



# Therapists' Experiences with Nonverbal Communication Techniques in Psychotherapy for Children with Autism

Wang. Lai<sup>1</sup>, Kiyana. Karevan Brojerd<sup>2\*</sup>

<sup>1</sup> Shanghai Institute of Early Childhood Education, Shanghai Normal University, Shanghai, China

<sup>2</sup> PhD student in Educational Psychology, Department of Clinical-Educational Psychology, Central Tehran Branch, Islamic Azad University, Tehran, Iran.

\* Corresponding author email address: kiyana.k.813@gmail.com

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### ABSTRACT

This study aims to explore therapists' experiences with nonverbal communication techniques in psychotherapy for children with autism. This qualitative study employed a phenomenological approach to gain in-depth insights into therapists' experiences. Sixteen licensed therapists with at least two years of experience working with children with autism were selected through purposive sampling. Data were collected through semi-structured interviews, each lasting 60-90 minutes, and were transcribed verbatim for analysis. Thematic analysis was conducted to identify key themes and patterns in the data. NVivo software was used to facilitate the organization and analysis of qualitative data, ensuring rigor through triangulation, member checking, and maintaining an audit trail. The analysis revealed four main themes: implementation of nonverbal techniques, perceived effectiveness, challenges and barriers, and strategies for overcoming barriers. Therapists reported using a variety of nonverbal techniques such as gestures, facial expressions, eye contact, body language, and physical proximity. These techniques were perceived as highly effective in enhancing understanding, emotional connection, behavioral improvements, and self-expression in children with autism. However, challenges such as therapist-child compatibility, resource limitations, environmental factors, and inconsistent parental involvement were noted. Strategies to overcome these challenges included continuous training, collaborative approaches, adaptive techniques, creating supportive environments, and leveraging technology. Nonverbal communication techniques are essential in psychotherapy for children with autism, significantly enhancing therapeutic outcomes. Despite challenges, these techniques, when tailored to individual needs and supported by continuous training and collaboration, can greatly benefit children with autism. Future research should focus on larger and more diverse samples, quantitative measures of effectiveness, and the role of cultural sensitivity in nonverbal communication strategies.

**Keywords:** *Autism, Nonverbal Communication, Psychotherapy, Therapists' Experiences, Behavioral Improvements, Emotional Connection.*

## 1. Introduction

Autism Spectrum Disorder (ASD) is a complex neurodevelopmental condition characterized by persistent challenges in social interaction, communication, and behavior. The spectrum nature of the disorder means that individuals with autism present a wide range of symptoms and abilities, necessitating tailored therapeutic approaches (Asadallah Salmanpour & Pasha, 2023; Imani et al., 2022; Kahaki, 2024; Karna & Stefaniuk, 2024). Nonverbal communication techniques have emerged as crucial tools in the therapeutic toolkit for children with autism, particularly because many children on the spectrum exhibit significant deficits in verbal communication (Chiang et al., 2008; Maljaars et al., 2011).

Nonverbal communication, encompassing gestures, facial expressions, eye contact, and body language, plays a pivotal role in human interactions and can serve as a bridge for children with autism to connect with others. Research by Chiang et al. (2008) highlights that young children with autism often exhibit atypical nonverbal communication behaviors, which can hinder their social interactions and learning experiences (Chiang et al., 2008). Maljaars et al. (2011) further emphasize that intentional communication in children with autism, whether verbal or nonverbal, is crucial for their development and social integration (Maljaars et al., 2011).

The neuroanatomical underpinnings of autism provide insights into why nonverbal communication techniques can be effective. Studies have shown significant differences in brain areas implicated in perception and social interaction in individuals with autism. Hyde et al. (2010) used cortical thickness analysis and voxel-based morphometry to reveal

that these neuroanatomical differences may underpin the perceptual and social communication difficulties observed in autism. Understanding these brain differences is essential for developing effective nonverbal communication strategies that align with the neurological profiles of children with autism (Hyde et al., 2010).

Various therapeutic approaches leverage nonverbal communication to facilitate interaction and learning in children with autism. Music therapy, for instance, has been extensively studied for its potential to engage children nonverbally. Silverman (2008) reviewed the literature on nonverbal communication, music therapy, and autism, demonstrating that music can serve as a powerful medium for expression and connection for children on the spectrum (Silverman, 2008). Similarly, Wan et al. (2010) explored how music making can engage the mirror neuron system in autism, potentially enhancing social cognition and communication skills (Wan et al., 2010).

