

Investigating the effectiveness of play therapy in improving cognitive-behavioral symptoms of autistic disorder

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ABSTRACT

This study aims to determine the effectiveness of play therapy in improving cognitive-behavioral symptoms of autism. The present research is a pretest-posttest quasi-experimental study design with two experimental and control groups. The statistical population consists of all children with autistic disorder in Mashhad in the year 2009-2010. The subjects (30 boy children with autism) were selected from Tabassom educational center for autistic children through available sampling method and were randomly assigned into two experimental and control groups, each including 15 participants. To this end, a pretest was initially administered for both groups using Childhood Autism Rating Scale (CARS) and then, play therapy was conducted for twelve 45-minute sessions with the experimental group and finally, a posttest was implemented. In analyzing the data, analysis of covariance was applied. The research findings demonstrated that at the end of play therapy sessions, the experimental group compared to the control group showed significant reduction in total scores obtained in Childhood Autism Rating Scale ($P=0.05$). In other words, play therapy is effective in improved cognitive-behavioral symptoms of autistic disorder.

KEY WORDS: PLAY THERAPY, COGNITIVE-BEHAVIORAL SYMPTOMS, AUTISTIC DISORDER

INTRODUCTION

We live in an age when children's disorders and diseases are considered by families, specialists and health systems more than any other time. A child who is born has the highest and fullest growth potential. He is created at his

best and has the readiness and capacity to be trained in the most appropriate way and achieve the highest perfections. Children's nervous system like adults' nervous system has not reached full development since growth continues and in other words, children are changing and evolving; thus, their behavior is always changing. Given

ARTICLE INFORMATION:

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Received 27th Dec, 2016

Accepted after revision 2nd March, 2017

BBRC Print ISSN: 0974-6455

Online ISSN: 2321-4007

 Thomson Reuters ISI ESC and Crossref Indexed Journal
NAAS Journal Score 2017: 4.31 Cosmos IF : 4.006

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Online Contents Available at: <http://www.bbrc.in/>

that children depend heavily on parents and others and are immature in terms of physical and mental capabilities, the only thing they can do in the face of pressures and discomforts is the incidence of behavioral disorders. Indeed, the child's behavior is his expressive language. The more problems the child experiences in association with others and expression of his own feelings and needs, the greater his mental and behavioral disorders will be (Glus, 1998; translated by Jamalfar, 1998).

Among exceptional children, autistic children have a highly sensitive place. Fast and accurate detection and diagnosis and subsequently treatment of such children are of crucial importance. Man has failed to definitively treat this disorder; even in many cases, these patients are not diagnosed. For this reason, it is often thought that this disease is not highly prevalent. Parents of autistic children are willing to know why their child is not able to properly speak and communicate with peers and people or play with age-appropriate toys. The question is whether or not the incidence of these disorders is congenital. Accordingly, they seek treatment for their child's disease (Rafe'ei, 2006).

STATEMENT OF THE PROBLEM

Pervasive developmental disorder is a term that is currently used to refer to severe psychological problems that appear in childhood. These disorders embrace serious disturbance in cognitive, social, behavioral and emotional development of the child, which have broad consequences and effects on the growth process. In this group of diseases, social skills, language development and behavioral repertoire either have not properly developed or have been lost in early childhood (Kaplan, Sadok & Gerb, 1987; translated by Fazel & Karimi, 1996).

Autistic children show impairment in social interaction in several ways. Their nonverbal behaviors indicate emotional distance which is characterized by avoidance of making eye contact, strange facial effects and use of special gestures to control interactions. Unlike most children who like to play with other children, these children avoid establishing relationships with peers. They resist their parents' hugging and fondling in childhood. Autistic children are not able to talk or show too much delay in language acquisition (Haldgin & Witborn, 1997; translated by Seyyed Mohammadi, 2007).

Play therapy is also one of the effective methods in the treatment of children's behavioral and mental problems. Playing has a great impact on the child's growth. In fact, playing is a natural instrument for the child to express "himself" and his feelings, establish communication, describe experiences, reveal the wishes and reach self-actualization (Landreth, 1985; translated by Arian, 1995).

By reviewing the theoretical background and studies conducted on the subject, it can be found that although multiple investigations have been carried out about variables of the subject and their relationship with one another, few studies have been conducted on the effect of play therapy on cognitive-behavioral symptoms of disorders including autism pervasive developmental disorder. Further, in this field, there is no research that has directly addressed the effectiveness of play therapy in improving cognitive-behavioral symptoms of autistic disorder. Therefore, with regard to the above framework, the researcher in the present study seeks to answer this fundamental question as to "whether play therapy is effective in improving cognitive-behavioral symptoms of autism".

