Iranian Journal of Educational Sociology

(Interdisciplinary Journal of Education)

Available online at: http://www.iase-idje.ir/

Volume 4, Number 1, March 2021

Explaining the Effectiveness of the Model of Established Methods in Autism (Functional Behavior Analysis of ABA, Snozlen, and Dosa) Based on the level of Attention in Children with Autism Spectrum Disorder

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Article history:
Received: 2020/12/08
Accepted: 2021/03/21
Published: 2021/03/21

Keywords:
Functional Behavior Analysis, Snozlen, Dosa, Attention, Autism

Abstract

Purpose: The aim of this study was to explain the effectiveness of the model of established methods in autism (functional behavior analysis of ABA, Snowlen, and Dosa) based on the level of attention in children with autism spectrum disorder in Tehran.

Methodology: The research method was quasi-experimental with a pretest-posttest design with a control group. The statistical population of this study was all children with autism spectrum disorder in Tehran in public and private educational and rehabilitation centers in 2018. By available sampling method, 48 people were selected and randomly divided into 4 intervention groups by applied behavior analysis method. , Snozelen, dosa and control group were divided. Data were collected based on the Connors Scale Scale (Parent Form) (1999), a modified review checklist, and the Wechsler intelligence test. Descriptive and inferential statistical methods and multivariate analysis of covariance were used to eliminate the pretest effect using SPSS software was used.

Findings: The results showed that all three methods of functional behavior analysis of ABA, Snozlen and Dosa had a significant effect on increasing attention compared to the control group. Also, ABA applied behavior analysis method had a greater effect on improving attention in the three measurement stages than the other two experimental groups.

Conclusion: The findings of the study showed that the use of these interventions and educational programs as a method in improving and rehabilitating children with this disorder is useful, so the use of this method is recommended. The results showed that the difference between the analysis of functional behavior of ABA, Snozlen and Dosa with the control group was significant at the level of 0.05, so it can be said that all three methods of functional behavior analysis of ABA, Snozlen and Dosa compared to the control group had a significant effect on increasing attention.

Please cite this article as: Soltani Taleghani N, Farhangi A, Hosseini Almadani S A. (2021). Explaining the Effectiveness of the Model of Established Methods in Autism (Functional Behavior Analysis of ABA, Snozlen, and Dosa) Based on the level of Attention in Children with Autism Spectrum Disorder. **Iranian Journal of Educational Sociology.** 4(1): 142- 152.

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1. Introduction

Autism is a pervasive developmental disorder that is often referred to as a neurological disorder that occurs in early childhood (Ketelaars, et all, 2017). Autism disorder is a developmental abnormality or disorder in communication and social interaction and significant limitation of activities and interests (Zhang, Shao & Zhang, 2016). The Centers for Disease Control and Prevention reported the prevalence of autism in 2012, one in 88 children, and in 2014, one in 68 children. The World Health Organization also reported the prevalence of autism in 2013 as one in 160 children (World Health Organization, 2019). According to studies, most children with autism spectrum disorders have difficulty acquiring social skills. Autism is described as a developmental nerve impairment that significantly affects the quality of verbal-non-verbal communication as well as their social interactions and usually occurs before the age of three and affects a person's performance. It affects different areas (Lindsay, Hounsell & Cassiani, 2017). Socialization deficits are a major source of disorder regardless of cognitive or language ability for people with autism spectrum disorder (Young, Oreve & Speranza, 2018). Scientific evidence shows that social skills deficits in children with autism have many abilities, including; Social abilities affect their education and lead to their academic decline (Cervantes & Matson, 2015).

The pattern of attention deficit disorder in these children is also different from other children with attention deficit hyperactivity disorder, attention deficit disorder and childhood disorders. These children clearly forget about stimuli due to problems with attention to stimuli, either avoid paying attention to stimuli, or focus too much on one stimulus. Many of these children sometimes selectively avoid social stimuli because they cannot unify their meanings. Attention development is closely related to information processing in children in cognitive skills, self-regulation and social development. In general, attention may act as a key skill, meaning that achieving this area of development brings many side effects to the child (Lazar, 2017). On the other hand, children with autism show a large set of behavioral and motor symptoms; these symptoms are especially evident in stressful and irritating situations. Many studies have shown that there is a disturbance in fine and gross motor skills, motor programming and motor coordination in people with autism (Ashman, et all, 2017). The most common unusual behaviors in children with autism are stereotyped behaviors of the body, limbs, and fingers. Stereotyped behaviors are a major feature of autism disorder (Shi, Lin & Xie, 2016). These behaviors are highly heterogeneous and can appear verbal or nonverbal in the form of complex patterns (Bahadori and Panahi, 2018).

