KMAN PUBLISHING INSTITUTE
Journal Website

Article history:
Received 07 June 2024
Revised 20 September 2024
Accepted 29 September 2024
Published online 01 November 2024

KMAN Counseling & Psychology Nexus

Volume 2, Issue 2, pp 192-199

E-ISSN: 3041-9026

# The Effectiveness of the Floortime Rehabilitation Method on the Theory of Mind in Students With High-functioning Autism

Manizheh. Ezzati Rastgar[1], Masoumeh. Behboudi[2*], Reza. Khakpour[3]

[1] PhD Student, Department of Counseling, Roudehen Branch, Islamic Azad University, Roudehen, Iran
[2] Assistant Professor, Department of Counseling, Roudehen Branch, Islamic Azad University, Roudehen, Iran
[3] Department of Counseling, Roudehen Branch, Islamic Azad University, Roudehen, Iran

*** Corresponding author email address**: mabehboodi@gmail.com

A r t i c l e  I n f o

**Article type:**
*Original Research*

**How to cite this article:**
Ezzati Rastgar, M., Behboudi, M., & Khakpour, R. (2024). The Effectiveness of the Floortime Rehabilitation Method on the Theory of Mind in Students With High-functioning Autism. *KMAN Conseling and Psychology Nexus*, *2*(2), 192-199.
http://doi.org/10.61838/kman.psynexus.2.2.24



A B S T R A C T

The present study investigated the effectiveness of the Floortime rehabilitation method on the theory of mind in students with high-functioning autism. This study is applied research in terms of purpose and falls within the category of intervention studies and quasi-experimental research, utilizing a pretest-posttest single-group design with a control group and follow-up. The statistical population included all male children aged 6–10 years with high-functioning autism in Tehran who were enrolled in exceptional schools during the 2023–2024 academic year. The sampling method employed was multi-stage cluster random sampling. Participants were selected from among autistic children diagnosed with high-functioning autism based on the criteria of the Organization for Exceptional Education and the administration of the Autism Spectrum Screening Questionnaire (ASSQ). These children were enrolled in exceptional schools in Tehran. A total of 30 participants were randomly divided into two groups of 15. Data were analyzed using paired t-tests and visual representation or graphical analysis. The results demonstrated that the Floortime intervention method significantly affected the subscales of the theory of mind in children with autism spectrum disorder. It can be concluded that the Floortime intervention method is effective in reducing psychological problems in students with autism and can be utilized to improve their psychological well-being.

***Keywords:*** *Psychomotor rehabilitation, Floortime, Theory of Mind, Students, Autism.*

## 1. Introduction

Autism Spectrum Disorder (ASD) is one of the five neurodevelopmental disorders within the spectrum of pervasive developmental disorders (Samad, 2024; Schiltz et al., 2024). Its global prevalence is currently estimated to be 1 in every 50 births (Moghaddam, 2024; Pagan, 2024). Children with ASD are categorized into three levels, with high-functioning individuals being classified as Level 1, requiring support (Karna & Stefaniuk, 2024; Lee et al., 2024). Although much of the research and clinical focus on ASD has been directed toward improving social and behavioral development, issues related to learning and motor control have not been considered diagnostic criteria for this disorder. However, it must be acknowledged that these issues constitute a significant portion of the deficits observed.

Researchers emphasize that difficulties in understanding one's own and others' movements, social interactions, and atypical behaviors are significantly associated with motor problems and inefficient movement execution (Harris et al., 2008). Lower motor proficiency is linked to social withdrawal, difficulty forming friendships, and poorer social development. Thus, there is a critical need to focus on better understanding the underlying mechanisms of skilled motor performance (Bayat, 2016; Feng et al., 2008).

One of the most widely used developmental interventions is Floortime, or the Developmental, Individual Differences, Relationship-Based (DIR) model. Floortime is a therapeutic program within the DIR framework. This developmental approach consists of three components: (1) developmental emotional-functional capacities (D), (2) individual differences in sensory processing and motor planning (I), and (3) relationships with caregivers, family members, and others (R) (Greenspan, 2003). Sensory processing includes registering, modulating sensory information, and organizing sensory input to produce adaptive responses to environmental demands and to engage in daily life situations. Disruption in this system may manifest as hyper-reactivity, hypo-reactivity, or sensory-seeking behaviors (Bayat, 2016).