RESEARCH HYPOTHESIS

Play therapy is effective in improving cognitive-behavioral symptoms of autistic children.

RESEARCH VARIABLES

Independent variable: In this study, play therapy is the independent variable.

Dependent variable: Cognitive-behavioral symptoms of autistic children are considered as the dependent variable.

Control variable: In this study, age and gender are regarded as the control variables. Intervening variable: In this study, mental retardation, hyperactivity and other associated disorders are considered as the intervening variables.

Definitions of terms
Theoretical definitions of variables
Theoretical definition of play therapy: Play therapy is a form of psychotherapy that is used for young children in response to their limited ability to express oneself verbally (Levinger, 1994).

Theoretical definition of cognitive-behavioral symptoms of autistic disorder: These symptoms comprise the inability to mutually communicate with others from early in life, having fun with objects rather than humans, compulsive behavior in the face of changes, impaired verbal communication and cliché and repetitive behaviors (Aksline, 1997; translated by Mozayyani; Nowzar Adan, 1989).

Theoretical definition of autism: It is a severe disability that occurs in the first 3 years of life and is caused by the neurological disorder that affects brain function (Rafe'ei, 2006).
Operational definitions of variables
Operational definition of play therapy Passive play therapy techniques which include 13 activities are used during 12 sessions of 45 minutes for the subjects of the experimental group.
Operational definition of cognitive-

behavioral symptoms of autistic disorder. It is the score obtained by the individual in Childhood Autism Rating Scale.

Operational definition of autism: It starts at age 3 and is characterized by having at least 6 cases of the features mentioned in DSM-IV-TR. Checklist of Autism in Toddlers (CHAT) can also be used.

Research type: This research is a quasi-experimental study in which attempt has been made to control the intervening variables to the extent possible.

Research design: This study is a pretest-posttest quasi-experimental design with two experimental and control groups.

RT_1	X_1	T_2
RT_3		T_4

Statistical population and sample: The research statistical population consists of all children with autism in Mashhad in the year 2009-2010. The statistical sample comprises 30 individuals (15 subjects in the experimental group and 15 subjects in the control group) from among autistic boy children aged 5 to 13 years in Tabasom educational center for autistic children.

COMMUNICATION WITH PEOPLE

1. No evidence of forms of abnormality in communication with people: The child's behavior is appropriate to his age. When he is asked to do something, he may seem a little bit shy, fastidious or upset; but it not abnormal. -1.5
2. Mildly abnormal communications: The child may avoid eye contact with adults. He may keep aloof from adults or become disturbed if he is forced to interact. He may be greatly shy. He does not respond normally to adults and is more attached to his parents than the children of his age. -2.5
3. Moderately abnormal communications: The child sometimes stays away from adults or it seems that he is unaware of what adults do. Sometimes continuous and emphatic effort is essential to attract the child's attention. -3.5
4. Severely abnormal communications: The child constantly avoids adults or is unaware of what adults do. In contact with adults, he is almost never the initiator. Continuous effort is needed to attract the child's attention.

IMITATION

1. Appropriate imitation: The child can imitate the sounds, words and movements according to his age and skill level. -1.5
2. Mildly abnormal imitation: The child imitates simple behaviors like clapping or monophonic

sounds. Sometimes he imitates after stimulation or with little delay. -2.5

3. Moderately abnormal imitation: The child only sometimes imitates and for this purpose, help and insistence of adults are needed. He mostly imitates with little delay. -3.5
4. Severely abnormal imitation: The child rarely or never imitates the sounds, words or movements unless with the stimulation and help of adults.

EMOTIONAL RESPONSE

1. Emotional responses appropriate to age and situation: Type and degree of the child's emotional responses are appropriate and are determined by changes in his facial expression, gesture and behavior. -1.5
2. Mildly abnormal emotional responses: Type and degree of the child's emotional responses are sometimes appropriate. Reactions are not usually associated with the objects or events around him. -2.5
3. Moderately abnormal emotional responses: Type and degree of the child's emotional responses are quite inappropriate. Reactions may be totally limited or very severe and without any association with the situations. The child may mimic, laugh or become inflexible while there is no object or event explicitly causing this issue. -3.5
4. Severely abnormal emotional responses: Responses are rarely appropriate to the situation. When the child has a stable temperament, it is very difficult to change it. Conversely, the child may show completely different feelings while nothing has changed.