Common examples of stereotyped and limited behaviors include body shaking, finger movements, touching, turning objects, and immediate or delayed verbal echoes (Khoshakhlagh, 2017). Cervantes, Matson, Williams & Jang (2014) report that the walking patterns of children with autism between the ages of 3 and 10 are similar to those of Parkinson's patients, and that these children are slower and have shorter steps than non-autistic children. They walk. Fountain, King, Bearman (2011) have stated that movement exercises in people with autism reduce stereotyped behaviors, increase appropriate responses, and increase social interactions. Internationally, a range of specific methods have been developed and are currently used to provide a variety of services to people with autism spectrum disorders. It is safe to say that some of these methods are useful and effective for some people on the autism spectrum (Sharma, Gonda & Tarazi, 2018). One of the most popular intervention programs is applied behavior analysis, which is based on the analysis of behavioral and perceptual problems, planning and individual training by trained instructors and based on the principles of actor conditioning (Roane, Fisher & Carr, 2016). This approach began with Lovas, and later Alexander, Andrew, Linehart, Janbat, Bigler, Erin, Zinlinkis, and Brandon evolved into comprehensive early behavioral interventions for people with autism spectrum disorder and other associated conditions (Poushneh and Abshenasan, 2017). . The comprehensiveness of this method is such that the training program should be implemented uniformly and full time (Hicks, Rivera & Patterson, 2016). This procedure is often performed between 30 and 40 hours per week individually with a trained therapist. In this method, each new task and skill is divided into smaller components. Whenever the

required task is done correctly, the child is encouraged to increase the motivation to repeat and obey the child. Each request from the coach is repeated until the child does it, otherwise the coach will not go to the next step and the whole process will continue until the desired level (Hernandez & Ikkanda, 2011).

The effectiveness of applied behavior analysis on improving the skills of people with autism spectrum disorder has been shown in numerous studies. Findings of Sambandam, Rangaswami & Thamizharasan (2014) on the effectiveness of applied behavior analysis method on language skills and adaptive behavior in children with autism spectrum disorder showed that applied behavior analysis method has an effect on language skills and adaptive behavior in these children. Singh, Kogan, Blumberg & Schieve (2014) also showed that this method of intervention has improved social skills and reduced children's stereotyped behaviors. The study by Sadukan, et all (2013) showed that this method improves communication and social skills and reduces stereotyped behaviors and language skills in these children and has a significant impact on these children. Snozlen's method is based on sensory stimulation and relaxation, in fact, this method corrects sensory impairments that meet the sensory needs of people with special needs have a positive effect on their performance (Hemati, Alamdarloo, Noushad, 2014). Snozlen interventions, which improve the living environment as well as individuals in verbal abilities, have also significantly improved social behavior. Sensory stimuli in the snowball chamber should be programmed according to the intended purpose and reaction of individuals (Lee, Lee & Kim, 2013). The Snozlen Room is designed to make people feel comfortable and relaxed. The purpose of creating a snooze room is a) a selective suggestion of the primary stimulus in an attractive environment. B) It is designed as a special environment in which well-being and tranquility are created by a multi-sensory environment. C) The person is given opportunities to be active in it, especially in the area of taste, smell, touch, which the person chooses with interest. D) The Snozlen Room is a valid experience for different people. The main purpose of snozelen is to create a relaxing environment and stimulate the senses (McCormack & Holsinger, 2016). Snozlen is an intervention to improve the quality of life of people and is designed as an environment in which the person feels relaxed and healthy. Many studies have been conducted on different groups of people, including people with mental disabilities, people with dementia, people with mental illness and people with high stress, and further results of this research have shown the effectiveness of this method. It has been associated with increased calm and decreased destructive behaviors and increased comfort levels (Rodríguez & Llauradó, 2010).