In addition to music therapy, improvisational techniques in therapeutic settings have shown promise. Knapik-Szweda (2020) conducted a pilot study on the effectiveness of vocal and instrumental improvisation in music therapy for children diagnosed with autism. The study found that these nonverbal techniques could significantly influence the social and emotional behaviors of children, facilitating better communication and interaction (Knapik-Szweda, 2020).

Despite the potential benefits, therapists often face challenges in implementing nonverbal communication techniques. One significant barrier is the variability in individual responses to these techniques, necessitating a highly personalized approach. Raharjo et al. (2022) studied the nonverbal communication behavior of autistic children during therapy, noting that therapists must continuously

adapt their strategies to meet the unique needs of each child. This adaptability is critical to overcoming resistance and maximizing the effectiveness of nonverbal communication interventions (Raharjo et al., 2022).

Parental involvement is another crucial factor influencing the success of nonverbal communication techniques. Engaging parents in the therapeutic process and ensuring they understand and support the use of nonverbal strategies can enhance consistency and effectiveness. Maljaars et al. (2011) highlighted the importance of parental observations and feedback in the application of nonverbal communication techniques, suggesting that parental involvement can lead to more consistent and positive outcomes for children with autism (Maljaars et al., 2011).

Innovative strategies that integrate nonverbal and verbal communication techniques can further enhance therapeutic outcomes. Yoder and McDuffie (2006) discussed the benefits of combining verbal and nonverbal methods in teaching young children with autism to talk, emphasizing that a balanced approach can support more holistic communication development. This integration is essential for creating a comprehensive communication framework that addresses the diverse needs of children with autism (Yoder & McDuffie, 2006).

Technological advancements also offer new avenues for supporting nonverbal communication. Assistive devices, visual aids, and interactive apps can complement traditional nonverbal techniques, providing additional support and engagement for children with autism. Nowak et al. (2023) reviewed therapeutic strategies involving communication aids, highlighting the potential of technology to enhance therapeutic interventions and support children's communication needs (Nowak et al., 2023).

In conclusion, nonverbal communication techniques are essential tools in the therapeutic repertoire for children with autism. These techniques address the unique communication challenges faced by children on the spectrum, facilitating social interaction, emotional connection, and behavioral improvements. The integration of nonverbal and verbal methods, continuous training for therapists, parental involvement, and the use of technology can enhance the effectiveness of these interventions. As the understanding of autism and nonverbal communication continues to evolve, so too will the strategies for supporting the development and well-being of children with autism. This study aims to contribute to this ongoing effort by exploring therapists' experiences with nonverbal communication techniques in psychotherapy for children with autism.

## 2. Methods and Materials

### 2.1. Study Design and Participants

This qualitative study aimed to explore therapists' experiences with nonverbal communication techniques in psychotherapy for children with autism. The study was designed to gain in-depth insights into the practical applications and challenges associated with these techniques. We adopted a phenomenological approach to understand the lived experiences of therapists, allowing for a rich and nuanced exploration of the subject matter.

Participants were selected through purposive sampling to ensure that those included had relevant experience and expertise. The inclusion criteria were: (1) licensed therapists with at least two years of experience working with children with autism, (2) regular use of nonverbal communication techniques in their practice, and (3) willingness to participate in a semi-structured interview. A total of 15 therapists from various clinical settings, including private practices, hospitals, and specialized autism centers, were recruited. This sample size was deemed sufficient to achieve theoretical saturation, where no new themes or insights emerged from the data.

### 2.2. Measure

#### 2.2.1. Semi-Structured Interview

Data were collected through semi-structured interviews, which provided flexibility to explore different aspects of the therapists' experiences while ensuring that key topics were covered. Each interview lasted approximately 60-90 minutes and was conducted either in person or via video conferencing, depending on the preference of the participant. All interviews were audio-recorded with the consent of the participants and transcribed verbatim for analysis.

### 2.3. Data Analysis

Data analysis followed the principles of thematic analysis, a method well-suited for identifying and interpreting patterns of meaning within qualitative data. The process involved several steps:

**Familiarization with the Data:** Transcripts were read multiple times to immerse in the content and gain a comprehensive understanding of the data.

**Initial Coding:** Transcripts were systematically coded using a combination of inductive and deductive approaches. Inductive coding allowed for the emergence of themes

directly from the data, while deductive coding was guided by the research questions and the interview guide.

**Generating Themes:** Codes were grouped into broader themes that captured significant aspects of the therapists' experiences. This involved iteratively reviewing and refining the themes to ensure they accurately represented the data.