Floortime is an educational model or a form of play therapy. Unlike traditional therapies, it specifically targets areas such as speech and motor development (Abazari et al., 2017). This intervention emphasizes the impact of natural emotions and emotional interactions on children's cognitive, linguistic, self-regulatory, and social abilities (Pajareya & Nopmaneejumruslers, 2011; Praphatthanakunwong et al., 2018).

The core principle of Floortime is to immerse the child in interactions that evoke six levels of fundamental developmental capacities: (1) attention and regulation, (2) engagement and forming relationships, (3) two-way intentional communication, (4) problem-solving and shared social problem-solving, (5) creating representations and ideas, and (6) bridging ideas and logical thinking (Pajareya & Nopmaneejumruslers, 2011). In Floortime, adults follow the child's lead, becoming as attuned as possible to the child's interests and responding in ways that support and reinforce those interests (Praphatthanakunwong et al., 2018; Roghani et al., 2022). In other words, the intervention utilizes the child's preferred activities (play) to promote positive social skills. By following the child's interests, caregivers invest in what the child does, encouraging further interaction. This interactive progression fosters emotional growth in the child (Abazari et al., 2017; Baniasadi, 2024).

Floortime is essentially a gradual process of increasing a child's tolerance through play. Initially, engaging the child and encouraging interaction requires more effort. This process progresses very slowly, but with time and patience, the child begins to engage. This approach is based on the perspective that autistic children require more practice with social reciprocity and reading social cues in different contexts (Bayat, 2016; Liao et al., 2014).

An important consideration in treating children with ASD is the necessity of family involvement in therapy to generalize the skills learned. Treatment programs for ASD should be child-parent-centered to reinforce social and communication skills alongside skill generalization (Asmeri Noubari et al., 2023). The Floortime approach is particularly favored by occupational therapists worldwide, as it is rooted in play and everyday activities. Therapists employing this approach can enhance the child's participation in these domains (Emamian & Taher, 2021). Martini and Dion (2018) demonstrated that Floortime significantly increases social and communication interactions in children with ASD (Pajareya et al., 2019).

Motor imagery is defined as a dynamic process where an individual mentally simulates a sequence of movements or a single movement (Anam et al., 2019). This ability involves mentally rehearsing, repeating, and imitating motor tasks without overt movement, focusing on reactivating and forming internal models for predicting and estimating the body's state (Lange et al., 2008). Motor imagery plays a vital role in cognitive processes related to skilled motor



KMAN-CPN KMAN-Counseling & Psychology Nexus
E-ISSN: 3041-9026

behaviors, such as mental practice, action planning, feedforward control, and spatial orientation, especially when visual sensory information is incomplete (Romano-Smith et al., 2018; Theresa & Boe, 2021; Vogt et al., 2013). Motor imagery appears to depend on a network of motor-related regions, including prefrontal-parietal areas and subcortical structures, supporting the similarity between motor imagery and actual motor execution processes (Amjad, 2019; Lindsay et al., 2023).

Considering the aforementioned points, the present study seeks to answer the question: Is the Floortime rehabilitation method effective in enhancing levels of theory of mind and motor imagery in children with high-functioning autism spectrum disorder?

## 2. Methods and Materials

### *2.1. Study Design and Participants*

The present study is applied research in terms of purpose and falls under the category of intervention studies and quasi-experimental research, using a single-group pretest-posttest design with a control group and follow-up. The statistical population consisted of all 6- to 10-year-old high-functioning male children with autism in Tehran who were enrolled in exceptional schools during the 2023–2024 academic year. Sampling was conducted using multi-stage cluster random sampling. Children with autism, diagnosed as high-functioning by the Organization for Exceptional Education and confirmed through the Autism Spectrum Screening Questionnaire (ASSQ), and studying in exceptional schools in Tehran were included.