In general, intervention programs in the field of autism spectrum disorders fall into two categories. Programs that seek to reduce and eliminate additional behaviors such as self-harm, stereotyped behaviors, and behavioral problems, and programs that seek to increase the skills of autistic people, such as verbal, cognitive, and motor skills. Another treatment strategy used to help children with autism is the Dosa Ho Psychological Rehabilitation Method. Dosa means a general process that includes psycho-internal activities of physical movements, and Hu means method. Dosa method, in teaching relaxation, walking and standing position, has had effective effects in the treatment of children with Down syndrome and the treatment of speech and pronunciation disorders (Yazdkhasti, Shahbazi, 2012). The general method of treatment in Dosa method is the interaction between body movements and mental processes. The Dosa-Ho process can be divided into two parts: 1. it includes the psychological part (will and effort) and 2. It includes the physiological part (physical movements and physical condition). An important part of Dosa therapy is muscle relaxation training. In these trainings, a child with autism should make every effort to relax and move a part of his body and then understand the relationship between mind and body (Mehrdadfar, 2010). In this method, it is assumed that muscle relaxation increases sensitivity to the physical process and the expansion of the body image. One of the most important experiences in building a body image is the sensitivity to relaxation and tension in the muscles. As a person realizes the sensory differences in the activities of his muscles, he recognizes his body and realizes the relationship between his mind and body (Naderi, 2014).

Yamatomo (1992; quoting Shahbazi, 2012) concluded that this approach reduces inappropriate behaviors and increases appropriate behaviors by performing the dosa method in 17 sessions per week in the individual analysis of a child with autism. It also improved the ability to make eye contact and let the child play with a friend and say new words; while none of these existed before the intervention. It is worth mentioning that in these interventions (applied behavior analysis, Dosa method and Snozlen method) different tools and instruments have been used and each of them tries to provide motivation, behavior change, facilitation of communication and interpersonal interaction, which means Such as: common toys, books and pictures, computers, audio-visual equipment, musical instruments and the use of robots adapted to play or communicate with children with autism and occupational therapy tools, including the tools and equipment used in these educational interventions And are rehabilitation. Providing many of these tools and tools in terms of costs and opportunities to use, is associated with limitations and obstacles, and in this regard, the need to formulate and design intervention programs using low-cost tools that can be used and provided to all, Parents, teachers and therapists explain the need for this study. This research, in turn, seeks to develop and evaluate a kind of available, low-cost and applicable program with minimal training by different groups of treatment and rehabilitation experts, and especially by specialists and parents, which is ultimately a kind of partial intervention programs and With the goal of facilitating communication, shaping, and enhancing social skills, manage challenging behaviors that are either alone or in combination are the main goals of these programs and interventions. Due to the importance of teaching applied behavior analysis, Dosa and Snozlen method, and attention deficit, social interaction, and behavioral flexibility of children with autism, no study has been conducted in Iran comparing these three issues, and even a repetition of one study can strengthen the foundations. Science related to the subject is important. Therefore, the aim of this study was to compare the effectiveness of Applied Behavior Analysis (ABA), Snoslen and Dosa methods on attention in children with autism spectrum disorder. The researcher seeks to: The model of the effectiveness of the established method in autism (Analysis of functional behavior of ABA, Snozlen, Dosa) What effect do they have on the level of attention in children with autism spectrum disorder?

2. Methodology

The method of the present study was quasi-experimental and the design used in this study (pre-test-post-test design of four groups) was three experimental groups and one control group. The statistical population of the present study was 110 children with autism aged 7 to 11 years in Tehran in 1397 in public and private educational and rehabilitation centers for children with autism under training and rehabilitation (Center for Votes, Nedaye Asr Rehabilitation Center, Autism Friendly Charity Foundation) They gave. The sample size was determined based on Cohen's table (1992), with statistical power of 0.80, alpha level of 0.05 and effect size of 0.8, in each group, 10 people, according to the possibility of sample fall, the initial volume of each group 12 people were considered. Among children with autism in the age range of 7 to 11 years old who generally have a high level of performance (did not have a disorder and have received at least two years of speech therapy and mental occupational therapy) and receiving services in rehabilitation centers in Tehran Complementary to rehabilitation Autism Diagnostic Interview (ADI-R), Autism Spectrum Disorder Screening Test and Wechsler Intelligence Test were performed to determine the high level of performance and among those eligible, 48 people were selected by available sampling method. Achieving a score above 85 was a Wechsler IQ test. These children were matched in terms of gender, age and socioeconomic status and were replaced in three experimental groups of 12 people and a control group of 12 people. And the control group remained on the waiting list.

