



The Study of the Effect of Audio-Visual Social Stories and Pragmatic Exercises on Improving (Non)verbal Communication Skills in Children with Autism

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Abstract

Autism spectrum disorder has always been associated with pragmatic language disorder. The present study aims to investigate the effect of audio-visual social stories and pragmatic exercises on improving (non)verbal communication skills in children with autism. It is a clinical trial with a pretest-posttest design. Subjects were selected by convenience sampling method which included 19 children aged 7 to 9 years old with autism spectrum disorder (level 1: requiring support). They received an intervention program organized in 18 individual sessions of 45 to 60 minutes. The findings of the study revealed that utilized audio-visual social stories and pragmatic exercises improved pragmatic level in children with autism spectrum disorder. In other words, it had a positive effect ($p < 0.05$) on the subscales of pragmatic skills in the Bishop Communication Checklist Questionnaire (1998). According to the results, it was shown that audio-visual social stories and pragmatic exercises improved (non)verbal communication skills in children with autism.

Keywords: Autism Spectrum Disorder, Social Stories, Pragmatic Exercises, (Non)verbal Communication

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1. Introduction

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder in which one of the most important symptoms is deficits in social communication and interaction. Children with ASD have a wide range of communication, social, and speech needs and require special behavioral and educational programs. Since communication problems have always been considered as a core feature of autistic children, interventions with the increase of language use and the reduction of communication and language problems are necessary.

Social stories that are used as an intervention are short stories written in conformance with the guidelines provided by Gray (1991). By reading, seeing and hearing them, the child prepares in his/her mind to face different situations and to show appropriate answers and reactions based on the relevant situation. According to the speech therapists, the lack of localized stories and along with them the pragmatic exercises for children with ASD were strongly felt since comprehensive exercises in Persian have not been designed yet for these children. Attempts are made to help the language development of children with disabilities (level 1) by using researcher-made tools that include social short stories and pragmatic exercises to increase their language abilities. The focus of the designed stories has been on improving communication skills in different situations as well as daily routines. In the present study, we seek to answer the following questions:

1. Do the audio-visual social stories and pragmatic exercises improve pragmatic skills in children with level 1 autism (requiring support)?
2. Which of the subscales related to the cognitive-functional part of the children's communication checklist of Kazemi et al. (2005) are affected by teaching the audio-visual social stories and pragmatic exercises?

2. Literature Review

Studies have found that verbal and non-verbal forms of communication are impaired in these children, and even if the linguistic *structure* ability left

unimpaired, the social and communicative use is impaired. As a case in point, Surian et al. (1996) stated that these children ignore the principle of quantity in conversation, and the Gricean maxim violations made their speech irrelevant and meaningless.

Social stories were first developed by Carol Gray (1991) to assist individuals with autism spectrum disorders to develop greater social understanding. In these stories, by providing information about the conditions that have created difficulties for the child with ASD and explaining those conditions to him/her, we can help them to improve their mastery of the situation, with having role models and behavioral examples.

Feinberg (2001, cited in Quirnbach et al., 2008) has studied the effectiveness of social stories among 34 children with ASD, aged between eight to thirteen. In this study, pre-test and post-test methods were used to evaluate the effectiveness. The results of this study show that social stories have a positive effect on the initiation and establishment of communication between children with ASD and their peers.

In Iran, research has been conducted to teach social skills to children with autism through social stories. Tutuni (2011) compared and observed the performance of children with autism disorders structure domain (speech, syntax, semantics) and pragmatics (coherence, inappropriate initiation, stereotyped language, using context and conversational context) with the performance of normal Persian-speaking children. The performance of children with ASD is significantly different from the normal children. Children with autism have poorer performance in terms of pragmatics comparing to the linguistic structure. In addition, Golzari and Hemmati (2015) investigated the effect of social story intervention on improving the social skills of male students with autism. The results showed that the mean scores of social skills and its subscales (ability to understand the emotions and views of others, ability to start interacting with others, and ability to maintain interaction with others) in the experimental group increased significantly and their findings indicate the effect of social stories

intervention on improving the skills.

Pragmatic skills — as the key components of social interaction — require the proper development of mind theory. The pragmatic aspects of language and how to learn them are closely related to children's learning of mind theory, especially their mental understanding of intentions and other mental states (Tager-Flusberg, 2000). The theory that can explain the simultaneous occurrence of deficit in socialization, language, and imagination in children with autism is called the theory of mind (Wing & Gould, 1979). Therefore, the inability to develop the theory of mind has been considered as an explanation for the problems of children with autism in social interactions (Baron-Cohen & Weelwright, 2003). It is because of this lack of mental capacity that these children talk about subjects aimlessly, failing to take turns in conversation and maintaining the subject of conversation. They have difficulty in understanding their own and others' mental states and cannot use their communication skills according to the situation.

