Short Communication

An Intervention on Social Skills for Chinese Children with Autism Spectrum Disorder

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ABSTRACT

The objective of the present study is to conduct an interventional study which aims to improve the social skills for Chinese children with ASD. There were 121 children (33 girls) with a formal diagnosis of ASD by professional hospitals participated in the present study. Their ages were between 26 and 86 months (Mean = 55.16, SD=0.18). The results indicated that there were significant differences in children's social skills before and after the intervention. Our findings suggest that an effective early intervention may increase ASD children's social skills.

Keywords

Intervention, Chinese, Social skills

Introduction

Autism spectrum disorder (ASD) is one of the fastest-growing mental illnesses in the world, which is characterized by deficits in verbal and nonverbal communication and impaired social interactions [1]. Epidemiological studies have found that the worldwide prevalence of ASD is approximately 0.5% - 0.7% [2]. Although nearly 20% of the population in the world is Chinese, studies about ASD are largely lacking in China. We have even not known the exact national prevalence of ASD in China [3]. Furthermore, several researchers have suggested that an early intervention starting in the toddler or preschool years can modify the impairments that influence the development trajectories of children with ASD [4]. In previous research, some studies showed that some interventions were useful to improve social-communication functioning [5]. However, interventional studies have rarely been conducted among Chinese children with ASD. In previous research, some studies have indicated that individuals with ASD showed impairments in social skills [6-8]. Therefore, the present study sought to conduct an interventional study which aims to improve the development of social skills for Chinese children with ASD.

Method

■ Participants

There were 121 children (33 girls) with a formal diagnosis of ASD by professional hospitals using DSM V participated in the present study [9]. Their ages were between 26 and 86 months (Mean = 55.16, SD =0.18). The participants were from a non-profit center serving the city of Nanjing and surrounding rural areas, China. The study was approved by the institutional review board, and informed consent was obtained by the participants' parents.

■ Procedures

At the beginning of the intervention (Time 1), we first used a scale to measure children's social skills. The rating was completed in the non-profit center and by a postgraduate student of psychology. In the next 3 years, we used the interventional materials designed by us to train these children in the non-profit center. The

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participants of the present study were trained for 12.48 months (SD=8.84) on average, because some children left the center during the training. After the training, we used the scale to test the children's skills again (Time 2).

▪ Measures

Social skills were measured by a 20-item scale including three dimensions: easy skills (e.g., nod your head), normal skills (e.g., play on the side), and complex skills (e.g., dancing). Children' behaviors were rated by an observer on a six-point scale, ranging from 0 (*no response*) to 5 (*completely correct*). The reliabilities of this scale were good at both time points (α=.92 and.91, for easy skills, α=.92 and .91, for normal skills, and α=.83 and.76, for complex skills, respectively).

▪ Interventional materials

The aim of the interventional materials was to improve the ASD children's social skills. The materials used in the training were designed at two different levels. One level (easy level) focused on actions, pronunciation, and perceptions. The other one (hard level) was about arts, music, sports, and play. One example of the materials is shown in **Appendix 1**. In this example, children were first taught to identify the faces which are crying or laughing. Then, the children were required to point out who is crying or laughing in some pictures. Finally, they need to show other children crying and laughing by themselves.

Results

Means and standard deviations (SD) of children's social skills at two time points are shown in **Table 1**. Correlations of these variables are listed in **Table 2**. Repeated measures ANOVAs were used to examine the differences of children's skills before and after the intervention, when their gender, age, and the length of participation were treated as control variables. The results indicated that there were significant differences in children's skills before and after the intervention, for easy skills, $F_{(1, 50)}= 20.12$, $p<.01$, $\eta^2=0.15$; for normal skills, $F_{(1, 50)}= 10.63$, $p<.01$, $\eta^2=0.17$; for complex skills, $F_{(1, 50)}= 4.81$, $p<.05$, $\eta^2=0.09$.