Connors Grading Scale (Parent Form): The Connors Grading Scale (Parent Form) will be used to gauge the attention of children with autism. This scale is a tool that is widely used in children's clinical and research fields. The scale was designed in 1969 to help identify hyperactive children; but research in

recent decades has shown that this scale is also useful for identifying other behavioral problems. Through hundreds of researches and decades of clinical application, it has become clear that the Connors Grading Scale is useful in general screening applications for childhood disorders and problems and can be useful if a combination of information from teacher and parent can be used to achieve a complete identification assessment. (Sadock, Sadock, 2003). The Connors Parent Questionnaire was standardized in 1999 by Connors et al. The Conners Scale Parent Form has 48 questions for the child's parents to complete. Connors et al reported a reliability of this scale of 0.90. The validity of this questionnaire has been reported by the Institute of Cognitive Sciences as 0.85 (Alizadeh, 2005). A mean score of 1.5 or higher indicates the presence of a disorder that will be used in this study. For each expression of the mentioned scale, four degrees have been considered in terms of severity and status of the behavioral problem. The respondent is asked that if there is no behavioral problem in the child in question, the option at all, if the problem is small, the second option (only slightly), if the severity of the problem is moderate, the third option (high) and if the problem Too much, check the fourth option (too much).

Modified Screening Checklist (M-CHAT): A scale used to diagnose autism in children in this study is the "Modified Autism Screening Checklist in Toddlers." The checklist contains 23 yes / no questions and was performed on 1293 children for screening, of whom 58 were diagnosed with educational developmental disorder and 39 were diagnosed with autism. Wechsler IQ test: In order to measure the IQ of the subjects, the revised Wechsler IQ scale was used for children. Achieving an IQ above 85 was another criterion for showing high performance in the subjects. Revised Form Autistic Diagnostic Interview: In order to ensure the diagnosis of autistic disorder in subjects, in addition to the psychiatrist's diagnosis, a revised form of autistic diagnostic interview will be used for each child. The tool includes a structured interview that includes more than 100 items and is completed with the help of a parent or caregiver. This interview covers 4 main factors: the child's communication background, the child's social interactions, repetitive behaviors, and the age of onset of symptoms. This interview was conducted by experts trained in this field in education.

Table1. Content of Applied Behavior Analysis Therapy Sessions

meetings	Objectives for each session
First session	Introduce the child to the new conditions of education
second session	Define the final goals and divide each of them into sub-goals
third session	Start teaching minor goals such as making eye contact with the child and reinforcing it immediately
fourth Session	Using the method of shaping and reinforcing desirable behaviors
fifth meeting	Extinguish the child's undesirable behaviors by not reinforcing (such as neglecting)
Sixth Session	Orientation to some of the child's stereotypical behaviors (such as twisting fingers)
Seventh session	Use the token economy method to teach some social skills such as greeting
Eight Session	Take advantage of the Primack principle to perform some desirable behaviors, such as doing homework first and then playing ball
ninth session	Use the chain-linking method to create some socially desirable behaviors such as greeting
tenth session	Use the compensation method in case of undesirable behaviors such as spilling food on the floor
Eleven Session	Use the penalty method, such as taking part of a child's chips in case of undesirable behavior
Twelve Session	Use the saturation method to moderate some undesirable behaviors, such as the child hitting the ball hard enough to get tired of it.
Thirteen Session	Intermittent rather than continuous reinforcement of the child's desirable behaviors for greater stability of those behaviors
Session Fourteen	Gradually eliminate coach hints and tips to perform some desirable behaviors
Fifteen Session]	In creating desirable behaviors by shaping method, only the final behavior should be strengthened
Sixteenth session	Teaching some high-level social behaviors through shaping methods such as talking on the phone
Seventeenth session	Teach interactive behaviors with other children, starting with just making eye contact with them and reinforcing it immediately
Eighteen session	Continue to teach interactive behaviors to other children, which at this stage include greeting and talking to each other and then rewarding them.

Nineteen session	Continue to teach interactive behaviors to other children, which at this stage include playing with them and then rewarding them.
twenty session	Continue to teach interactive behaviors that at this stage should play with other children as a reward for the child's behavior.

