

The Effect of Social Skills Training on Autistic Children with Alexithymia

Parviz Sharifi Daramadi¹, Afsaneh Azizian^{2, *}

¹Department of Psychology, School of Psychology and Educational Sciences, Allameh Tabataba'i University, Tehran, Iran

²Department of Psychology, School of Humanities, Azad University of Iran, Shahrood, Iran

Abstract

Children with autism spectrum disorders (ASD) experience difficulties in identifying, describing, and adjusting their own and others' emotions. The literature on identifying effective strategies to overcome these problems is considerable. The aim of the present study is to determine the effectiveness of group social skills intervention on alexithymia in boys with autism spectrum disorders aged between 10 and 12. The sample, consisting of 14 children, is selected using convenience sampling, which are then divided into control and experimental groups of 7, based on their IQ and perceptive language ability and gender using the alexithymia questioner. Comparing the results using analysis of variance with repeated measures shows that boys who are treated with social skills training, progress significantly in terms of overcoming their alexithymia. Based on the results of the present study, it is suggested to use social skills training to deal with alexithymia of children with autism spectrum disorders for educational planning and rehabilitation.

Keywords

Social Skills Intervention, Alexithymia, Autism Spectrum Disorders (ASD), Social Skills Training

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1. Introduction

Problems related to social interactions are the main concern of children with autism spectrum disorders (ASD). These children can be classified as moderate to high in terms of IQ, but they suffer from annoying social disorders in terms of social interaction, social cognition, and language of social realism [1, 2]. Their socialization problems increase with the beginning of school and they need more subtle social interactions in their teenage years. Generally, they start fewer social interactions with their peers [3] due to significant interpersonal difficulties [4].

Understanding others' emotions and responding appropriately to them is difficult for autistic children [5]. They are unable to understand the views of others and are inferior to their normal peers in terms of academic, social and behavioral performances [6] and are weak in cognitive processing, understanding social

conventions, customs and courtesies [7, 8].

According to research findings and experimental observations, alexithymia and emotional impairment are the most basic problems children with autism spectrum disorders are encountering [9]. These children suffer from serious failures in identifying and processing information, identifying others' emotional states, and responding appropriately to them [10].

Alexithymia is a multi-faceted structure consisting of difficulties in identifying emotions and describing emotions to others, and objective and external ideological orientation [11]. The recent review studies of emotion processing in alexithymia and autism, reveals a new conception, to be named as the 'alexithymia hypothesis' which has wide-reaching implications for the study of autism, and how we might best support subgroups of autistic individuals with, and without, accompanying alexithymia [12].

* Corresponding author

E-mail address: afsaneh.azizian@gmail.com (A. Azizian)

The main features of alexithymia include: inability to recognize and describe one's emotions verbally, and lack of symbolic thinking that limits the clarification of attitudes, feelings, desires, and drives [13, 14].

Carr (2004) points out that there is a cognitive correlation between the lower limit of socialization and the lower limit of emotional aspects [15]. Individuals suffering from emotional incompetence show lower social functioning, more emotional problems, and lower emotional welfare compared to healthy people [16].

Bauminger points out that social and emotional competency are among the main abilities predicting autism spectrum disorders. Thus, interventions should focus on developing emotional and social competencies in children with autism spectrum disorders in order to provide them with chances to grow by consolidating their skills in various social, cognitive, and emotional aspects [17, 18].

The program proposed by Ozonoff, Dawson and Partland (2002) within the framework of social cognition for emotional moderation of children with autism spectrum disorders by making concrete the abstract social concepts, seems interesting [9]. Studies related to the social intervention in emotional competence of school children with autism spectrum disorders have tested their alignment with the model of Ozonoff et al. [19]. This includes improving interpersonal skills in autistic children with high performance [20] and improving emotional information processing in children with autism spectrum disorders [10]. The results of social skills interventions in teenagers and adults with autism spectrum disorders often proved effectiveness in social skills [17, 18, 9, 21, 22, 23, 24, 25].