BODY MOVEMENTS

1. Body movements appropriate to the age: The child can move as easily and quickly as the children of his own age. -1.5
2. Mildly abnormal body movements: Some strange states such as clumsiness, repetitive movements, poor coordination or rarely unusual movements may exist. -2.5
3. Moderately abnormal body movements: The child's behaviors are quite strange and unusual with regard to his age and include strange finger movements, strange finger position or body gesture, staring at the body, spontaneous aggression, wiggling, squirming, repetitive movements of the fingers and walking on toes. -3.5
4. Severely abnormal body movements: Severe or persistent movements of the above suggest very abnormal body movements. These behaviors may persist despite the efforts to prevent them or involving children in other activities.

CHANGE ADAPTATION

1. Age-appropriate response to change: If the child normally notices changes or he is reminded, he accepts with no insistence. -1.5
2. Mildly abnormal change adaptation: If adults try to change the child's tasks, he may do the same activity or apply the same thing. -2.5
- 3.

Moderately abnormal change adaptation: The child usually resists changes and tries to do the old jobs so that it is difficult to dissuade him. If his fixed and daily routines change, he may become upset and angry. -3.5 4. Severely abnormal change adaptation: The child shows severe reactions to change. If he is forced to adapt himself to the change, he becomes furious and does not cooperate and his response is accompanied by turmoil.

IMPLEMENTATION METHOD

To do this research, after coordination carried out by the University with Mashhad Bureau of Exceptional Education, we were introduced to Tabassom educational center for autistic children. It should be noted that comprehensive diagnostic evaluation of autistic children was done in two stages:

First stage: Preliminary diagnosis or initial assessment

In this stage, child development screening test is performed. Parents' observations and information about child development and its history can greatly help in this step. Some of the screening tools which collect data about the child's social development and communication skills are as follows:

1. Checklist of Autism in Toddlers (CHAT)
2. Screening Tool for Autism in Two-Year-Olds (STAT)
3. Social Communication Questionnaire (SCQ) for children of 4 years and older
4. PDD assessment Scale/Screening Questionnaire (ASSQ)

If suspicious signs of a problem or disorder are observed in the diagnosis phase or initial assessment, the child is referred for comprehensive diagnostic evaluation.

Second stage: Comprehensive diagnostic evaluation: This evaluation is performed by a group of specialists including child psychiatrist, neurotourist, occupational therapist and speech therapist. In this stage, Autism Diagnostic Interview (ADI-R) which is a structured interview is completed with the help of the child's parents or caregiver. Additionally, CARS tool can be applicable. In this study, 30 children were selected as the sample through available sampling method. After randomly assigning the subjects into the experimental (n=15) and control (n=15) groups, the two groups took a pretest using Childhood Autism Rating Scale (CARS). Play therapy was passively implemented for the subjects of the experimental group during 12 sessions of 45 minutes (3 sessions per week). At the end of play therapy, a posttest was taken from both groups.

INFERENCE OF DATA

It can be observed in the above table that F coefficient to compare the mean posttest score of the first cognitive-behavioral symptom of autism (communication with people) in the experimental and control groups (after controlling the pretest scores) was calculated to be 0.96 which is not statistically significant ($P \leq 0.05$) and thus, the null hypothesis is accepted and it is concluded that the implementation of play therapy has no significant influence on improving the first component of Childhood Autism Rating Scale (communication with people).

Table 1: Results obtained from covariance analysis of the experimental group with the control group in the first component of Childhood Autism Rating Scale (communication with people)					
Analysis of covariance factors	Sum of squares	Degree of freedom	Mean Square	F value	Significance level
Pretest	7.14	1	7.14	162.47	0.000
Intergroup	0.04	1	0.04	0.96	0.34
Error	1.18	27	0.043		
Total	8.46	29			

Table 2. Results obtained from covariance analysis of the experimental group with the control group in the second component of Childhood Autism Rating Scale (imitation)					
Analysis of covariance factors	Sum of squares	Degree of freedom	Mean Square	F value	Significance level
Pretest	8.10	1	8.10	193.39	0.000
Intergroup	0.08	1	0.08	1.92	0.17
Error	1.31	27	0.04		
Total	9.36	29			

Table 3. Results obtained from covariance analysis of the experimental group with the control group in the third component of Childhood Autism Rating Scale (emotional response)

Analysis of covariance factors	Sum of squares	Degree of freedom	Mean Square	F value	Significance level
Pretest	2.98	1	2.98	31.66	0.000
Intergroup	0.003	1	0.003	0.003	0.95
Error	2.54	27	0.094		
Total	5.74	29			

It can be seen in the above table that F coefficient to compare the mean posttest score of the second cognitive-behavioral symptom of autism (imitation) in the experimental and control groups (after controlling the pretest scores) was calculated to be 1.92 which is not statistically significant ($P \leq 0.05$) and hence, the null hypothesis is accepted and it is concluded that the implementation of play therapy has no significant impact on improving the second component of Childhood Autism Rating Scale (imitation).