Table2. Content of snozelen method treatment sessions

meetings	Objectives for each session
Stimulating and strengthening the sense of sight (Session 1-5)	Use of bubble columns, mirror balls, spotlights and colored wheels, light filaments, sensory boxes, vibrating spheres, mirror tiles, plasma panels, keyed optical screens, projectors for projecting photos and images, glowing spheres, lamps With the ability to change color, water bubbles, optical aquarium TV, laser dome lamp, tiny bubble fountain, filament wall, ring filaments, colored light filaments, flashing carpet, blurred light curtain and snow machine.
Stimulating and strengthening the sense of touch (Sessions 6-10)	Use of panel with rotating touch brush, vibrating plate, mirror chain nuts, portable vibrating panel box, vibrating mattress, ball pool, puffy massager, massage tools, tubular vibrator, massage cushion, heavy blanket, Heavy vest and massage chair.
Stimulating and strengthening the sense of balance (Session 11-15)	Use of suspension chair, chair-shaped swings, deluxe balance device, rotating cushion, other rotating equipment, trapezoidal bar, swivel, hanging ball bag, rotating cocoons, hanging nets, rotating platform and balance boards.
Stimulation and strengthening of the sense of smell (Session 16-20)	Use of perfume dispenser, aromatic stones, boxes of different perfume sets, aromatic balls, aromatic cubes, aromatic paste, spray with various odors.
Stimulating and strengthening the sense of taste (Session 21-25)	Use tea with different flavors, spices, seasonings, and fruits with different flavors, foods with different flavors, syrups and herbal sweats with different flavors.

Table3. Content of Dosa method treatment sessions

meetings	Objectives for each session
Increase attention to your body, therapist gestures and speech, and interaction with your child (Sessions 1-5)	1. Raising and lowering the hand while lying down (Oda-age) 2. Raising and lowering the shoulders (Kata-age) 3. Kukan-no-hineri, forward and backward shoulders and torso 4. Pulling the shoulders (Se-so-ra-se)
Relaxation, emotional-behavioral control by performing movements at the appropriate speed (Session 6-10)	1. Pushing the shoulders back and forth and the torso lying down (Kukan-no-hineri) 2. Raising and lowering the shoulders (Kata-age) 3. Se-so-ra-se 4. Opening and closing the chest and shoulders (Mune-hiraki)
Relaxation and increase the child's interaction with the therapist (Session 15-15)	1. Pushing the shoulders back and forth and the torso lying down (Kukan-no-hineri) 2. Connecting the fingers of the child and the therapist and using them to draw together (Zai) 3. Opening and closing the chest and shoulders (Mune-hiraki) 4. Raising and lowering the hand while lying down (Oda-age)
Relaxation, Increased Attention, Decreased Impulsivity (Session 16-20)	1. Pushing the shoulders back and forth and the torso lying down (Kukan-no-hineri) 2. Pull the upper torso forward, the sides in a sitting position (Zai) 3. Standing on two knees and moving the hips (Hizatachi) 4. Standing on one knee and moving the hips (Kata-hizatachi)

The analysis of information obtained from the implementation of questionnaires was performed through SPSS19 software in two descriptive and inferential sections (analysis of covariance).

3. Findings

In this section, demographic data are first reported by groups. In terms of gender, 20 boys and 16 girls were used in the experimental groups and 7 boys and 5 girls were used in the control group. In terms of age, 22 people in the experimental groups were between 7 and 9 years old and 14 people were between

10 and 11 years old. And in the control group, 8 people are between 7 and 9 years old and 4 people are between 10 and 11 years old.

Table4. Mean and standard deviation according to the separation of the assessment stage in the groups

group	Variable	Indicator	pre-exam	Post-test	Follow up
Applied Behavior Analysis (ABA)	Attention	Average	5.08	10.17	10.08
		Standard deviation	3.03	2.21	1.88
snozelen	Attention	Average	5.67	6.67	7.00
		Standard deviation	3.06	2.71	2.41
Dosa	Attention	Average	5.42	6.83	7.33
		Standard deviation	2.81	3.71	3.80
Control	Attention	Average	5.50	4.75	5.08
		Standard deviation	2.84	2.77	3.12

As can be seen in Table 4, the mean in the three experimental groups in the post-test phase increased compared to the pre-test. Based on the results in the table, it can be described that snozlen, dosa and functional behavior analysis of ABA have increased the attention of children with autism spectrum disorder referred to counseling centers.