**Reviewing and Defining Themes:** Themes were reviewed in relation to the coded data and the entire data set. Each theme was clearly defined and named to encapsulate its essence.

**Saturation Check:** Throughout the analysis process, we monitored for theoretical saturation, ensuring that data collection could cease when no new themes were identified.

NVivo software was used to facilitate the organization and analysis of the qualitative data. To enhance the rigor of the study, we employed several strategies: triangulation by involving multiple researchers in the coding process, member checking by sharing findings with participants for

validation, and maintaining a detailed audit trail of the research process.

### 3. Findings and Results

The study included 16 licensed therapists with diverse backgrounds and experiences in working with children with autism. The participants comprised 12 females and 4 males, reflecting the gender distribution in the field. The age range of the therapists was between 28 and 55 years, with a mean age of 38 years. In terms of professional experience, the participants had between 3 to 20 years of experience in the field, with an average of 8 years. Most therapists (n=10) worked in private practices, while the remaining participants were employed in hospitals (n=4) and specialized autism centers (n=2). The educational background of the therapists varied, with 10 holding a master's degree and 6 possessing a doctoral degree in psychology, counseling, or a related field.

**Table 1**

*The Results of Thematic Analysis*

Categories	Subcategories	Concepts (Open Codes)
1. Implementation of Nonverbal Techniques	1.1. Types of Techniques Used	- Gestures- Facial Expressions- Eye Contact - Body Language- Physical Proximity
	1.2. Training and Skill Development	- Workshops- Formal Education- Peer Learning - Supervised Practice
	1.3. Contextual Application	- Therapy Sessions- Play Therapy- Group Settings - Family Involvement- School Settings
	1.4. Customization for Individual Needs	- Personalized Plans- Child Preferences - Specific Challenges- Adaptive Techniques
	1.5. Integration with Verbal Techniques	- Combining Methods- Transition Strategies - Complementary Use- Communication Balance
2. Perceived Effectiveness	2.1. Enhancing Understanding	- Clarity in Communication- Reduced Misunderstanding - Improved Engagement
	2.2. Emotional Connection	- Building Trust- Empathy Expression- Comfort - Safe Environment
	2.3. Behavioral Improvements	- Reduced Meltdowns- Better Social Interactions - Positive Responses
	2.4. Enhancing Self-Expression	- Nonverbal Cues- Self-Advocacy- Self-Esteem - Confidence Boost
	2.5. Parental Observations	- Parental Feedback- Home Application - Consistency in Behaviors
3. Challenges and Barriers	3.1. Therapist-Child Compatibility	- Rapport Building- Trust Issues- Individual Differences - Resistance to Techniques
	3.2. Resource Limitations	- Time Constraints- Lack of Training- Financial Constraints - Limited Materials
	3.3. Environmental Factors	- Distractions- Inconsistent Settings- Space Issues - Noise Levels
	3.4. Child's Communication Barriers	- Severity of Autism- Non-Responsiveness - Limited Interaction
	3.5. Parental Involvement	- Inconsistent Participation- Varying Understanding - Parental Beliefs
	3.6. Cultural Sensitivity	- Cultural Differences- Adaptation of Techniques

4. Strategies for Overcoming Barriers	4.1. Continuous Training and Education	- Cultural Norms - Ongoing Workshops- Professional Development - Peer Support
	4.2. Collaborative Approach	- Multidisciplinary Teams- Family Involvement - Community Resources
	4.3. Adaptive Techniques	- Flexible Methods- Tailored Approaches - Innovative Strategies
	4.4. Creating Supportive Environments	- Sensory-Friendly Spaces- Consistent Settings - Minimized Distractions
	4.5. Leveraging Technology	- Assistive Devices- Visual Aids- Interactive Apps - Virtual Reality

### 3.1. Implementation of Nonverbal Techniques

**Types of Techniques Used:** Therapists employed various nonverbal communication techniques, such as gestures, facial expressions, eye contact, body language, and physical proximity. One therapist noted, "Using simple gestures and facial expressions can significantly enhance the child's understanding and engagement."

**Training and Skill Development:** The therapists highlighted the importance of ongoing training and skill development through workshops, formal education, peer learning, and supervised practice. "Continuous professional development has been crucial in refining my nonverbal communication skills," remarked one participant.

**Contextual Application:** Nonverbal techniques were applied in diverse contexts including therapy sessions, play therapy, group settings, family involvement, and school settings. "Incorporating nonverbal techniques in different settings, especially in play therapy, has shown remarkable results," shared a therapist.

