

## The state of Deterministic Thinking among mothers of autistic children

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**Objectives:** The purpose of the present study was to investigate the effectiveness of cognitive-behavior education on decreasing deterministic thinking in mothers of children with autism spectrum disorders.

**Method and Materials:** Participants were 24 mothers of autistic children who were referred to counseling centers of Tehran and their children's disorder had been diagnosed at least by a psychiatrist and a counselor. They were randomly selected and assigned into control and experimental groups. Measurement tool was Deterministic Thinking Questionnaire and both groups answered it before and after education and the answers were analyzed by analysis of covariance.

**Results:** The results indicated that cognitive-behavior education decreased deterministic thinking among mothers of autistic children, it decreased four sub scale of deterministic thinking: interaction with others, absolute thinking, prediction of future, and negative events ( $P < 0.05$ ) as well.

**Discussions:** By learning cognitive and behavioral techniques, parents of children with autism can reach higher level of psychological well-being and it is likely that these cognitive-behavioral skills would have a positive impact on general life satisfaction of mothers of children with autism.

**Key words:** Cognitive-Behavior Education, mothers of autistic children, Deterministic Thinking

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### Introduction

Raising a child is stressful for all parents; however parents of children with disabilities may have additional sources of stress (1). Autism is one of the disorders that make parents lives more difficult. Gray and Holden (2) found that mothers of autistic children reported more parent and family problems and perceived negative child characteristics than the mothers of children with Down syndrome or no disability. Also Olsson and Hwang cited in Baker-Ericzen(1) reported that mothers of children with autism showed higher depressive level than mothers of children with no disability. It was also stated that parents of children with autism had higher depression than parents of children with mental retardation, Down syndrome and no disability (3).

When the mothers and fathers of children with autism were the focus of the study, mothers of children with autism were found to have more stress than fathers (4). Spousal blaming may be another factor that causes stress in mothers of children. Fathers of children with autism may blame their

wives for creating this condition in their children especially if the child is male (5).

Parents are always at the centre of treatment. Their session is central to the cure. All attempts at planning intervention and treatments should involve a close working relationship between the professional and the family, always keep in mind the need of filling the gap between science, culture, beliefs and the individual needs of children and their families (6).

The rehabilitation and education of children with autism is the focus of the arrangements in the special education centers; however, the other family members, especially the mothers who are the prime caregivers need to be informed and supported for both the well-being of the family and the child.

As in our society mothers are the primary caregivers of the children, they have more difficulties in raising and daily care of the child than fathers. Also mothers have responsibilities related to other family member needs and their own personal needs which may cause greater stress and problems for them. All of

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these pressures for mothers of autistic children cause increasing risk of psychological problems such as depression, anxiety, distress, poor marital adjustment, and poor parent-child interaction, less satisfaction with life, social isolation, low self esteem and hopelessness.

Cognitive approaches believe that mental health is dependent on people's perceptions and explanations of events and the world (7). Also people's feedbacks and cognitions toward themselves and the world play an important role in their vulnerability when encounter to psychological complexities (8).

One of the most important cognitive distortions is deterministic thinking (9). Deterministic thinking is a kind of distortion that conclusively considers an event equal to something else. Deterministic thinking is about absoluteness and ignorance probability in incidents and their inferences. On the other hand, this distortion interferes in the conclusion of the situation (positive and negative) and it causes people to have a sensitive reaction towards changing of the old mental patterns. Its deletion leads to adjustment between hope and fear of occurrence in people (10).

Cognitive-behavioral education is a psycho educational approach which is mixed of cognitive restructuring and behavioral interventions. This intervention emphasizes the relationship between thoughts, feelings, and behaviors, and includes four treatment modules: training relaxation, increasing enjoyable activities, cognitive restructuring, and social skills/assertiveness training (11).

Regarding to negative correlation between mental health and cognitive distortions (7,12), and as deterministic thinking is a major cognitive distortion (9), by helping mothers of autistic children to decrease their deterministic thinking, they can achieve higher level of mental health and cope much better with their problems and treat more effectively with their children. So this study will investigate the effectiveness of cognitive-behavioral education on decreasing deterministic thinking among mothers of autistic children.

### Material and Method

In a quasi experimental study with pre-post test and control group design 24 mothers of autistic children

who were referred to counseling centers of Tehran and their children disorder had been diagnosed at least by a psychiatrist and a counselor were randomly selected and randomly assigned into two groups: control and experimental.

Before starting intervention both groups were given a pre test. Then experimental group participated in 8 educational sessions and control group did not get any intervention. Finally 4 days after the last session both groups answered post test. The education program consists of cognitive restructuring and behavioral interventions. The intervention emphasizes on the relationship between thoughts, feelings, and behaviors. Also behavioral intervention is consist of increasing pleasurable activities, learning social and communication skills, relaxation training, and assertiveness training.