Discussion

As a preliminary study, the goal of the present study was to explore whether an early intervention can increase Chinese ASD children's social skills. To our knowledge, it is the first study that explores the ways to improve Chinese ASD children's social skills which are important aspects of their social communication. When compare the ASD children's skills at the beginning and end of treatment, meaningful increases of skills were found. Additionally, our findings imply that the intervention is more effective on easier skills than on more complicated ones. Our study supports the prior suggestion that an early intervention can modify the impairments that influence the development trajectories of children with ASD [4]. Our findings also provide professional staffs some possible ways to improve the development of Chinese ASD children's social skills. Trainings on actions, pronunciation, perceptions, arts, music, sports, and play can increase Chinese ASD children's social skills.

Our study is a preliminary study; hence, it has some limitations that could be improved in further research. First, children's skills were only measured by observers' rating; more informational sources could be used in further research to test children's skills. Second, the present study did not have a control group. Further research may use a case-control design to compare the effects of such intervention on children's developmental outcomes. Third, our participants came from one city; further research may use participants from more cities to examine whether the present findings can be generalized to more Chinese children.

Funding

Table1: Descriptive Data.

Variable	Mean	SD
Easy skills (Time 1)	7.81	8.84
Normal skills (Time 1)	22.83	8.91
Complex skills (Time 1)	12.90	3.77
Easy skills (Time 2)	11.93	10.09
Normal skills (Time 2)	28.24	5.95
Complex skills (Time 2)	14.19	2.64

Table 2: Correlations of the variables.

	1	2	3	4	5
1. Easy skills (Time 1)					
2. Easy skills (Time 2)	.85**				
3. Normal skills (Time 1)	.68**	.74**			
4. Normal skills (Time 2)	.40**	.56**	.69**		
5. Complex skills (Time 1)	.54**	.52**	.61**	.41**	
6. Complex skills (Time 2)	.42**	.53**	.64**	.77**	.54**

Conflict of Interest

The author has no conflict of interest.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

References

1. American Psychiatric Association [APA]. Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: American Psychiatric Association (2000).

2. Elsabbagh M, Divan G, Koh YJ, *et al.* Global Prevalence of Autism and Other Pervasive Developmental Disorders. *Autism. Research* 5(3), 160-179(2012).

3. Zhou H, Zhang L, Wu L, *et al.* Validity and reliability analysis of the Chinese parent version of the Autism Spectrum Rating Scale (6-18 years). *Psychiatry. Res.* 230(2), 255-261 (2013).

4. Webb SJ, Jones EJ, Kelly J. The motivation for very early intervention for infants at high risk for autism spectrum disorders. *Int. J. Speech. Lang. Pathol. Audiol* 16(1), 36-42 (2014).

5. Kaale A, Fagerland MW, Martinsen EW, *et al.* Preschool-Based Social Communication Treatment for Children With Autism: 12-Month Follow-Up of a Randomized Trial. *J. Am. Acad. Audiol* 53(2), 188-198 (2014).

6. Fabbri-Destro M, Cattaneo L, Boria S, *et al.* Planning actions in autism. *Experimental. Brain. Research* 192(3), 521-525 (2009).

7. Zalla T, Labruyere N, Clement A, *et al.* Predicting ensuing actions in children and adolescents with autism spectrum disorders. *Exp. Brain. Res. 201*(4), 809-819 (2010).

8. Kasari C, Paparella T, Freeman S, *et al.* Language outcome in autism: Randomized comparison of joint attention and play interventions. *J. Consult. Clin. Psychol. 76*(1), 125-137 (2008).

9. Liu, C, Sun H, Wu F, *et al.* Developing a Scale of Adaptive Behavior for Young Chinese Children With Autism Spectrum Disorder. *Mind. Brain. And .Education. 11*(3), 109-111 (2017).

10. Stoit A MB, van Schie H, Riem M, *et al.* Internal model deficits impair joint action in children and adolescents with autism spectrum disorders. *Res. Autism. Spectr. Disord. 5*(4), 1526-1537 (2011).