For sampling, Tehran's 22 districts were divided into five regions: north (Districts 1 and 2), south (Districts 15–20), east (Districts 3, 4, 13, and 14), west (Districts 5 and 22), and central (Districts 6–12). Three districts (north, south, and west) were randomly selected. From these districts, four schools were chosen by lot, resulting in 12 schools. From these schools, 30 high-functioning autistic students whose families consented to participate in the therapeutic sessions were selected as the sample group. The 30 participants were randomly divided into two groups of 15.

Inclusion Criteria: Diagnosis of autism with high functioning (confirmed by the Organization for Exceptional Education and the ASSQ), age between 6 and 10 years, an IQ of at least 85, comprehensible verbal abilities, appropriate eye contact, a communication level requiring support, being the first to third child in the family, non-divorced parents, parental age between 23 and 40 years, parental marriage age of at least 21 years, a minimum educational level of associate degree for parents, and at least a medium-to-high socioeconomic and cultural level.

Exclusion Criteria: History of head trauma, tumors, epilepsy, or other neurological injuries; sensory issues such as visual, auditory, or motor impairments; learning disabilities; comorbid disorders such as schizophrenia; prior experience with Floortime rehabilitation therapy; use of psychotropic medications; or intellectual disabilities. These criteria were reviewed and controlled by school health instructors and counselors.

Participants sat comfortably in front of a laptop to complete the HRT, with 18 practice trials provided before each block for familiarization. The intervention program consisted of 12 individual Floortime therapy sessions, each lasting 45–60 minutes.

The study was conducted during the 2023–2024 academic year after obtaining permissions from the relevant exceptional education authorities in Tehran. Initially, 30 high-functioning autistic children aged 6–10 years were identified using the ASSQ and confirmed diagnoses from the Organization for Exceptional Education.

The pretest assessments of Theory of Mind and motor imagery were administered to the sample. Initial Floortime evaluation forms were completed for each participant to confirm that they had not yet developed Theory of Mind or motor imagery skills. The individualized therapy program, consisting of 12 Floortime sessions, was implemented over a period of 45–60 minutes per session.

Two weeks after completing the sessions, posttests were conducted to assess Theory of Mind and motor imagery. A follow-up test was conducted two months later. The interventions were carried out at the Milad Ghaem Neurofeedback and Biofeedback Center in Tehran, with the researcher and two exceptional children specialists overseeing the process.

### *2.2. Measures*

#### *2.2.1. Structured Clinical Interview*

The structured clinical interview is a diagnostic tool based on DSM-IV. It was developed by First, Spitzer, Gibbon, and Williams. Research indicates that this interview has good validity and reliability for diagnosing mental disorders (Bayat, 2016; Mansouri et al., 2010).



KMAN-CPN KMAN-Counseling & Psychology Nexus E-ISSN: 3041-9026

### 2.2.2. *Theory of Mind Test*

The original form of this test, developed by Steinemann (1999), assesses "Theory of Mind" in children aged 5–12, both typically developing and those with pervasive developmental disorders. It provides information on a child's social understanding, sensitivity, and insight, as well as the extent to which they can comprehend others' thoughts and emotions. The test was modified by Qamrani, Alborzi, and Kheir (2006), reducing the items from 72 to 38 and replacing foreign names with Persian ones. It was validated and standardized on a group of intellectually disabled and typically developing students in Shiraz. Reliability was evaluated using content validity, subtest-total score correlations, and concurrent validity, with a concurrent validity coefficient of 0.89 ($p < 0.01$). Subtest-total score correlations ranged from 0.82 to 0.96. Internal consistency, calculated using Cronbach's alpha, was 0.86 for the total test and 0.72–0.81 for subtests. The inter-rater reliability coefficient was 0.98. Cronbach's alpha for this study was calculated at 0.81 (Kakoujouibari et al., 2013; Mansouri et al., 2010).

