



The Comparative Study of Pretend Plays Between 5 - 7 Years Old High-functioning Autistic Children and Their Normal Peers with Child-initiated Pretend Play Assessment

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Abstract

Background: Autism is one of the prevalent disorders in childhood. Children with autism have difficulties in different life skills and their daily activities. Pretend plays are essential in improving these skills, but the patterns of playing are impaired in this group.

Objectives: The present study was designed to compare pretend plays between high-functioning autistic children and typical peers.

Methods: The research is the result of a cross-sectional study. Two groups of children with high-functioning autism and typical peers in the age range of 5-7 years were studied. Each group consisted of 87 participants who were selected by convenience sampling. Each participant was assessed by the Child-Initiated Pretend Play assessment (ChIPPA) test. The results were analyzed using descriptive statistics and an independent *t*-test.

Results: Data analysis and comparison of scores between the two groups of children showed a significant difference in the mean scores. The average percentage score of the number of object substitutions (NOS) and the elaborate pretend play actions (PEPA) in children with autism were lower than typical peers ($P < 0.001$). In other words, children with autism were less able to organize play and pretend. But the number of imitated actions (NIA) scores in children with autism was higher than their counterparts ($P < 0.001$). That is, children with autism relied more on examiner-playing patterns.

Conclusions: The significant difference in scores between children with autism and typical peers showed significantly lower pretend skills in children with autism. According to pretend play basics on academic skills, language, and having a flexible mind, and with the attention to the same problems in children with autism, pretend play can be in greater attention to be improved among these groups.

Keywords: Autism Spectrum Disorder, Children, Outcome Assessment, Play, Playthings

1. Background

Play is a broad concept. Occupational therapists consider playing as a primary childhood occupation (1). Play is a vast and valuable skill in human experiences that happens naturally to most children. Children move through different stages of play development and can add imagination, complexity, and creativity to their play. While for many autistic children, many stages of play will never develop or will be incompletely updated (2).

According to Santrock, there are four main types of playing in children, including sensorimotor play (exploring the environment), pretend/symbolic play, Social play (plays with interactions), and constructive play (creating a product) (3). Disabilities in play skills, especially deficiencies in pretend play, are among the characteristics of autistic

children. Pretend play has an essential role in a child's growth and development. Lifter (4) claimed the difference between children with and without autism in their playing; however, they did not use a standardized tool and relied on videotaped modeling and the way that children imitated the given actions. Whenever a child pretends that something is happening, he/she is using his/her pretend play skills. Pretend play has three main factors: suspending the reality with object substitution, attributing features to objects, and referring to an absent object (5). Pretend play has different aspects, and it is necessary to address all aspects when we want to argue the probable differences between two groups of children.

Pretend plays are essential in achieving the goal of improving the learning and academic skills of high-functioning autistic children. These plays facilitate the

child's pre-school skills such as the ability to speak, organize thinking, abstract thinking, and logical thinking. Children who engage in pretend plays will have a better cognitive function (6). Given the capacity of play to stimulate sensory and cognitive development and language and social skills of the child, play-based interventions for children with autism can provide the basis for interaction and enrichment of communication activities and other disorders (7). So teaching play to children with autism is a valuable goal for several reasons: first, children who do not learn how to play may miss opportunities for social interaction and therefore hurt their socialization skills (8). Second, increasing the quality and repetition of appropriate plays will help reduce behavioral and stereotyped problems in some children with autism, and this has been used as a deterrent to these behaviors (9). Third, play education can reduce the visible differences between children with autism and typical children. This reduction in apparent differences will increase the chances of autistic and Asperger's children participating in social or even educational skills (10).

There are several tools to assess children's playing. Among them, the "Child-Initiated Pretend Play assessment" (ChIPPA) is the best because it can evaluate the whole aspects of a child's pretend play skill in a session (5). Previously, several studies have been done to compare pretend to play in children with autism and typical children; however, they did not use ChIPPA or did with a limited sample size. In this study, we attempted to use ChIPPA in a greater sample size.

2. Objectives

This study aimed to compare pretend play between high-functioning autistic children and normal peers to investigate the quality of playfulness in autistic children and their playfulness deficits using the ChIPPA.