Table5. Mixed analysis of variance test of attention scores according to Greenhouse Geiser criterion

	Statistical index	SS	df	MS	F	Sig	
Within the group	Factors	108.10	1.48	72.90	29.01	0.00	0.40
	Test (repeat measurement)	133.96	4.45	30.11	11.98	0.00	0.45
	Test Interaction * Group	163.94	65.25	2.51			
Intergroup	Error	203.19	3.00	67.73	3.12	0.03	0.18
	group	954.31	44.00	21.69			

According to the results of Table 5 in relation to the interaction of stage and group factors, the value of F calculated for the effect of stages (pre-test, post-test and follow-up) between the three experimental groups and the control group at the level of 0.05 is significant for the attention component (05/0> P). As a result, there is a significant difference between the mean scores of pre-test, post-test and follow-up of the attention component in the four groups. According to the results of Table 6, for the intergroup factor, the value of F calculated at the level of 0.05 is significant. (18/0, Eta2 = 05/0>, P 12/3 F =). As a result, there is a significant difference between the overall mean of attention scores in the three experimental groups and the control group. The results of Scheffe post hoc test were calculated to investigate the differences between the means in the four groups.

Table6. Scheffe post hoc test results to compare the mean scores of attention in the experimental groups with the control group

Variable	Compared groups	Mean difference	standard error	The significance level
Attention	ABA Applied Behavior Analysis - Control	5.33	1.09	.01
	Snozlen - Control	2.36	1.09	0.03
	Dosa- Control	2.41	1.09	0.03
	ABA-Snoslen Application Behavior Analysis	3.00	1.09	.02
	ABA Applied Behavior Analysis - Dosa	2.91	1.09	.02
	Snowlen-Dosa	.08	1.09	0.92

As can be seen in Table 6, the difference between the functional behavior analysis of ABA, Snozlen and Dosa with the control group is significant at the level of 0.05, so it can be said that all three methods of functional behavior analysis of ABA, Snozlen and Dosa compared to the control group have increased

attention. Also, ABA applied behavior analysis method had a greater effect on improving attention in three measurement stages than the other two experimental groups. Considering that the increase in attention scores in the follow-up stage compared to the pre-test was also significant, the trend of increasing attention scores in the follow-up stage compared to the pre-test stage continued and was significantly different, indicating the stability of treatment (Behavior analysis), Application of ABA, Snoslen and Dosa) on attention scores.

4. Discussion

The aim of this study was to explain the effectiveness of the pattern of established methods in autism (functional behavior analysis of ABA, Snozlen, Dosa) based on the level of attention in children with autism spectrum disorder. The results showed that the difference between the analysis of functional behavior of ABA, Snozlen and Dosa with the control group was significant at the level of 0.05. Also, ABA applied behavior analysis method had a greater effect on improving attention in three measurement stages than the other two experimental groups. Lazar (2017) conducted a study entitled "Effectiveness of Behavior Analysis Method on the level of attention and improvement of social skills of children with autism in the elementary school of Besharat Exceptional Center in Kermanshah in the academic year 2017-18". The statistical population of the study was all children with autism at the Exceptional Gospel Center in Kermanshah. The results of research hypotheses showed that the method of applied behavioral analysis is effective on the attention of autistic children. Applied behavior analysis is also effective in improving the social skills of autistic children. Mohseni Ezhiyeh (2015) conducted a study entitled the effectiveness of applied behavior analysis method on the problems of children with autism spectrum disorder. The statistical population was all children with autism in Tehran. The results of the research hypotheses showed that the effect of applied behavior analysis method on reducing the problems of children with autism spectrum disorder in Iran, according to the Cohen effect size interpretation table, is very high. Also, when this method is performed in the long run and with more intensity, it has a greater impact on reducing the problems of this group of people. Therefore, applied behavior analysis method was used as an appropriate treatment for children with autism spectrum disorder.