Learning how to recognize and interpret emotions has caused the emotional problems of children with autism spectrum disorders and created more appropriate emotional solutions for them [26, 27]. Solomon, Godin-Jones and Anders [28] implemented an integrative social adjustment and problem-solving skills training program to reduce the emotional incompetence of autistic boys of 8 to 12, which led to significant improvements. White, Albano and Johnson and Wood et al. show the effect of the positive intervention of social skills based on cognitive-behavioral therapy on anxiety reduction and social interaction of children with autism spectrum disorders [29]. Koenig et al. found that teaching emotional competence in behavioral, motivational and cognitive aspects can be effective in reducing their emotional failures if the subjects are informed of their actions in each step [5]. Atwood argues that integrative training in emotional self-regulation based on cognitive-behavioral therapy has been effective against stress and anger management in adolescents with autism spectrum disorders [22, 23].

Autism is mostly associated with disordered emotion processing, particularly with deficits of emotional reciprocity like impaired emotion recognition and reduced empathy. However, certain research results show wide heterogeneity within the autistic population with respect to emotional competence. Emotional impairments are due to alexithymia, which frequently co-occurs with autism, rather than a feature of autistic condition *per se*.

Based on alexithymia psychoanalytic point of view, the inconsistent emotional symptoms of autism, including lack of empathy and problems of emotional recognition, are due to the substantially elevated incidence of severe alexithymia present in population with ASD disorder.

The necessity of conducting such research, which can be considered as innovative, is to identify specific and appropriate therapies to treat emotional incompetence in children with autism spectrum disorders with a specific evolutionary level. Therefore, determining the usefulness of Ozonoff's model of social cognition in treating the emotional incompetence of children with autism spectrum disorders gains importance. That is because this model focuses more on the internal factors and the results of treatment are extended through emphasizing on doing 'homework'. This process often takes the form of a contract between the healer and the patient, based on which one is obliged to experience certain strategies on the natural environment, with this expectation that the position not only acts as some kind of internal booster but also increases the possibility of extension regardless of the context of the intervention or treatment. Therefore, this is considered as an innovation for the present study. In summary, it seems that Ozonoff's model of social cognition could very well intervene to strengthen the social skills of children with autism spectrum disorders, because it solves the problem of extension.

According to the mentioned studies and the purpose of the present study which is identifying the effectiveness of teaching social skills on the components of emotional dysfunction of children with autism spectrum disorders and the necessity and the importance mentioned above, the following hypothesis can be developed: social skills intervention is effective on emotional dysfunction of children with autism spectrum disorders.

2. Methodology

The design of the present study is the pretest-posttest control-group experimental design. The sampling method used is the convenience sampling method. The sample includes 14 autistic boys with high performance from Peyk-e Honarschool in Tehran, which were divided into two groups of 7 – the control group and the experimental group. The

emotional dysfunction questionnaire has been developed and implemented by a trained research assistant who was a PhD candidate in Exceptional Children Psychology and worked in a psychiatric clinic as a psychiatrist, under the supervision of the author. The criteria for being included in the sample include: being male, having 10 to 12 years of age, diagnosis of autism disorder according to the DSMV [30] criteria by a psychiatrist, having average abilities in understanding language and an average IQ (80 or more with +/-1 standard error of measurement) measured by school administrators. Average receptive language ability and IQ are prerequisite to teaching social skills [31]. The criterion for exclusion from the study is not having several disabilities in the subjects of the present study.

Tools: Toronto Alexithymia Scale: This scale is adapted for children and adolescents based on the original questionnaire for adults' emotional dysfunction [11] by Rieffe, Odstereld and Meerum [32]. It consists of 20 questions with a three-point scale (completely, to some extent, and never) and measures three factors: 1) inability to identify emotions, 2) inability to describe emotions, and 3) objective thinking. Cronbach's alpha coefficient of this scale was obtained 0.75.