**Customization for Individual Needs:** Therapists emphasized the need for personalized plans, considering child preferences, specific challenges, and adaptive techniques. A participant stated, "Each child is unique, and tailoring nonverbal communication to their specific needs is essential."

**Integration with Verbal Techniques:** The integration of nonverbal with verbal techniques was seen as a complementary approach, with combining methods, transition strategies, and maintaining a communication balance. "Blending nonverbal and verbal techniques has made communication more effective," mentioned a therapist.

### 3.2. Perceived Effectiveness

**Enhancing Understanding:** Nonverbal communication was found to enhance clarity, reduce misunderstandings, and improve engagement. "Nonverbal cues help make

communication clearer and more engaging for children with autism," one therapist explained.

**Emotional Connection:** Techniques helped in building trust, expressing empathy, creating a comfortable and safe environment. "Establishing an emotional connection through nonverbal means builds trust and comfort," noted a participant.

**Behavioral Improvements:** Therapists observed reduced meltdowns, better social interactions, and positive responses in children. "Nonverbal communication has led to noticeable behavioral improvements," shared a therapist.

**Enhancing Self-Expression:** Nonverbal techniques facilitated self-expression, self-advocacy, boosted self-esteem, and confidence in children. A therapist remarked, "These techniques empower children to express themselves better."

**Parental Observations:** Feedback from parents highlighted the consistency of behaviors at home, indicating the effectiveness of nonverbal techniques. "Parents have observed consistent positive changes at home," stated one therapist.

### 3.3. Challenges and Barriers

**Therapist-Child Compatibility:** Building rapport, dealing with trust issues, individual differences, and resistance to techniques posed challenges. "Establishing trust can be difficult but is crucial for effective communication," a therapist mentioned.

**Resource Limitations:** Time constraints, lack of training, financial constraints, and limited materials were significant barriers. "Resource limitations often hinder the implementation of nonverbal techniques," remarked a participant.

**Environmental Factors:** Distractions, inconsistent settings, space issues, and noise levels affected the effectiveness of techniques. "Creating a conducive environment is often challenging but necessary," said one therapist.

Child's Communication Barriers: Severity of autism, non-responsiveness, and limited interaction were notable barriers. "Each child's level of communication varies, which can be a significant hurdle," explained a therapist.

Parental Involvement: Inconsistent participation, varying understanding, and parental beliefs impacted the use of nonverbal techniques. "Parental involvement is critical but often inconsistent," noted a participant.

Cultural Sensitivity: Adapting techniques to cultural differences, norms, and ensuring cultural sensitivity was essential. "Being culturally sensitive and adaptable in techniques is important," mentioned a therapist.

### 3.4. *Strategies for Overcoming Barriers*

Continuous Training and Education: Ongoing workshops, professional development, and peer support were strategies to overcome barriers. "Continuous training is vital for staying updated and effective," a therapist explained.

Collaborative Approach: Multidisciplinary teams, family involvement, and leveraging community resources were emphasized. "Collaboration with other professionals and families enhances effectiveness," noted a participant.

Adaptive Techniques: Using flexible methods, tailored approaches, and innovative strategies helped in overcoming barriers. "Adapting techniques to each child's needs is crucial," shared a therapist.

Creating Supportive Environments: Establishing sensory-friendly spaces, consistent settings, and minimizing distractions were key strategies. "A supportive environment significantly enhances the effectiveness of nonverbal techniques," mentioned one therapist.

Leveraging Technology: Assistive devices, visual aids, interactive apps, and virtual reality were used to support nonverbal communication. "Technology has been a game-changer in implementing nonverbal techniques," stated a participant.

## 4. Discussion and Conclusion

This study explored therapists' experiences with nonverbal communication techniques in psychotherapy for children with autism. The findings revealed several key themes: the implementation of nonverbal techniques, their perceived effectiveness, challenges and barriers, and strategies for overcoming these barriers. Therapists reported using a variety of nonverbal techniques, including gestures, facial expressions, eye contact, body language, and physical

proximity. These techniques were integrated into diverse contexts such as play therapy, group settings, and family involvement. The therapists emphasized the necessity of tailoring these techniques to the individual needs of each child, highlighting the importance of a personalized approach.

Therapists perceived nonverbal communication techniques as highly effective in enhancing understanding, emotional connection, behavioral improvements, and self-expression in children with autism. However, several challenges were noted, including therapist-child compatibility, resource limitations, environmental factors, communication barriers inherent to the child's condition, and inconsistent parental involvement. To overcome these challenges, therapists employed continuous training and education, collaborative approaches, adaptive techniques, and supportive environments. Technological tools were also leveraged to facilitate nonverbal communication.