### 2.2.3. *Autism Spectrum Symptoms*

The ASSQ, developed by Ehlers and Gillberg (1993), quantitatively determines whether an individual has high-functioning autism spectrum disorder. Scores between 50 and 100 indicate high-functioning autism. The ASSQ uses a 5-point Likert scale: 0 for "not at all," 1 for "very little," 2 for "a little," 3 for "moderate," and 4 for "very much." The scale was standardized in Iran by Kasechi in 2011. Internal consistency was assessed using Cronbach's alpha, with coefficients of 0.77 for parents and 0.81 for teachers after removing inappropriate items (Bayat, 2016).

### 2.2.4. *Motor Imagery*

The Hand Rotation Task (HRT) was used for motor imagery assessment. This software provides a standardized and precise tool for presenting 3D hand images in two patterns (palm and back of the hand) at six rotation angles (0°, 60°, 120°, 180°, 240°, 300°). Participants completed two blocks (one for palm-side images and one for back-side images), each with 36 randomized trials. Participants identified whether the image represented a left or right hand by pressing a keyboard key as quickly and accurately as possible. Response accuracy and reaction time were recorded for statistical analysis.

## 2.3. *Intervention*

### 2.3.1. *Floortime*

Session 1: Parent Orientation and Preparation

The session begins with an introduction and initial discussion with the parents to establish a rapport and explain the significance of early childhood development. The therapist highlights the long-term impact of low social and communication skills in children with autism. Parents are introduced to the principles and methods of Floortime therapy, including its purpose and structure, to prepare them for future sessions and enhance their understanding of the critical role they play in their child's development.

Session 2: Following Commands

In this session, the child engages in simple imitation activities, such as clapping in response to the therapist's command, "Do this." The goal is to enhance the child's ability to imitate, a foundational skill for learning and social interaction.

Session 3: Object Classification

The child learns to classify objects as an introductory activity for essential academic and life skills, such as mathematical categorization. This session focuses on helping the child match similar items, promoting cognitive organization.

Session 4: Sorting Objects

The child is guided to group objects by specific attributes, such as placing red items together. This activity enhances sorting skills, which are crucial for academic and daily organizational tasks.

Session 5: Sustained Engagement in Tasks

Activities are designed to maintain the child's focus on a task and encourage persistence. These exercises aim to improve the child’s motor coordination and perseverance, fostering task completion and attention span.

Session 6: Pretend Play

The child engages in symbolic play, such as mimicking a picnic, hosting a tea party, or role-playing scenarios like reading a book. These activities help the child develop imitation skills, creativity, and understanding of social roles.

Session 7: Auditory Processing

The child practices auditory processing tasks, such as observing the therapist showing their palm without clapping. This session focuses on improving auditory processing and the ability to follow non-verbal auditory cues.

Sessions 8 and 9: Ball Activities

The child participates in activities like picking up, throwing, and catching balls. These exercises are designed



KMAN-CPN KMAN-Counseling & Psychology Nexus E-ISSN: 3041-9026

to develop both gross and fine motor skills, improving coordination and physical interaction with objects.

Session 10: Oral-Motor Activities

Activities such as sticking out the tongue, blowing bubbles, or other oral-motor tasks are introduced. These exercises aim to enhance oral-motor functionality, crucial for speech and eating skills.

Session 11: Sensory Integration

The child engages in various sensory-rich activities, such as blowing on a ping pong ball, crawling through a tunnel, or tummy ball play. These exercises are designed to promote sensory integration, helping the child process and respond to sensory input more effectively.

Session 12: Expressive Language and Communication Skills

In the final session, the therapist asks questions to encourage the child to describe observed actions, such as "What am I doing?" The child responds with clear expressions like "You are smiling," "You are clapping," or "You are waving." This session aims to improve expressive language and communication skills, enabling better interaction and understanding.

### *2.4. Data analysis*

Data were analyzed in two stages using paired t-tests and graphical visual analysis. In the first stage, pretest and posttest scores (mean scores from pre-intervention and end-of-treatment sessions) were compared. In the second stage, follow-up scores were compared with posttest scores to assess the stability of intervention effects. The confidence level for this study was set at 95%.

## 3. Findings and Results

Table 1 provides statistical information on the variables of Theory of Mind and Motor Imagery for children with autism, categorized by group.