It can be seen in the above table that F coefficient to compare the mean posttest score of the third cognitive-behavioral symptom of autism (emotional response) in the experimental and control groups (after controlling the pretest scores) was estimated to be 0.003 which is not statistically significant ($P \leq 0.05$) and therefore, the null hypothesis is accepted and it is concluded that the implementation of play therapy has no significant impact on improving the third component of Childhood Autism Rating Scale (emotional response).

It can be observed in the above table that F coefficient to compare the mean posttest score of the fourth cognitive-behavioral symptom of autism (body movements) in the experimental and control groups (after controlling the pretest scores) was calculated to be 0.000 which is not statistically significant ($P \leq 0.05$) and so, the null hypothesis is accepted and it is concluded that the implementation of play therapy has no significant effect on improving the fourth component of Childhood Autism Rating Scale (body movements).

It can be seen in the above table that F coefficient to compare the mean posttest score of the fifth cognitive-behavioral symptom of autism (change adaptation) in the experimental and control groups (after controlling the pretest scores) was calculated to be 3.60 which is not statistically significant ($P \leq 0.05$) and thus, the null hypothesis is accepted and it is concluded that the implementation of play therapy has no significant effect on improving the fifth component of Childhood Autism Rating Scale (change adaptation).

Table 4. Results obtained from covariance analysis of the experimental group with the control group in the fourth component of Childhood Autism Rating Scale (body movements)

Analysis of covariance factors	Sum of squares	Degree of freedom	Mean Square	F value	Significance level
Pretest	5.74	1	5.74	104.24	0.000
Intergroup	1.89	1	1.89	0.000	0.98
Error	1.48	27	0.05		
Total	7.24	29			

Table 5. Results obtained from covariance analysis of the experimental group with the control group in the fifth component of Childhood Autism Rating Scale (change adaptation)

Analysis of covariance factors	Sum of squares	Degree of freedom	Mean Square	F value	Significance level
Pretest	6.19	1	6.19	70.56	0.000
Intergroup	0.31	1	0.31	3.60	0.06
Error	2.37	27	0.08		
Total	8.57	29			

In the present study, it has been hypothesized that play therapy is effective in improving cognitive-behavioral symptoms of autistic disorder. With regard to data analysis in section 4, the research findings revealed that after implementing the techniques of play therapy, significant changes have been made in the whole cognitive-behavioral symptoms of autistic children. Evaluation of the experimental group scores after the implementation of play therapy suggested that there is significant difference between autistic children and subjects of the control group in cognitive-behavioral symptoms and this indicates that this treatment method has had a positive effect on improving cognitive-behavioral symptoms of autism.

The results obtained from this research are consistent with the findings achieved in some other studies in this regard. Thorp et al., (1995) and also McDonough et al. (1997) in a study investigated the effects of play therapy and puppet show on the treatment of autistic children. The obtained results demonstrated that this method is effective in the treatment of such children. Forest (2004) conducted a study and showed that play therapy is an effective method regarding the children who have experienced events or problems in life. Sarlak and Rasouliyan (1388) have also referred to the effectiveness of voice therapy in increasing the rate of hearing and thus auditory responses of autistic children.

Qaderi, Asghari Moqaddam and Sha'eiri (2006) and Zolmajd, Borjali and Arian (2007) also examined the impact of play therapy on children's aggression. The findings indicated a reduction in the level of aggression in these children. Salehi (2009) has studied the effect of play therapy on reduced oppositional defiant disorder. The research results revealed that play therapy significantly reduces the severity of symptoms of oppositional defiant disorder.

RESEARCH SUGGESTIONS

Application of the findings of this study in Welfare Organization, Exceptional Education and other centers that engage in counseling for children with disorder and use of play therapy as an effective method in the treatment of children's disorders. Establishment of centers and institutions having specialized and experienced personnel and all kinds of facilities for the treatment of these children with an emphasis on play therapy method. Reassessment of subjects after 3 or 6 months to examine the effectiveness and stability of results and also evaluation of the sustainability of this treatment method.

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