The positive impact of nonverbal communication techniques on understanding and engagement aligns with previous research by Chiang et al. (2008), who found that young children with autism benefit significantly from nonverbal communication strategies. These techniques help clarify communication, reduce misunderstandings, and enhance engagement, thereby improving the overall therapeutic experience (Chiang et al., 2008).

The study also highlighted the emotional connection facilitated by nonverbal communication, which is crucial for building trust and creating a comfortable environment for children with autism. This finding is supported by Silverman (2008), who emphasized the role of nonverbal communication in establishing a therapeutic alliance and fostering emotional expression. The use of music therapy, as discussed by Silverman, is a prime example of how nonverbal techniques can create a safe and expressive space for children on the spectrum (Silverman, 2008).

Behavioral improvements observed in this study resonate with the findings of Knapik-Szweda (2020), who demonstrated that nonverbal communication through music therapy can lead to significant positive changes in the social and emotional behaviors of children with autism. These improvements are likely due to the structured yet flexible nature of nonverbal techniques, which provide children with a predictable and supportive environment.

The challenges identified by therapists, such as therapist-child compatibility and resource limitations, are consistent with the literature. Raharjo et al. (2022) noted that therapists must continuously adapt their strategies to meet the unique

needs of each child, highlighting the importance of flexibility and individualized approaches in overcoming these barriers (Raharjo et al., 2022). Additionally, resource limitations, including time and financial constraints, are common challenges faced by therapists working with children with autism (Nowak et al., 2023).

The study's findings on the importance of parental involvement and feedback are supported by Maljaars et al. (2011), who emphasized that parental observations and engagement are critical for the consistent application and success of nonverbal communication techniques. Engaging parents in the therapeutic process ensures that the benefits of these techniques extend beyond the therapy sessions and into the child's daily life (Maljaars et al., 2011).

While this study provides valuable insights into therapists' experiences with nonverbal communication techniques, several limitations must be acknowledged. First, the sample size was relatively small and limited to 16 therapists, which may not fully capture the diversity of experiences and practices in the broader therapeutic community. The use of purposive sampling, while ensuring that participants had relevant expertise, may also limit the generalizability of the findings. Additionally, the study relied solely on self-reported data from therapists, which could introduce bias and may not fully reflect the experiences of children and their families. Finally, the qualitative nature of the study, while providing in-depth insights, does not allow for the quantification of the effectiveness of nonverbal techniques or the comparison of these techniques with other therapeutic approaches.

Future research should aim to address these limitations by including larger and more diverse samples of therapists, as well as incorporating perspectives from children with autism and their families. Quantitative studies that measure the effectiveness of nonverbal communication techniques in comparison to other therapeutic methods would also be valuable. Longitudinal studies could provide insights into the long-term impacts of these techniques on the social, emotional, and behavioral development of children with autism. Additionally, exploring the neurobiological mechanisms underlying the success of nonverbal communication techniques could deepen our understanding of why these methods are effective and inform the development of more targeted interventions. Research should also investigate the role of cultural sensitivity and adaptation in the application of nonverbal communication strategies, ensuring that these interventions are inclusive and effective across diverse populations.

Practitioners should consider incorporating a variety of nonverbal communication techniques into their therapeutic repertoire, tailoring these methods to the individual needs and preferences of each child. Continuous professional development is essential for therapists to stay updated on the latest research and best practices in nonverbal communication. Collaboration with other professionals, such as educators and healthcare providers, as well as active engagement with families, can enhance the consistency and effectiveness of nonverbal techniques. Creating supportive and sensory-friendly environments is crucial for maximizing the benefits of nonverbal communication. Additionally, leveraging technology, such as assistive devices and interactive apps, can provide valuable support for both therapists and children in implementing these techniques. Finally, practitioners should be mindful of cultural differences and strive to adapt their nonverbal communication strategies to be culturally sensitive and inclusive.

In conclusion, this study underscores the significance of nonverbal communication techniques in psychotherapy for children with autism. These techniques not only enhance understanding and engagement but also foster emotional connections, improve behaviors, and support self-expression. While challenges exist, continuous training, collaboration, adaptability, and the use of technology can help overcome these barriers. By integrating nonverbal and verbal methods, engaging parents, and creating supportive environments, therapists can provide more effective and inclusive care for children with autism. Further research is needed to expand on these findings and explore new avenues for enhancing communication and therapeutic outcomes for this population.