**Table 1**

*Statistical Information on the Dimensions of Theory of Mind by Group*

| Variable | Group | Stage | Mean | Standard Deviation | Variance | Minimum | Maximum | Percentage Change |
|---|---|---|---|---|---|---|---|---|
| Basic Theory of Mind | Control | Pre-test | 9.46 | 1.884 | 3.552 | 6 | 14 | 5.4% |
| | | Post-test | 10 | 2.138 | 4.571 | 6 | 15 | |
| | Floortime | Pre-test | 8.8 | 2.782 | 7.743 | 0 | 13 | 51.64% |
| | | Post-test | 18.2 | 1.567 | 2.457 | 15 | 20 | |
| Initial Real Theory of Mind | Control | Pre-test | 5.93 | 1.709 | 2.924 | 2 | 9 | 7.34% |
| | | Post-test | 6.4 | 1.723 | 2.971 | 3 | 10 | |
| | Floortime | Pre-test | 6.53 | 2.474 | 6.124 | 0 | 11 | 41.32% |
| | | Post-test | 11.13 | 0.833 | 0.695 | 9 | 12 | |
| Advanced Theory of Mind | Control | Pre-test | 1.03 | 0.723 | 0.524 | 0 | 2 | 11.96% |
| | | Post-test | 1.17 | 0.883 | 0.781 | 0 | 3 | |
| | Floortime | Pre-test | 1.08 | 0.941 | 0.886 | 0 | 3 | 57.31% |
| | | Post-test | 2.53 | 0.516 | 0.267 | 2 | 3 | |

Before testing the research hypotheses, it is necessary to examine the normality of the research variables using the Shapiro-Wilk test. The results showed the normality of the variables in both pre-test and post-test conditions for the control and Floortime groups. The significance levels for the research variables in both pre-test and post-test are greater than 0.05, indicating that the variables follow a normal distribution. This normality justifies the use of parametric tests to examine the research hypotheses.

Floortime rehabilitation methods have a significant impact on the Theory of Mind in children with high-functioning autism spectrum disorder. A one-way ANOVA was used to analyze the findings. Table 2 presents the results of multivariate tests comparing the Theory of Mind variable between the control and Floortime groups.



KMAN-CPN KMAN-Counseling & Psychology Nexus E-ISSN: 3041-9026

**Table 2**

*Multivariate Test Results*

| Test | Test Value | F Statistic | Degrees of Freedom | Error Degrees of Freedom | Significance Level | Effect Size |
|---|---|---|---|---|---|---|
| Pillai's Trace | 0.899 | 68.271 | 3 | 23 | 0.001 | 0.899 |
| Wilks' Lambda | 0.101 | 68.271 | 3 | 23 | 0.001 | 0.899 |
| Hotelling's Trace | 8.897 | 68.271 | 3 | 23 | 0.001 | 0.899 |
| Roy's Largest Root | 8.897 | 68.271 | 3 | 23 | 0.001 | 0.899 |

Table 2 indicates that the significance levels for all four multivariate tests are less than 0.05, demonstrating the effect of the Floortime intervention method. Additionally, since the effect sizes are identical across the four tests, the choice of test does not significantly alter the results.

As the significance levels obtained from the Levene's test for all three criterion variables (Basic Theory of Mind, Initial Real Theory of Mind, and Advanced Theory of Mind) are greater than 0.05, it can be concluded that the error variances are equal. Therefore, all three conditions for using MANCOVA are met.

