Evaluating the effectiveness of joint attention training program on speech skills and receptive and expressive language components of children with autism spectrum disorder

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Original research article

How to Cite This Article:

Azizi, M., Alizadeh, H., Poushaneh, K., & Tajali, P. (2023). Evaluating the effectiveness of joint attention training program on speech skills and receptive and expressive language components of children with autism spectrum disorder. _aftj_, 4(2): 215-233.

Abstract

Aim: Determining the effectiveness of the joint attention program on expressive, receptive and spoken language components of children with autism spectrum disorder 3 to 5 years has been implemented. **Methods:** The statistical population includes all children with autism spectrum disorder aged 3 to 5 years who had visited special preschools for children with autism spectrum disorders and clinics in Tehran. The research sample was accessible, which included 5 children who were randomly selected. In order to evaluate the effectiveness of Nyusha's growth assessment tools program, Gilliam's Autism Spectrum Disorder scoring scale (GARS 3) and the set of false belief tasks were used. Descriptive statistics, observational analysis, effect size and recovery percentage methods were used to analyze the data. **Results:** After the analysis, the results of the research also showed the average scores in the expressive and receptive language components after the implementation of the joint attention training program compared to the baseline, the trend of relative growth and overall improvement. **Conclusion:** The results of this research indicate the effectiveness of the joint attention training program on improving the expressive, receptive and spoken language components of children with autism spectrum disorder. Therefore, it is suggested to use this educational program to improve the language skills of these children.

Keywords: _Joint attention, children with autism spectrum disorder, joint attention program, language components._

Introduction

Autism spectrum disorder (ASD) is a type of neurodevelopmental disorder that appears early in development and often before elementary school and affects various aspects of a child's development. (American Psychiatric Association, 2013).

Joint attention means the process of sharing attention between two people towards a common object and is a prerequisite for many social-cognitive functions, including language and social learning (Thorup et al., 2022). In typically developing children, joint attention emerges in early infancy and continues to develop, becoming more coordinated and complex between 8 and 18 months of age. As coordination of joint attention develops, the child gains greater social awareness of the communication partner, as indicated by the child's gaze shifting between the social partner and the object or event of interest. A gesture (eg, pointing) and/or a sound(s) or expression(s) as well as shared positive affect may also be included in the child's joint attention actions (Meindl & Cannella-Malone, 2011). Children with autism spectrum disorder have particular difficulty in engaging in coordinated actions of joint attention with social partners, either in response to others' joint attention suggestions or in initiating joint attention encounters (Meindl & Cannella-Malone, 2011).

Sharing attention with another person allows people to share their thoughts, intentions, and desires (Maninen et al., 2017). In other words, joint attention is one of the basic structures in the formation process of social cognition. Social cognition is a complex process that a person acquires social knowledge and insight and uses in different social situations. In other words, the meaning of social cognition is that the child can spontaneously understand social-emotional, verbal and non-verbal cues and interpret them correctly. The ability to recognize the real and implicit meaning of the social-emotional message, the awareness of different social behaviors and their sequence in different social situations, and the ability to make appropriate references about the mental state and thoughts of others form the form of social cognition (Rose et al., 2012).

Accordingly, since joint attention is a critical developmental skill, a number of researchers have designed and tested interventions aimed at improving the ability of children with autism spectrum disorder to initiate and respond to requests for joint attention. A variety of intervention approaches have been used to teach joint attention skills in children with autism spectrum disorder, which may be broadly classified as behavioral or developmental depending on their underlying theoretical framework. Some of them include a combination of behavioral and developmental approaches. Research to date suggests improvements in the use of various forms of joint attention (eg, gaze shifts, use of conventional gestures), regardless of the intervention approach used (Jones & Cerr, 2004).

Considering the point that joint attention is one of the most fundamental developmental skills and a prerequisite for communication, language development and social skills, but many intervention methods for children with autism spectrum disorder have not addressed it as a separate and codified section. Therefore, the researcher in the present study tried to develop a joint attention training program with a research synthesis approach and based on the principles of timely

intervention for children with autism spectrum disorder and to investigate the effectiveness of this training on the language components of autism spectrum children.

Method
The statistical population includes all children with autism spectrum disorder aged 3 to 5 years who had visited special preschools for children with autism spectrum disorders and clinics in Tehran. The research sample was accessible, which included 5 children who were randomly selected. In order to evaluate the effectiveness of Nyusha's growth assessment tools program, Gilliam's Autism Spectrum Disorder scoring scale (GARS 3) and the set of false belief tasks were used. Descriptive statistics, observational analysis, effect size and recovery percentage methods were used to analyze the data.

Results
After the analysis, the results of the research also showed the average scores in the expressive and receptive language components after the implementation of the joint attention training program compared to the baseline, the trend of relative growth and overall improvement.

Conclusion
The purpose of this research was to investigate the effectiveness of the joint attention training program on improving the expressive, receptive and spoken language of children with autism spectrum disorder. The findings indicate that the mean verbal and receptive language scores of 3-5-year-old children with autism spectrum disorders have increased in the first post-test (after the implementation of the second stage of the joint attention training program) compared to the baseline. This increasing trend has continued in the process of implementing the joint attention training program.

This research, like all scientific activities, had limitations, such as the fact that the sample of this research includes 5 children with autism spectrum disorder aged 3 to 5 years in Tehran. This issue affects the generalizability of the research findings, and therefore caution should be observed in the generalizations of this research. The researcher tried to refrain from providing parallel educational programs during the research and implementation of joint attention training program for children with autism spectrum disorder. However, there has been no control over parents' participation in individual counseling sessions outside of schools and in psychological counseling and service centers.

Overall, the results of the research indicated the effectiveness of the joint attention training program on speech skills and expressive, receptive and spoken language components of children with autism spectrum disorder. Therefore, it is suggested that considering the role and importance of joint attention training for children with autism spectrum disorders, this program can be used as one of the research-oriented interventions, based on theoretical and functional foundations for these children as part of the training content.

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