

Effectiveness of play-based empathy training on social skills in students with Autistic Spectrum Disorders

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Summary

Aims: This study was performed to investigate the effectiveness of play-based empathy training on social skills in autistic students.

Materials and Methods: It was a preliminary study with the pretest-posttest design, and a control group. The statistical population consisted all students with autism spectrum disorders in Rasht city in academic year 2016-17. The sample included 8 students selected via available sampling method put randomly into the experimental (N=4) and control group (N=4). After taking the pretest through Social Skills Assessment (stone et al, 2010), the experimental group participated in 18 45-minutes sessions of play-based empathy training, while the control group received no intervention. At the end, the posttest was performed on both groups.

Results: The results showed that play-based empathy training increases on social skills development in autistic students.

Discussion and Conclusion: The results provide support for the role of play-based empathy training plays in increasing social skills and psychological health in students with Autistic Spectrum Disorders.

autism, social skills, empathy

INTRODUCTION

Autism spectrum disorders (ASDs) as a complex of developmental and neurological disabilities manifested in the early stages of growth, are among the most controversial psychiatric disorders. Persistent impairment in social communication, social interaction, and stereotypical and limited behaviors are some features of ASDs. Autism prevalence has increased dramatically throughout the world over the past 20 years

[1]. Since this neurological-developmental disorder appears in early childhood, the brain fails to function properly in social behaviors and communication skills domain, and makes learning to communicate hard for sufferers. Autistic children have problems in verbal/nonverbal communication, social behaviors, and playing, and display repetitive behaviors [2]. Deficit in social skills is one of the main symptoms of autism spectrum disorders highly emphasized in diagnostic scales [3]. Having non-functional demeanors including self-provoking and self-harming behaviors, children with ASDs often lose to behave in a socially accepted manner. Lack of eye contact, withdrawing others, and throw-

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ing objects away or putting them in the mouth are some of their problematic behaviors [4,5,7]. Without proper interventions, most behavioral problems persist in individuals with ASDs [6]. According to some estimates, high intensity of behavioral problems in 13 to 30 percent of autistic people makes designing intervention program necessary. The diagnosis of ASDs has been introduced as a risk factor for outbreak of behavioral problems [7], and regarding evidence, behavioral problems in children with ASDs is more prevalent, compared to normal children and those with other developmental disabilities [8]. Social interaction, verbal/nonverbal communication, interests, activities and imagination ability are impaired in these children; furthermore, no full agreement is adopted about causes, symptoms, etiology and treatment of this disorder [9]. Emotional recognition is an important aspect of social cognition [10] while lack of precision in recognition of fundamental emotions in social/non-social domains is considered an autistic characteristic [11]. Sperry & Mesibov (2005) indicate that autistic patients' problems in social interactions relate to their inability to express empathy to others [12]. In addition, lack of guilty feeling and poor ability to recognize facial expressions lead these patients to make many mistakes in interpersonal interaction [11].

On the other hand, personal differences, various levels of cognitive development, as well as taking advantage of adults who explain their own perspectives and encourage children to pay attention to others, make same-age children different in their ability to understand others [13]. In fact, children who empathize more and show higher levels of caring behaviors have stronger positive physical and verbal contacts and are more sensitive to nonverbal interactions [14]. Students with ASDs often need a wide range of services tailored with their specific needs [15]. Riess (2015) states that since training empathy increases accuracy in empathy, and enforces self/other awareness and possibility of showing empathic responses through emotion regulation, it may provide the individual with a positive feedback [16]. Jackson et al (2015) showed that training empathy increases sense of responsibility through enforcing empathic concern and compassion [17]. In addition, training and enforcing empathy can reduce maladaptive behaviors [18].

Despite many studies, the etiology and explanation of underlying mechanisms of autism spectrum disorders are still under discussion. Sometimes, communication tools of children with ASDs, including their verbal/non-verbal behaviors (e.g., lingual expression, identification of signs of images, and their physical statements) are so much impaired that make their independent life difficult even in adulthood [19]; However, it is verified that empathy training programs can enforce empathy in these individuals and may affect them positively [20].