**Table 3**

*Results of Covariance Analysis*

| Predictor Variable | Criterion Variables | Sum of Squares | Degrees of Freedom | Mean Square | F Statistic | Significance Level | Effect Size |
|---|---|---|---|---|---|---|---|
| Floortime Intervention | Theory of Mind | 391.017 | 1 | 391.017 | 237.533 | 0.001 | 0.898 |
| | Reaction Time | 56.534 | 1 | 56.534 | 137.998 | 0.001 | 0.841 |
| | Performance Accuracy | 477.403 | 1 | 477.403 | 280.253 | 0.001 | 0.915 |
| | Basic Theory of Mind | 456.677 | 1 | 456.677 | 231.135 | 0.001 | 0.902 |
| | Initial Real Theory of Mind | 107.647 | 1 | 107.647 | 956.75 | 0.001 | 0.752 |
| | Advanced Theory of Mind | 5.389 | 1 | 5.389 | 11.588 | 0.002 | 0.317 |

The Floortime intervention significantly impacts the Theory of Mind in children with autism. The eta-squared value suggests that approximately 90% of the variance in Theory of Mind is attributable to the Floortime intervention. The effect size indicates that the Floortime intervention effectively improves reaction time and performance accuracy in children with autism spectrum disorder.

## 4. Discussion and Conclusion

The results of this study indicate that the Floortime intervention method significantly impacts Theory of Mind in children with autism, with an eta-squared value suggesting that Floortime accounts for approximately 90% of the variance in this construct. This finding aligns with the prior research (Abazari et al., 2017; Asmeri Noubari et al., 2023; Baniasadi, 2024; Bayat, 2016; Emamian & Taher, 2021; Liao et al., 2014; Pajareya & Nopmaneejumruslers, 2011; Pajareya et al., 2019; Praphatthanakunwong et al., 2018; Roghani et al., 2022).

The Floortime method is grounded in real-life scenarios, emphasizing the development of communication, verbal-motor skills, interpersonal skills, social interaction, and emotional recognition in children with autism. These processes naturally enhance reasoning abilities and the level of Theory of Mind in children. Additionally, reality-based conversations incorporated in Floortime play therapy contribute to this improvement in Theory of Mind (Abazari et al., 2017; Asmeri Noubari et al., 2023; Roghani et al., 2022).

The findings also show that the Floortime method significantly enhances performance accuracy in children with autism. The effectiveness of Floortime in strengthening verbal-motor skills and motor imagery—an impactful strategy for improving implicit motor sequence acquisition (Baniasadi, 2024; Bayat, 2016; Roghani et al., 2022)—explains these results. As motor imagery is a critical strategy manifesting at neural and functional levels, Floortime enhances this ability in the target population.



KMAN-CPN KMAN-Counseling & Psychology Nexus
E-ISSN: 3041-9026

Based on the analyses related to Theory of Mind, it can be concluded that Floortime interventions foster the development of Theory of Mind skills. By emphasizing emotional connections, mental skills, and individual differences, this method can help reduce issues such as autism and self-isolation. The findings highlight the importance of motor exercises and activities not only for enhancing cognitive development but also for improving Theory of Mind. Additionally, deficits in Theory of Mind among children with autism are not solely influenced by the severity of autism but also by variables such as IQ, age, duration of interventions, and the timing of intervention initiation (Liao et al., 2014; Pajareya & Nopmaneejumruslers, 2011; Pajareya et al., 2019).

Theory of Mind is a biological construct influenced by various individual and environmental factors. Although it is highly vulnerable to autism, it is not solely impacted by it.

No research is free from limitations, as researchers face challenges and uncontrollable factors throughout the research process. This study is no exception. Some limitations include the influence of gender, which is a significant factor in the development of Theory of Mind. The findings suggest that applying these methods to younger children over longer periods could yield better results (Asmeri Noubari et al., 2023; Bayat, 2016; Emamian & Taher, 2021; Pajareya et al., 2019).

The interventions in this study lasted three months; however, longer durations might produce greater therapeutic effects. For example, children who were older and showed more significant therapeutic effects were also those who received longer-term interventions at younger ages. Thus, the study could not definitively determine whether age or intervention history influenced the results.

Future research should consider applying these methods to younger children during the early stages of development to achieve more meaningful and lasting effects. Additionally, longer-term studies are recommended to evaluate the potential sustained impacts of the Floortime method across various autism spectrum disorders. Comparative studies could examine older children without interventions and those who received longer-term interventions. Further, future research should involve children not currently undergoing any other interventions to isolate the specific effects of Floortime.

