe disabilities. *Education and Treatment of Children*. 2021; 44: 19-30. Available from: <https://doi.org/10.1007/s43494-020-00034-y>.
 21. Chang YC, Shire S, Shih W, Kasari C. Developmental Play Skills as Outcomes of Early Intervention. *Journal of Autism and Developmental Disorders*. 2023 5:1-7. Available from: <https://link.springer.com/article/10.1007/s10803-023-06147-8>.
 22. Landreth GL. *Play therapy: The art of the relationship*: Routledge; 2012 [Available from: <https://doi.org/10.4324/9780203835159>].
 23. Hartwig EK. *Puppet play therapy 2021*; Routledge [Available from: Hartwig EK. *Puppet play therapy*. 2021].
 24. Hatamiya CN. *Using puppets: An investigation of children's self-reports of their temperament*: New York University; 2011 [Available from: <https://www.proquest.com/openview/688dd1d7fd949e2b0ce2f70346d3bc35/1?pq-origsite=gscholar&cbl=18750>].
 25. Nazri EN, Ahmad N, Ahmad NK, Bakar AY. The role of group play therapy in improving adolescents' social interaction. *Creative Education*. 2022; 13(10):3364-73. Available from: <https://www.scirp.org/journal/paperinformation?paperid=120869>.
 26. Ashori M, Shamsi A. The effect of Adlerian play therapy on the alexithymia and social isolation of deaf students. *International Journal of Play Therapy*. 2023;32(1):10. Available from: <https://psycnet.apa.org/doi/10.1037/pla0000192>.
 27. Movallali G, Jalil-Abkenar SS, A'shouri M. The efficacy of group play therapy on the social skills of pre-school hearing-impaired children. *Archives of rehabilitation*. 2015; 16(1):76-85. Available from: <https://rehabilitationj.uswr.ac.ir/article-1-1568-fa.pdf>.
 28. Gresham FM, Elliot SN. Social skills rating system. *PsycTESTS Dataset*. 1990. [Available from: <https://psycnet.apa.org/doi/10.1037/t10269-000>].
 29. Beh-Pajoooh A, Ghobari-Bonab B, Hossen-KHanzadeh AA, Elahe H. [A comparison of social skill students with hearing impairment in the normal and inclusive schools. *Journal of Psychology and Education*. 2005; 35(2):63-83. (Persian)]. available from <https://www.sid.ir/paper/55789/en>
 30. Asghari M. The effect of puppet play therapy intervention on communicative skills of autistic children. *Journal of Fundamentals of Mental Health*. 2011; 13(49):42-57. Available from: <https://core.ac.uk/download/pdf/44683534.pdf>.