Explaining this result, it can be said that attention deficit disorder in autistic children indicates a defect in the ability to adjust or balance the intensity of arousal when confronted with stimuli. They may be exaggerated in the face of certain visual or auditory stimuli. Many autistic children in the learning situation show only part or all of the signs in a stimulus of extreme attention or concentration. This excessive and excessive focus on only one component of a phenomenon is a deterrent to changing their attention from one stimulus to another. Even those autistic children who have superior or moderate to near-average IQ actions have difficulty shifting attention from one stimulus to another. Children with autism focus on only one stimulus dimension, or in other words, selectively increase the stimulus. For example, a lemon has size, color, smell, taste and texture, but if only its color is considered, it is probably similar to any other yellow object, and if it is depicted in white or black, it is very likely to be recognized. is low. Analyzing applied behavior by analyzing the child's behavior into small and simple steps and steps, the desired behavior is appropriate to the scope of attention of the autistic child. Initially, the training consists of simple components and steps. As the child's attention span increases, the steps and stages of a behavior become longer and longer. Thus, the analysis of functional behavior by developing the child's attention increases the ability to learn. In applied behavior analysis, due to the use of reinforces after the child learns each step, the child's motivation to learn and enter the next steps and stages and acquire more complex behaviors increases.

The method of functional behavior analysis teaches the child a clean autism and the detection of peripheral stimuli. With this method, the autistic child learns which environmental stimuli deserve attention and he should respond to them. When the child responds appropriately to each stimulus in the

environment, it is said that stimulus control is established. Stimulus control is one of the central issues of applied behavior analysis. Original learning occurs when stimulus control is established, or in other words, the child's response is controlled by the stimulus. On the other hand, it can be said that the method of analyzing applied behavior based on accurate assessment of the child, preparing a special educational program and intensive work with trained educators using the factor conditioning method with the maximum possible working hours per week can solve the problems of autistic children in some areas, Such as reduce language, social, play skills, adaptive behaviors (Mohseni Ezhiyeh and Nourozi, 2018). In a study conducted in our country, it was shown that in comparison between the method of applied behavior analysis and educational therapy, the method of functional behavior analysis has a greater impact on children with autism. Perhaps the reason for this greater impact is the closer relationship between the educator and the child in the method of functional behavior analysis and more speech interactions between the two, which can lead to further development of these children in language skills and attention (Ghamari, et all, 2012).

Studies show that functional behavior analysis in children with autism can improve attention-related skills in these children (Poushneh and Abshenasan, 2017). Another study showed that applied behavior analysis method has an effect on all symptoms of children with autism, including stereotyped behaviors and activities, language problems, attention and social interactions; But this method has a greater impact on language problems and attention of these children (Shi, et all, 2016). Various studies on the effect of this method on children with autism indicate that the greater the extent and severity of the intervention and the earlier it begins at a younger age, the greater the effect. It seems that as the amount and duration of intervention increases, the rate of cognitive development, communication skills, attention and self-help skills increases in the child (Lee, et all, 2013). Therefore, the use of educational intervention based on applied behavior analysis method on the level of attention of these children, limits the senses and directs it, increases the child's attention to visual and auditory stimuli, improves the concept of his concept in tuning and comprehension, engaging Types of attention separately, selective attention, attention shift, and attention span, improve eye exploration skills and increase visual acuity, increase visual memory, improve eye-hand coordination, visual pursuit, and cognitive training. Thus, the development of attention types is closely related to information processing, cognitive skills, self-regulation, and social development. In general, attention may act as a key skill, meaning that achieving this area of development brings many side effects to the child. Due to the fact that a wide range of research backgrounds indicate the improvement of attention using parent-child relationships and by reviewing the studies that have used attention education in the natural environment of the family and using parent-child relationships and educational centers. And have reported positive and lasting results and considering the importance of developing this skill and its impact on language, cognitive and social skills, it is necessary to use the applied behavior analysis method to improve the attention of children with autism spectrum disorder.

Among the limitations of the present study is the use of available sampling method and not examining some intervening variables (intervening variable is a variable that is not under the control of the researcher and reduces the generalizability of research findings). Another limitation of the variable measurement tool is that only the questionnaire was used and no interview, observation or other measurement methods were used. It is suggested that community planners try to increase the skills needed to pay attention to children with autism by teaching practical behavior analysis to parents by valuing this segment of society and appropriate training and changing their attitudes; This is especially important because children with autism need support from others. In other words, autism education should be a combination of existing education with comprehensive planning for each child to teach the necessary and practical skills.

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