Finally, Floortime play therapy is recommended for improving other childhood psychological disorders such as ADHD and anxiety disorders. This method could also be employed to improve the mental health of children whose parents are divorced or deceased, as these children often carry suppressed emotions related to their parents.

## 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.

## Acknowledgments

We would like to express our gratitude to all individuals helped us to do the project.

## Declaration of Interest

The authors report no conflict of interest.

## Funding

According to the authors, this article has no financial support.

## Ethical Considerations

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

## References

Abazari, K., Malekpour, M., Ghamarani, A., Abedi, A., & Faramarzi, S. (2017). Impact of Individual Differences Intervention (Floortime) Based on Parents' Expressed Emotion on Children's Social Skills With High-Functioning Autism Disorder. *Iranian Journal of Psychiatry and Clinical Psychology*, *23*(3), 260-277. https://doi.org/10.29252/nirp.ijpcp.23.3.260

Amjad, B. (2019). Effects of Motor Imagery Techniques in Children With Spastic Cerebral Palsy. *Journal of Physical Fitness Medicine & Treatment in Sports*. https://doi.org/10.19080/jpfmts.2018.05.555696

Anam, K., Nuh, M., & Al-Jumaily, A. (2019). Comparison of EEG Pattern Recognition of Motor Imagery for Finger Movement Classification. *Proceeding of the Electrical Engineering Computer Science and Informatics*, *6*(0). https://doi.org/10.11591/eecsi.v6i0.2014



KMAN-CPN KMAN-Counseling & Psychology Nexus E-ISSN: 3041-9026

Asmeri Noubari, F., Kafash Khormizi, E., Tavakoli Dehghi, Z., & Silavi, A. (2023). The impact of Floortime play therapy (family-based) on enhancing children's social skills. Italy.

Baniasadi, T. (2024). Comparison of Executive Function and Working Memory among Children with High and Low Levels of Physical Activity. *International Journal of Education and Cognitive Sciences*, *5*(3), 9-15. https://doi.org/10.61838/kman.ijeas.5.3.2

Bayat, M. (2016). *Comparison of the Effectiveness of Applied Behavior Analysis Training, Floortime-Based Play Therapy, and Their Combination on Improving Communication and Social Skills in Children with Autism Spectrum Disorders in Andimeshk* Shahid Chamran University of Ahvaz].

Emamian, M., & Taher, M. (2021). Comparison of the effectiveness of Floortime play therapy and neurofeedback therapy with computer-based cognitive exercises on impulsivity in children with attention deficit/hyperactivity disorder (ADHD). *Journal of Psychological Growth*, *10*(10), 161-172. [LINK]

Feng, H., Shuling, T., & Gwendolyn, C. (2008). The Effects of Theory-of-Mind and Social Skill Training on the Social Competence of a Sixth-Grade Student With Autism. *Journal of Positive Behavior Interventions*, *10*(4), 228-233. https://doi.org/10.1177/1098300708319906

Harris, M. J., Best, S. C., Moffat, J. V., Spencer, D. M., Philip, C. M. R., Power, J. M., & Johnstone, C. E. (2008). Autistic traits and cognitive performance in young people with mild intellectual impairment. *Journal of Autism and Developmental Disorders*, *38*, 1241-1249. https://doi.org/10.1007/s10803-007-0502-1

Kakoujouibari, A. A., Shaghaghi, F., & Baradaran, M. (2013). Social Cognitive Development Based on Theory of Mind in Children. *Social Cognition Journal*, *1*(2), 33-40. https://sc.journals.pnu.ac.ir/article_301.html?lang=en

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

Lange, F. P. d., Roelofs, K., & Toni, I. (2008). Motor Imagery: A Window Into the Mechanisms and Alterations of the Motor System. *Cortex*, *44*(5), 494-506. https://doi.org/10.1016/j.cortex.2007.09.002

Lee, J. D., Terol, A. K., Yoon, C. D., & Meadan, H. (2024). Parent-to-parent support among parents of children with autism: A review of the literature. *Autism*, *28*(2), 263-275. https://journals.sagepub.com/doi/abs/10.1177/13623613221146444