3. Methods

3.1. Study Design

This descriptive study was carried out using convenience sampling. The study proposal was approved by Shahid Beheshti University of Medical Sciences, Faculty of Rehabilitation. Then we got ethical approval from the related committee. The code is IR.SBMU.RETECH.REC.1399.639. The children were observed by the examiner in-site and directly. Children's playing was scored using ChIPPA for 30 minutes in a neutral environment like a clinic for children with autism and kindergarten and schools for typical children. ChIPPA's

playing tools were introduced to the children, and they had time to play with the provided playing materials while the examiner was scoring their actions based on ChIPPA's manual instruction. More details about ChIPPA are brought in the study instrument part.

3.2. Participants

The study population included children with high-functioning autism and normal peers living in Tehran. The study sample included 87 children aged 5 to 7 years with a diagnosis of high-functioning autism who referred to Tavaneshteh, Atieh Derakhshan, and Sarv Occupational Therapy clinics. Furthermore, in the group of typical peers, 87 participants were selected from kindergartens in Tehran.

Inclusion criteria in the group of children with autism:

Having a diagnosis of high-functioning autism spectrum disorders by a pediatric psychiatrist and rehabilitation team based on DSM-5 criteria (high-functioning autism is the autism spectrum disorder (ASD) level 1 in DSM-5 who needs the minimal support in their living (11).

Having 5, up to 7 years old.

No comorbid medical disorders (for example, attention deficit and hyperactivity disorder, cerebral palsy, blindness, and deafness);

No history of play therapy in the past and during the intervention;

Permission to participate in the study by parents;

Inclusion criteria in the group of typical children;

Having 5, up to 7 years old;

No comorbid physical and mental disorders;

Exclusion Criteria:

Lack of cooperation of the child during the assessment;

Anxiety when communicating with the therapist or during a play session;

Incomplete test at the specified time;

The unwillingness of the family to continue cooperation at any stage of the research.

3.3. Method of Data Collection

The method of data collection is observational.

3.4. Study Instrument

3.4.1. Child-Initiated Pretend Play Assessment

The Child-initiated Pretend Play assessment (ChIPPA) evaluates even symbolic, and conventional-imaginative pretend to play utilizing a collection of playthings. These clinical observations demonstrate the ordinary and deficiency play behaviors that the child exhibits during the evaluation. The ChIPPA is a standard assessment that measures the capability of children ages 3 to 7 to start and participate under involuntary pretend to play in 18 (3 years) or

30 (4 to 7 years) minutes. It is administered one by one in a place free of distractions. The evaluation time for children aged 4 to 7 is separated into two 15-minute meetings in which the child's conventional-imaginative play and symbolic play were examined and calculated. The symbolic play session utilizes cardboard boxes, cloth dolls, and pebbles. Conventional-imaginative play includes the use of toys that relate to a farm set.

The ChIPPA contains three facets of child pretend play. Complication, accuracy, and organization of a child's play are estimated by calculating the 'percentage of elaborate pretend play activities' (PEPA). 'Number of imitated actions' (NIA) relates to the number of times the child emulates the modeled actions of the rating, and 'number of object substitutions' (NOS) is the number of times a child utilizes a thing into replacement throughout the play. Nine scores were received from ChIPPA evaluation (including PEPA conventional-imaginative, PEPA symbolic, PEPA combined, NOS conventional-imaginative, NOS symbolic, NOS combined, NIA conventional-imaginative, NIA symbolic, and NIA combined).

The original sample is obtained from the play scores of higher than 400 Australian children evaluated throughout the development of the ChIPPA. The ChIPPA has been determined to distinguish among children with special healthcare needs preschoolers and typically developing preschoolers. Test-retest reliability was established, and interrater reliability was good to excellent (12). The psychometric properties of the Persian version of this test in Iran have been studied by Dabiri Golchin et al. (13).

3.5. Data Analysis

The mean and standard deviation were used to describe the variables and statistical tables. The independent *t*-test was used to compare the data. The test was performed at error level $\alpha = 0.05$. The statistical software of SPSS-20 was used for data analysis.