### **Authors' Contributions**

Authors contributed equally to this article.

### **Declaration**

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

### **Transparency Statement**

Data are available for research purposes upon reasonable request to the corresponding author.

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### Declaration of Interest

The authors report no conflict of interest.

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### Ethics Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

### References

- Asadallah Salmanpour, F., & Pasha, G. (2023). The effect of acceptance and acceptance therapy (ACT) on happiness, mental health and quality of life of mothers with autistic children. *Psychology of Woman Journal*, 4(1), 81-89. <https://doi.org/10.61838/kman.pwj.4.1.9>
- Chiang, C. M., Soong, W. T., Lin, T. L., & Rogers, S. J. (2008). Nonverbal Communication Skills in Young Children With Autism. *Journal of Autism and Developmental Disorders*, 38(10), 1898-1906. <https://doi.org/10.1007/s10803-008-0586-2>
- Hyde, K. L., Samson, F., Evans, A. C., & Mottron, L. (2010). Neuroanatomical Differences in Brain Areas Implicated in Perceptual and Other Core Features of Autism Revealed by Cortical Thickness Analysis and Voxel-based Morphometry. *Human Brain Mapping*, 31(4), 556-566. <https://doi.org/10.1002/hbm.20887>
- Imani, Z., Zanganeh Motlagh, F., & Abbasi, M. (2022). Marital Disturbance and Object Relations in Mothers of Children with an Autism Spectrum Disorder (ASD): The Mediating Role of Psychological Coherence. *Journal of Adolescent and Youth Psychological Studies (JAYPS)*, 3(1), 111-122. <https://doi.org/10.61838/kman.jayps.3.1.9>
- Kahaki, F. (2024). The Effectiveness of Social-Cognitive Competence Skills Training on Positive Affects and Executive Functions of Adolescents. *Journal of Psychological Dynamics in Mood Disorders (PDMD)*, 3(1), 222-233. <https://doi.org/10.22034/pdmd.2024.449900.1067>
- Karna, W., & Stefaniuk, I. (2024). The Influence of Peer Relationships on the Social Development of Children with Autism Spectrum Disorder. *Iranian Journal of Neurodevelopmental Disorders*, 2(4), 10-18. <https://doi.org/10.61838/kman.jndd.2.4.2>
- Knapik-Szweda, S. (2020). The Effectiveness and Influence of Vocal and Instrumental Improvisation in Music Therapy on Children Diagnosed With Autism. Pilot Study. *Journal of Education Culture and Society*, 6(1), 153-166. <https://doi.org/10.15503/jecs20151.153.166>
- Maljaars, J., Noens, I., Jansen, R., Scholte, E., & Berckelaer-Onnes, I. v. (2011). Intentional Communication in Nonverbal and Verbal Low-Functioning Children With Autism. *Journal of Communication Disorders*, 44(6), 601-614. <https://doi.org/10.1016/j.jcomdis.2011.07.004>
- Nowak, D., PrÓchnicka, M., Siwek, M., Giermasiński, A., Tuszyńska, W., Zarzycki, A., & Komisarczuk, M. (2023). Therapeutic Strategy in the Form of Communication in the Children With the Autism Spectrum Disorders - Narrative Review. *Journal of Education Health and Sport*, 17(1), 64-69. <https://doi.org/10.12775/jehs.2023.17.01.008>
- Raharjo, F., Ridwan, R., Harianto, D., Jailani, S., Ulfah, S. M., & Sari, F. (2022). Nonverbal Communication Behavior of Autistic Children in the Therapy Process at the Center Jambi Province Autism Service. <https://doi.org/10.4108/eai.20-10-2021.2316436>
- Silverman, M. J. (2008). Nonverbal Communication, Music Therapy, and Autism: A Review of Literature and Case Example. *Journal of Creativity in Mental Health*, 3(1), 3-19. <https://doi.org/10.1080/15401380801995068>
- Wan, C. Y., Demaine, K., Zipse, L., Norton, A., & Schlaug, G. (2010). From Music Making to Speaking: Engaging the Mirror Neuron System in Autism. *Brain Research Bulletin*, 82(3-4), 161-168. <https://doi.org/10.1016/j.brainresbull.2010.04.010>
- Yoder, P. J., & McDuffie, A. (2006). Teaching Young Children With Autism to Talk. *Seminars in Speech and Language*, 27(3), 161-172. <https://doi.org/10.1055/s-2006-948227>