Liao, S. T., Hwang, Y. S., Chen, Y. J., Lee, P.-C., Chen, S. J., & Lin, L.-Y. (2014). Home-Based DIR/Floortime™ Intervention Program for Preschool Children With Autism Spectrum Disorders: Preliminary Findings. *Physical & Occupational Therapy in Pediatrics*, *34*(4), 356-367. https://doi.org/10.3109/01942638.2014.918074

Lindsay, R., Spittle, S., & Spittle, M. (2023). Considering the need for movement variability in motor imagery training: implications for sport and rehabilitation. *Frontiers in psychology*, *14*, 1178632. https://doi.org/10.3389/fpsyg.2023.1178632

Mansouri, M., Chalabanlou, G., Malekirad, A., & Mosaddad, A. A. (2010). Comparison of Factors Influencing the Development of Theory of Mind Levels in Children with Autism and Typically Developing Children. *Journal of Medical Sciences, Arak University of Medical Sciences*, *13*(4), 115-125. http://jams.arakmu.ac.ir/article-1-618-en.html

Moghaddam, K. (2024). Autism Spectrum Disorder: Learning Environments. https://doi.org/10.5772/intechopen.113751

Pagan, A. F. (2024). Motivational Interviewing for Young Adults With Autism Spectrum Disorder: A Pilot Feasibility Study. https://doi.org/10.31234/osf.io/mt247

Pajareya, K., & Nopmaneejumruslers, K. (2011). A Pilot Randomized Controlled Trial of DIR/Floortime™ Parent Training Intervention for Pre-School Children With Autistic Spectrum Disorders. *Autism*, *15*(5), 563-577. https://doi.org/10.1177/1362361310386502

Pajareya, K., Sutchritpongsa, S., & Kongkasuwan, R. (2019). DIR/Floortime® Parent Training Intervention for Children With Developmental Disabilities: A Randomized Controlled Trial. *Siriraj Medical Journal*, *71*(5), 331-338. https://doi.org/10.33192/smj.2019.51

Praphatthanakunwong, N., Kiatrungrit, K., Hongsanguansri, S., & Nopmaneejumruslers, K. (2018). Factors Associated With Parent Engagement in DIR/Floortime for Treatment of Children With Autism Spectrum Disorder. *General Psychiatry*, *31*(2), e000009. https://doi.org/10.1136/gpsych-2018-000009

Roghani, F., Jadidi, M., & Peymani, J. (2022). The Effectiveness of Floortime Play Therapy on Improving Executive Functions and Cognitive Emotion Regulation in Children with Attention Deficit / Hyperactivity Disorder (ADHD). *International Journal of Education and Cognitive Sciences*, *2*(4), 30-44. https://doi.org/10.22034/injoeas.2022.160686

Romano-Smith, S., Wood, G., Wright, D. J., & Wakefield, C. (2018). Simultaneous and Alternate Action Observation and Motor Imagery Combinations Improve Aiming Performance. *Psychology of Sport and Exercise*, *38*, 100-106. https://doi.org/10.1016/j.psychsport.2018.06.003

Samad, A. (2024). Effects of Sensory Integration to Manage Behavior Problems of Children With Autism Spectrum Disorder. *Allied Medical Research Journal*, 203-212. https://doi.org/10.59564/amrj/02.01/023

Schiltz, H. K., McVey, A. J., & Lord, C. (2024). Anxiety Disorders in Autistic People: A Narrative Review. *Psychiatric Clinics of North America*. https://doi.org/10.1016/j.psc.2024.04.016

Theresa, C. L. S. G., & Boe, S. G. (2021). Investigating the Dose-response Relationship Between Motor Imagery and Motor Recovery of Upper-limb Impairment and Function in Chronic Stroke: A Scoping Review. *Journal of Neuropsychology*, *16*(1), 54-74. https://doi.org/10.1111/jnp.12261

Vogt, S., Rienzo, F. D., Collet, C., Collins, A. F., & Guillot, A. (2013). Multiple Roles of Motor Imagery During Action Observation. *Frontiers in human neuroscience*, *7*. https://doi.org/10.3389/fnhum.2013.00807