3.6. Ethical Considerations of the Study

Informing parents about the subject of study and completing written informed consent by them.

Assuring parents that the type of play is safe and that there are no complications for children.

Possibility to withdraw the continuation of the research at any time from participating in the project.

Confidentiality of all information obtained and publication of research information without mentioning any personal information about the participants.

Testing is free for participants.

Informing the families of the test results if they want.

3.7. The Novelty of This Research

There are several assessment tools that can evaluate play skills in children; however, all of them are not feasible or accessible. ChIPPA is a unique test that can assess child's playing skills in a neutral location, while many other tools need child's familiar space. In this study, we used this unique test to compare children's play styles between ASD and typical group. This test can detect special areas of problems with practical suggestions for the intervention.

4. Results

In this study, there were 87 children aged 5 to 7 with autism and 87 matched typical children with this group. They were matched according to their age and sex. Shapiro-Wilk test values related to research variables showed that all research variables (PEPA, NOS, and NIA) had a normal distribution ($P > 0.05$) (Table 1). Therefore, it is possible to use independent *t*-test.

According to the results of Table 2 and observing the means and significance level, the assumption of the equality of mean scores was rejected, and the mean scores of NOS and PEPA in all three cases were higher for typical children than children with autism. Also, the mean NIA scores in all three cases in the group of children with autism were higher than typical peers.

5. Discussion

This study was performed to compare pretend plays in two groups of children with autism and typical peers. In this study, ChIPPA was used to assess all aspects of pretend play. Although there were some studies with the concern of pretend play in children with autism, most of them had a great shortage due to their accessibility to play standard tools for pretend play. ChIPPA has a comprehensive perspective on pretend play that empowers the researchers to claim study's results in a reliable way.

Comparison of test scores between the two groups showed that children with autism scored lower on average in PEPA and NOS scores than their typical peers. In addition, in NIA scores, the mean of autistic children was higher than their peers. In fact, typical peers were abler to organize their plays. Previous studies have shown that children with typical development have no problem engaging in pretend plays (12, 14).

A study by Lee et al. (15) in 2016 evaluated the relationship between pretending plays in children with autism, developmental delays, and typical children, 20 children aged 3 to 7 years in each group using ChIPPA. The results showed

Table 1. Shapiro-Wilk Test Values to Determine the Normality of Variables

Variables	Shapiro-Wilk Test			
	Autism		Typical	
	Degrees of Freedom	Significance Level	Degrees of Freedom	Significance Level
PEPA				
Conventional-imaginative	87	0.078	87	0.102
Symbolic	87	0.091	87	0.092
Combined	87	0.081	87	0.084
NOS				
Conventional-imaginative	87	0.100	87	0.098
Symbolic	87	0.080	87	0.088
Combined	87	0.069	87	0.095
NIA				
Conventional-imaginative	87	0.142	87	0.084
Symbolic	87	0.117	87	0.100
Combined	87	0.449	87	0.075

Abbreviations: NIA, number of imitated actions; NOS, number of object substitution; PEPA, percentage of elaborate pretend play activities.

that both groups of children with autism and developmental delays had lower PEPA and NOS scores than the typical group that the results were in line with the results of the present study. One of the limitations mentioned for the study is the small number of participants (20 people in each group). But in the present study, 87 participants were examined in each group to increase the power of statistical results.

According to previous studies, involving children with autism in complex pretend plays enhances the experience of these children interacting with others (15). Therefore, it is possible to plan to improve PEPA scores in children with autism, or in other words, to organize or improve the play sequence and pretense of these children. By comparing scores between children with autism and typical peers, the pattern of play and scores of children with autism showed that these children depended more than their typical peers to develop play and give ideas for how to play (Less PEPA scores and higher NIA scores, $P < 0.001$).

A lower score of the NOS variable in children with autism ($P < 0.001$) indicates their lower ability to suspension of facts (for example, when a child imagines being a boat, the fact that the boat is suspended). These children are less able to come up with ideas for the play and try harder to imitate the examiner's play styles. The ability to replace objects (NOS) greatly contributes to the child's ability to generalize from one situation to another. For example, the child's ability to replace a cup with a leaf indicates that the child has a correct understanding of the cup

position (16). In both groups of children with autism and typical peers, the mean of conventional-imaginative NOS was lower than the mean of symbolic NOS. Because in conventional games, children use ordinary toys in the usual way, and children with scores above 0 can replace good objects and are probably more creative than their peers, and according to Stagnitti (17), they have a greater ability to problem-solving.