Regarding affirmative impacts of training empathy, the present study can expand previous research, and may improve autistic children training. The aim of the present study was to assess the effectiveness of play-based empathy training on social skills in students with Autistic Spectrum Disorders.

Method

This is a preliminary study with a pre-test and post-test design and a control group. Statistical population, sample, and sampling method. The statistical population consisted of all identified students with autism spectrum disorders in Rasht city in academic year 2016-17.

The sample included 8 students who met the following criteria: (a) Diagnosis of an Autism Spectrum Disorder by an outside agency according to criteria in the DSM5. All participants were diagnosed with ASD by a medical doctor or psychologist specializing in developmental disabilities and referred to a state agency for assistance with social communication skills. The state agency confirmed their diagnosis of autism and referred them to the school Autism for education. (b) No presence of a co-morbid Acute Psychological Disorders (e.g. Personality disorder, Depression, etc.)

They were selected via available sampling method and put randomly into the experimental (N=4) and control (N=4) group.

Tools

Social Skills Assessment (SSA): SSA was designed by Stone et al (2010) in Vanderbilt Kennedy Center to measure social skills of children with ASDs [21]. This scale has 35 items rated on

a 4-point Likert scale from 1 (*not very well*) to 4 (*very well*). SSA includes four subscales: (a) ability to understand emotions and perspectives of others, (b) ability to initiate interactions, (c) ability to maintain interactions, and (d) ability to respond to others. Stone et al (2010) reported SSA reliability 0.92 for parents' ratings by Cronbach's alpha, and they confirmed its facial and content validity. Golzari (2015) measured construct validity of SSA based on correlation between the whole scale and its subscale and accounted it 0.08 for ability to understand emotions and perspectives of others, 0.89 for ability to initiate interactions, 0.93 for ability to maintain interactions, and 0.80 for ability to respond to others. In addition, she calculated SSA reliability by Cronbach's alpha for the whole scale 0.95 and 0.83, 0.88, 0.89, and 0.88 for ability to understand emotions and perspectives of others, ability to initiate interactions, ability to maintain interactions, and ability to respond to others, respectively [22].

Training Package

Play-based empathy training through image cards and social stories is a program invented by the first author for intervening in autism spectrum disorders. The axis of this program is training empathy via playing and narrating social stories. Social stories of this package were codified based on Gary's instruction (1995)[23], items of Early Social Communication Scale [24], and evaluation scale of autistic behaviors.

Findings

The mean and standard deviation of the participants' ages in the experimental and control group were 11.88, and 2.29, respectively. Descriptive and inferential indices of the research variables in the pre-test and post-test are presented in the tables below.

Table 1. Mean and standard deviation of social skills in the experimental and control group

Social skills		Experimental group		Control group	
		M	SD	M	SD
ability to understand emotions	pre-test	18.25	3.20	17.75	1.70
	post-test	25.50	3.31	17.50	1.29
Ability to initiate interactions	pre-test	19.50	2.88	19.00	3.26
	post-test	28.00	3.74	19.00	3.74
Ability to maintain interactions	pre-test	10.75	0.95	9.75	1.50
	post-test	14.25	1.25	9.75	1.50
Ability to respond to others	pre-test	18.00	5.16	18.75	3.77
	post-test	24.75	6.02	18.00	3.91
Total social skills	pre-test	66.5	11.24	65.50	7.23
	post-test	92.75	13.32	64.50	7.50

As shown in Table1, the mean and standard deviation in the pretest of social skills are 66.50 and 11.24 in the experimental, and 92.75 and 13.32 in the control group. The mean of social skills subscales including ability to understand emotions, ability to initiate interactions, ability to maintain interactions, and ability to respond to others in the experimental group were 18.25, 19.50, 10.75, and 18.00 in the pre-test and 25.50,

28.00, 14.25, and 24.75 in the posttest, respectively. The mean and standard deviation of social skills in the pre-test and post-test of the control group were 65.50 and 7.23, and 64.50 and 7.50, respectively. The mean of subscales (as the same order mentioned above) in the control group were 0.75, 75.17, 9.19, and 18.75 in the pre-test, and 0.50, 75.17, 9.19, and 18.00 in the post-test, respectively.