As a result, in the present study, according to the theory of mind, in designing audio-visual social stories and pragmatic exercises, perspective sentences have been used to teach the children that the views of others are different from their own views and each behavior causes various feelings in different people. And this is the attention to the theory of mind approach that has been considered in stories and pragmatic exercises.

3. Methodology

The statistical population of the present study was all children with ASD in Shahrekord, Chahar Mahal va Bakhtiari Province. The number of final samples (convenient sampling method) was 19 children aged 7 to 9 years who were diagnosed by speech therapists and were selected from three speech therapy centers in Shahrekord in the summer and autumn of 1398. During 18 sessions of 45 to 60 minutes for each subject, which lasted for a maximum period of five months in total, their language and communication performance were examined.

In this study, three tools were used, the first two, namely audio-visual

social stories and pragmatic exercises as researcher-made tools, and the third one, which is a checklist of children's communication, were used to evaluate the performance of children with disabilities in pre-test and post-test.

Fifteen short audio-visual social stories were prepared, edited, and localized using the principles of social storytelling by Gray (1998). The pragmatic exercises are the second tool with a total of 42 exercises. In each exercise, by defining the objectives of the research, the question was read by the person or by the speech therapist. Then, with the help of the speech therapist the child was allowed to present his/her answer. This questionnaire Children's Communication Checklist (CCC) was initially designed by Bishop (1998) and standardized by Kazemi et al. (2005) for children aged six to eleven years. Its validity and reliability were assessed and an appropriate Persian version of the questionnaire was prepared. This version includes 70 questions with 9 subscales among which 5 subscales are related to pragmatics. To name just a few, we can mention inappropriate initiation, coherence, stereotyped language, use of situational context, and appropriate communication as pragmatic subscales.

4. Results

The collected data were analyzed using statistical methods using SPSS 19 statistical software. The statistical methods used in the research include the Kolmogorov-Smirnov test to examine the natural distribution of data and the dependent t-test to show the difference between the means before and after the intervention. The performance of children with disabilities in pre-test and post-test was evaluated. The data show that the mean performance of children in a total of 5 subscales related to the pragmatics section of the Bishop communication questionnaire is 114.8 in the pre-test and 120.7 in the post-test and the t-value with 18 degrees of freedom is significant at the level of $p < 0.05$. The mean and standard deviation of the scores of all five subtests from the Bishop communication checklist has increased in the post-test stage compared to the pre-test stage. In other words, this difference was due to the

application of the independent variable. In general, analytical statistics indicate a significant difference between pre-test and post-test. The results of the five subscales are shown in the table below:

group	Frequency	Mean	t	freedom	significance level
Pre-test	19	114/8	-8/72	18	*0/000
post-test	19	120/7			

*p<./5

5. Discussion

The underlying theory of social stories goes back to a defect in the theory of mind, and the purpose of the social story is to improve the social cognition of people with autism and facilitate the creation of a theory of mind by describing specific social conditions of which the person is unaware of. Due to the functional problems of children with ASD and its adverse effect on their social skills, by supporting the functional development of language in a child, it is possible to help develop his/her own language and communication skills. The results from these analyses show that visual and auditory social stories and applied cognitive exercises were effective in improving the verbal and non-verbal communication skills of children with autism, and thus the research hypothesis was confirmed because the difference is statistically significant. These findings are consistent with the findings of Feinberg (2001) and Andre (2004) who acknowledged that social storytelling had a positive effect on the initiation of speech and communication between children with autism and their peers. The results of the study are also in agreement with the studies conducted in Iran, including Bahmanzadegan Jahromi et al. (2008), Golzari and Hemmati (2015), who approved that teaching social skills through social stories led to the reduction of deficit in non-verbal behaviors, deficit in the maintenance of relationships with others. On the other hand, these stories improved the social behaviors of the children considering the environment and others.

The limitations of the study include the absence of some children during the intervention due to the cost of speech therapy sessions, lack of proper cooperation of government-sponsored centers with the researchers in the field, and lack of cooperation from parents and their families in completing questionnaires and hypersensitivity of their parents in the educational process of their children. In general, due to such limitations, it is suggested that more awareness and information be provided to the families of these children.