The Measurement tool was Deterministic Thinking Questionnaire. The questionnaire developed based on theoretical basics related to cognitive theories and clinical experiences by Younesi (13). This questionnaire is a valid and reliable measure that the concurrent validity was established by correlating it with Beck depression inventory ( $r=0/33$ ).

The questionnaire is a 36-items self report inventory, and each item is scored on a 4 point Likert-type scale ranging from 1 (completely disagree) to 4 (completely agree). Scores can range from 36 to 144. Higher total score signify a higher level of deterministic thinking and the cut-off point is 75. The four sub-scales of deterministic thinking are: interaction with others, absolute thinking, prediction of future, and negative events.

Hypothesis of this research was: Cognitive-behavioral education decreases deterministic thinking among mothers of children with autism spectrum disorders. Analysis of covariance has been performed to evaluate the efficacy of intervention and all answers were analyzed in SPSS.

### Results

According to the use of Kolmogorov-Smirnov test for testing normality of demographic variables distributions in two groups, results which are shown in Table (1) indicates that distribution of demographic variables in both experimental and control group is normal ( $P<0.05$ ).

**Table 1.** K-S test for normality of demographic variables distribution

Demographic Variables	Experimental Group		Control Group	
	K-S test	P value	K-S test	P value
Age	0.859	0.452	1.24	0.091
Level of education	0.956	0.320	0.815	0.520
Marriage duration	0.774	0.587	0.815	0.520

Level of education in experimental and control groups compared by Chi-square test and there was no significant difference between two groups. Also age and marriage duration were compared by using independent T-test and there was no significant difference regarding age and marriage duration between two groups.

Considering the outcome of analysis of covariance which are shown in Table 2; after controlling pre test

scores, F score of absolute thinking, negative events, future prediction, interaction with others and deterministic thinking is significant and shows that cognitive-behavioral education has decreased deterministic thinking and four sub scale of it among mothers of autistic children with significance values of  $P < 0.05$ .

**Table 2.** Analysis of covariance for effectiveness of cognitive-behavioral education

	Source	Sum of squares	df	Mean squares	F	P value
Absolute thinking	Pre test	64.37	1	64.37	53.45	0.001
	Intervention	164.23	1	164.23	136.37	0.001
Negative events	Pre test	82.65	1	82.65	44.58	0.001
	Intervention	228.63	1	228.63	123.33	0.001
Prediction of future	Pre test	58.91	1	58.91	28.28	0.001
	Intervention	105.94	1	105.94	50.85	0.001
Interaction with others	Pre test	55.35	1	55.35	28.71	0.001
	Intervention	92.37	1	92.37	47.91	0.001
Deterministic thinking	Pre test	83.08	1	83.08	49.14	0.001
	Intervention	153.95	1	153.95	91.06	0.001

\*  $P < 0.05$

### Discussion

The purpose of this study was to investigate the effectiveness of cognitive-behavioral education on decreasing deterministic thinking among mothers of autistic children.

In cognitive intervention phase, education was focused on revision of incorrect beliefs and cognitions. It seems that cognitive revisions caused reduction of annoyance and anger, increased attention to positive aspects of child behaviors, decreased cognitive distortions such as mind reading, foretelling, negative labeling, and deterministic thinking. To decrease deterministic thinking specifically Test of Reality technique was educated and it seems this technique helped mothers' perceive their lives realities and thus absoluteness and equalities in their mind were decreased. Also the cognitive restructuring module was helpful in changing negative expectations and attributions related to child behavior that may influence parenting as treatment response.

Behavioral education phase consists of relaxation training, increasing pleasurable activities, and assertiveness training. The relaxation techniques helped mothers be relaxed during punishment situations and ignore mildly inappropriate behaviors. Also mothers expressed that they could control their anger better. Sevin also showed that the most mentioned issue by mothers of children with autism was related to anger management and they need to

learn how to manage their anger (14).

Since mothers of children with autism often spend all of their time to do parenting or work obligations, they have little time to do things that they enjoy, so by doing pleasant activities they probably reached more positive feelings about themselves and life. Johnston & Goldberg also indicated the positive effect of doing pleasurable activities on mothers.(15) Finally, mothers of disabled children are required to be assertive in discipline situations with their children, in advocating for their children's educational needs, and in responding to critical family members. So assertiveness training is useful for them.

The parents of children with autism often feel hopeless and blame themselves for the situation (16) and may have stress, depression, and anxiety. So by learning cognitive and behavioral techniques they can reach higher level of psychological well-being and it is likely that these cognitive-behavioral skills would have a positive impact on general life satisfaction of mothers of children with autism, regardless of their current levels of depressive symptoms or anxiety.

Besides the interventions in cognitive-behavioral education, mothers stated that concepts and techniques were clear and easy to understand. Also they appreciated the trainers' communication and were satisfied to speak with the other mothers with the same problems.

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