The correlation coefficient of the micro-scales of this questionnaire is reported to be in a range of 0.71 to 0.84 by the psychological checklist [32]. In the Persian version of emotional dysfunction, Cronbach's alpha coefficients for the total emotional dysfunction and its three sub-scales of difficulty in identifying emotions, difficulty in describing emotions and objective thinking were calculated to be 0.75, 0.82, 0.85, and 0.72, respectively. The test-retest reliability of the alexithymia scale is verified in a 67-subject sample in two

occasions with a time interval of four weeks from ($r=0.80$) to ($r=0.87$) for total alexithymia and various sub-scales. The concurrent validity of the alexithymia scale is examined and verified based on the correlation between the scales of this questionnaire and the scales of emotional intelligence, psychological welfare, and psychological distress. The results of Pearson's correlation coefficients show that there is a significant correlation between the subjects' scores in the total alexithymia scale and emotional intelligence ($r=-0.44$ and $P<0.001$), psychological welfare ($r=-0.78$ and $P<0.001$), and psychological distress ($r=-0.44$ and $P<0.001$). The correlation coefficients between the sub-scales of alexithymia and the above variables are also significant. The results of the confirmatory factor analysis verified the existence of three factors: difficulty in identifying emotions, difficulty in describing emotions, and objective thinking in the Persian version of the alexithymia scale [33]. Also, in the present study, Cronbach's alpha for alexithymia and the three sub-scales of difficulty in identifying emotions, difficulty in describing emotions, and objective thinking is calculated to be 0.836 for the pretest and 0.957 for the posttest, which is acceptable in terms of internal consistency and is within the acceptable limits.

For intervention, the program proposed by Ozonoff et al. [9] within the social cognition framework based on theoretical principles, behavior change, and behavioral pattern in the form of concreteness of abstract social concepts is used. This program is presented in 10 sessions, 45 minutes each (two sessions a week), in the form of group training with practical exercises.

Table 1. Social skills training program adapted from Ozonoff et al. [19].

Session	Topic	Brief summary
1	Socializing skills	Greeting, following social norms in socializing and saying goodbye, doing homework
2	Friendship skills	Review of previous session, having the characteristics of a good friend, having compliance with peers, compromising, turn-taking, joining friends, doing homework
3	Conversational skills	Review of previous session, starting a conversation, keeping a conversation flowing, taking turns, asking questions, responding to questions, showing interest and choosing useful topics, making jokes, talking to oneself loudly, homework
4	Non-verbal skills	Review of previous session, having proper eye contact, keeping physical distance, keeping social distance, controlling the tone and facial expressions, homework
5	Social skills	Review of previous session, showing empathy, getting the views of others, listening carefully, expressing words of admiration and respect, being supportive, coping effectively with feelings of loneliness and rejection, homework
6	Conflict resolution skills	Review of previous session, tolerating hearing 'no', being able to say 'no', not being annoyed so much but not forgetting it, expanding coping skills to manage conflicts and stress, homework
7	Self-awareness skills	Review of previous session, learning about one's growth, learning to differentiate between making mistakes and wrongdoing, understanding personal variations, controlling oneself, learning about autism spectrum disorders, homework
8	Cognitive problem-solving skills	Review of previous session, assembling parts, thinking with eyes, guessing
9	Social problem-solving skills	Review of previous session, working in groups to solve social problems, homework

Session	Topic	Brief summary
10	Emotional problem-solving	Review of previous session, learning strategies to overcome difficult situations, learning emotional cues, homework

Procedure: Having assigned the subjects, a pretest is administered for both control and experimental groups. The experimental group received treatment during 10 45-minute sessions (two sessions a week). 40 days after the completion of treatment, intervention is presented to both groups after the test and the data is collected at last. The data is analyzed using analysis of variance with repeated measures by SPSS 17.

3. Results

Table 2. Multivariate analysis of covariance.

Sources of effect		Sum of squares	Degree of freedom	Mean of squares	Degree of F	Level of significance	Effect intensity	Test power
Group	difficulty in identifying emotions	149.23	1	149.23	6.65	0.03		
	difficulty in describing emotions	90.87	1	90.87	6.63	0.03	0.425	0.633
	objective thinking	161.57	1	161.57	5.76	0.03	0.425	0.633
Error	difficulty in identifying emotions	201.84	9	22.427			0.391	0.572
	difficulty in describing emotions	123.19	9	13.68				
	objective thinking	252.17	9	28.02				
Total	difficulty in identifying emotions	8634	14					
	difficulty in describing emotions	4616	14					
	objective thinking	11876	14					

According to the values of F in all three dependent variables ($F = 6.56$, $df = 1$, $\alpha < 0.05$) which is statistically significant, it can be argued that group social skills training in adolescents with autism spectrum disorders has been effective and has been able to reduce alexithymia at the $\alpha = 0.05$ level. Given the magnitude of effect, it can be argued that the effect of the experimental variable is of the average level and it is considered effective as the independent variable, that is group social skills training. Also, based on Wilks' lambda, non-overlapping of dependent variables is 0.56 and with an emphasis on Pillai's Trace, overlapping of dependent variables with an emphasis on social skills training in groups is 0.63.