5.1. Limitations and Future Research

One of the limitations of this study is the impossibility of eliminating confounder variables such as the effect of the number and quality of occupational therapy sessions on children with autism on their play scores. Also, to compare with typical peers, our study group was high-functioning autistic children who had relative skills to develop the play, so it is not possible to generalize these findings to low-functioning autistic children. Another limitation was the non-cooperation of some occupational therapy clinics and kindergartens with sampling in those centers. In future research, the ChIPPA test is recommended for examining pretend games in children with low-functioning autism as well as other children with other psychiatric diagnoses, including attention deficit and hyperactivity disorder or children with learning disabilities.

5.2. Conclusions

According to the findings of the previous research, pretend plays have a significant effect on the various skills of

Table 2. Distribution of Mean and Standard Deviation Statistics and the Significance Level of Scores of ChIPPA Test Variables in Autistic Children and Typical Peers Using Independent *t*-test

Variables	Mean \pm SD	Mean Difference	Significance Level
PEPA			
Conventional-imaginative			< 0.001
Typical	0.84 \pm 1.34	5.15	
Autism	5.99 \pm 2.49		
Symbolic			< 0.001
Typical	0.87 \pm 1.26	6.59	
Autism	7.46 \pm 2.79		
Combined			< 0.001
Typical	1.71 \pm 2.29	11.75	
Autism	13.46 \pm 3.49		
NOS			
Conventional-imaginative			0.012
Typical	0.76 \pm 1.72	0.21	
Autism	0.55 \pm 0.59		
Symbolic			< 0.001
Typical	11.01 \pm 8.93	6.06	
Autism	4.95 \pm 3.05		
Combined			< 0.001
Typical	11.77 \pm 9.46	6.27	
Autism	5.50 \pm 3.00		
NIA			
Conventional-imaginative			< 0.001
Typical	72.03 \pm 20.93	55.86	
Autism	16.17 \pm 7.54		
Symbolic			< 0.001
Typical	68.09 \pm 21.58	56.49	
Autism	11.60 \pm 4.34		
Combined			< 0.001
Typical	140.12 \pm 39.87	112.35	
Autism	27.77 \pm 8.91		

Abbreviations: NIA, number of imitated actions; NOS, number of object substitution; PEPA, percentage of elaborate pretend play activities.

children with autism, especially high-functioning autistic children. Owing to the good prognosis of children with high-functioning autism and effective entry into society and school, further studies are needed for new therapies in these children. The outcomes of our investigation can present a basis for a greater and more detailed comprehension of play defects in some areas of pretend play and the quality of play in children with autism. Also, the results of this study can be considered a reminder of the use of more pretend plays in the treatment program for children with

autism. As shown in this study, pretend play in children with autism is impaired, and according to prior studies, paying attention to pretend play may even help in better language skills for these children. This study reminded us that "imitation" might be a part of pretend play, but more imitations by children cannot assume as better play skills. Improving other parts of pretend play such as object substitution and refer to the absent object are suggested to be seen in interventional plans for children with autism.

Footnotes

Authors' Contribution: Study concept and design: Navid Mirzakhany and Mansure Farzinfar. Acquisition of data: Mino Dabiri Golchin and Mansure Farzinfar. Analysis and interpretation of data: Mansure Farzinfar and Mino Dabiri Golchin. Drafting of the manuscript: Navid Mirzakhany. Critical revision of the manuscript for important intellectual content: Navid Mirzakhany. Statistical analysis: Mansure Farzinfar and Mino Dabiri Golchin. Administrative, technical, and material support: Navid Mirzakhany and Mino Dabiri Golchin. Study supervision: Navid Mirzakhany and Mino Dabiri Golchin.

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Informed Consent: Informing parents about the subject of study and completing a written consent form by them.

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