Table 2. Results of comparing difference of pre-test and post-test scores of social skills in the experimental and control group

	Mean of ratings		Sum of ratings		U Mann Whitney	Sig
	Experimental	Control	Experimental	Control		
Ability to understand emotions	6.50	2.50	26.00	10.00	0.00	0.01
Ability to initiate interactions	6.50	2.50	26.00	10.00	0.00	0.01
Ability to maintain interactions	6.50	2.50	26.00	10.00	0.00	0.01
Ability to respond to others	6.50	2.50	26.00	10.00	0.00	0.01

Regarding Table 2, U Mann Whitney value of the difference between the pre-test and post-test scores of social skills and its subscales was significant for $P < 0.05$. In other words, play-based empathy training through image cards and social stories could significantly improve social skills and its subscales in students with autism spectrum disorders.

DISCUSSION AND CONCLUSION

The present study aimed to investigate the effectiveness of play-based empathy training on social skills in autistic students. The results manifested that play-based empathy training through using image cards, hand puppets, and narrating social stories has a positive significant effect on improvement of social skills and its subscales in autistic students. This finding is consistent with that of Demopoulos et al (2015), showing that training of social perception, especially the ability to understand others' emotional-verbal symbols can be an effective strategy for improving social skills in autistic children [25]. Hansen et al (2017) also confirmed stronger effects of intervention on social interactions in lower ages [26].

Based on the previous research, the effectiveness of training empathy through image cards and social stories on enforcing social skills and its subscales can be explained by the fact that mental health of individuals with autism spectrum disorders suffering from higher levels of social problems is in danger [27]. In addition, compared to those with other disabilities, it is significantly more probable for individuals with ASDs to withdraw social interactions, and leave their educations or jobs unfinished, while it is less probable for them to live independently [28,29,30].

Despite some common characteristics, each case of autism is unique which prevents adop-

tion of general guidelines. Regarding the role of playing in creating desirable feelings and interest to make social interactions in children [31], the importance of having attachment and social communication in playing durability [32], as well as hopeful influence of training social skills, play therapy, and storytelling on children's mood [33], using play is considered an impressive tool to teach autistic children [34] and a way to facilitate interaction in them [35].

As Ozdemir (2010) remarks, social stories explain vague situations for autistic children and teach them how to behave in different situations, and therefore, improve their social skills [36]. Additionally, these stories manifest proper behavioral models for autistic children and explain them the feedback of each behavior. This strategy makes these children learn the proper behavior in various social settings [37]. Real information about a social situation defines others' possible and desirable social responses to that situation, and thereby, helps the autistic individuals to understand social situations properly [23]. Another benefit of social stories is that they provide autistic individuals with clear and accurate social information to help them discern situations easily; finally, improvement in events and expectations understanding lead to behavioral and social skills advancement [38]. By narrating social stories through playing, hand puppets and image cards, the trainer can show individuals' signs and facial expressions in various interpersonal situations to autistic children, to aid them recognize these signs in similar settings and respond to them precisely. Empathy enables one to coordinate himself/herself with what others feel or think about him/her and to make effective contact with the social world around. Besides, empathy helps a person to identify consequences of his/her behaviors and to give wise responds to others' expectations.

In this study, training empathy helped the autistic students to perceive others' emotional states, and as Morelli et al (2015) report, it contributes to make positive social relationships and creates satisfaction feeling in social interactions [39]. This finding was validated by several former research demonstrating that narrating social stories is effective for training and improving children's social skills including playing with peers and sharing toys [40-42].

In summary, analysis of data gathered in the present study confirmed that play-based empathy training through image cards and social stories could successfully enhance social skills of children with autism spectrum disorders. However, since this approach was performed only on male autistic students, and the sample was small, results generalization should be done carefully. It is suggested that future scholars investigate effectiveness of training empathy on social skills in more examples of students, female autistic students, and older patients with autism spectrum disorders, and in various groups of children with special needs, especially those with developmental disabilities. Furthermore, regarding the efficacy of training empathy on these students' social skills improvement, performing this approach as a course in schools is proposed to progress their social and interpersonal relations.

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