4. Discussion

The aim of the present study is to investigate the effect of social skills training in group on the components of alexithymia in children with autism spectrum disorders. The results suggest that the abovementioned intervention is effective, in the sense that after the group social skills training, variables difficulty in identifying emotions, difficulty in describing emotions and objective thinking see significant decrease in the experimental group compared with the control group ($P < 0.001$). These results suggest that group social skills training can be effective in overcoming alexithymia and its components.

The results of the present study is in line with the results of the studies conducted by Ladd and Grodon [18] on the effect of social skills on the improvement of emotional-social interpersonal skills, by Ozonoff et al. [13, 16] on the effect of

objective social skills training on improving emotional information processing and the effect of cognitive-behavioral on stress and social interaction, by Solomon et al. [28] on the effect of social adjustment training on reducing the components of alexithymia in boys of 8 to 12 with autism spectrum disorders with high performance.

Also, the result of the present hypothesis is in line with the findings of Koenig et al. [5] on the effect of social skills intervention on the components of alexithymia and the studies by Attwood [22, 23] on emotional self-regulatory group intervention using cognitive-behavioral therapy to overcome stress and manage anger in autistic adolescents with high performance.

Given that children with autism spectrum disorders have at least average IQ, the necessary receptive language ability, and can use their skills to better process, understand, and describe emotions with social skills training. This process can also prove effective in moderating their objective thinking [31].

Another way of interpreting the result of the present hypothesis can be the effect of the subjects' cooperation on verbal description of social events and activities through games and also observing others' non-verbal social cues and subsequently understanding the viewpoints of peers and considering their views and previous knowledge. It is also possible that the results of the hypothesis are due to the motivational force of the subjects who are boys willing to play and take part in the interventions. In addition, the effect of social skills training in overcoming alexithymia can also be explained. Another point that should not be overlooked in

explaining the present finding is the extension of the skills learned by the subjects during the intervention [3].

The limitations of the present study include: small sample size, inadequate number of training sessions, lack of comprehensive measurement tools, and lack of a follow-up program. Thus, it is suggested that following studies use larger samples, more training sessions, comprehensive measurement tools with clinical interviews, and a follow-up program. Since its extension seems to be promising which needs more research, it is suggested to use the findings of the present study in educational planning and rehabilitation of children with autism spectrum disorders and bring hope to their parents and teachers and take a promising step towards providing their psychological health, because based on the findings of the present study, it seems that group social skills training is an opportunity for social references, observations and reading socio-emotional cues and helped the subjects perform better in overcoming their alexithymia.

5. Conclusion

In the present paper, we have aimed to determine the effectiveness of group social skills intervention on alexithymia in children with autism spectrum disorders. The findings of this research suggest that intervention is effective, in the sense that after the group social skills training, variables difficulty in identifying emotions, difficulty in describing emotions and objective thinking see significant decrease in the experimental group compared with the control group. These results reveal that group social skills training can be effective in overcoming alexithymia and its components. The results of the present study is in line with the results of the studies conducted by the other researchers; on the effect of social skills on the improvement of emotional-social interpersonal skills, the effect of objective social skills training on improving emotional information processing and the effect of cognitive-behavioral on stress and social interaction, and on the effect of social adjustment training on reducing the components of alexithymia in boys of 8 to 12 with autism spectrum disorders with high performance.

Given that children with autism spectrum disorders have at least average IQ, the necessary receptive language ability, and can use their skills to better process, understand, and describe emotions with social skills training. This process can also prove effective in moderating their objective thinking. However, there are certain shortcomings, which can be considered as the limitations of the present study. These include: sample size, number of training sessions, comprehensive measurement tools. It is suggested that for future studies use larger samples, more training sessions, comprehensive measurement tools with clinical interviews,

and a follow-up program should be considered.

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