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Original Article

The effect of group therapy using the cognitive approach on the empowerment of mothers raising a child with autistic disorder: A randomized-controlled clinical trial

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Abstract

Introduction: The diagnosis of autistic disorder may impose stress on the child's parents especially the mother of the baby. Raising a child with autistic disorder reduces parents' quality of life. This study examined the effect of group therapy using a cognitive approach on empowerment in the mothers of children with autistic disorder.

Methods: This randomized clinical trial was carried out with 80 mothers of children with the autistic disorder. They referred to Autism Society Rehabilitation Center in Tabriz, Iran. The mothers were randomly allocated into intervention and control groups. The intervention group was divided into 4 groups of 10, and each group participated in 10 sessions of group therapy using the cognitive approach. The control group received the routine care. Data were collected using the Family Empowerment Scale (FES) before the intervention and two months after the intervention. Data were analysed using descriptive and inferential statistics [t-test, χ^2, and analysis of covariance (ANCOVA)] via the SPSS software.

Results: The independent t-test showed that the means of total empowerment and its dimensions had no statistically significant differences before the intervention. However, after the intervention, such differences between the groups were statistically significant ($P < 0.001$); so that the mothers in the intervention group achieved higher scores on empowerment and its dimensions compared with the control group.

Conclusion: Group therapy using the cognitive approach can be used by healthcare professionals in rehabilitation centers for empowering the mothers of children with autistic disorder.

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Introduction

The autistic disorder is one of the widespread disorders among young children. It is manifested by problems in social interactions, delay, or deviation in communication skills and restrictions in activities and interests.[1]

The diagnosis of the autistic disorder imposes stress on the family of the child and leads to isolation from the society, social stigma, financial problems, and issues in access to healthcare services.[2,3] The parents of the child with autistic disorder have some fears as well as questions about the growth and development of their child. Immediately after the diagnosis, parents' concerns and tensions are amplified because they are required to identify the performances and limitations of their child's activities of daily

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living by themselves.[4] Therefore, they need to maintain a balance between their children's needs and having a normal life. The development of such a balance is difficult for parents.[5,6] Normal life activities such as spending time out with children, taking pleasure trips, and socializing and partying with friends would be affected by the child' condition.[7,8] Besides, the parents of children with autistic disorder may have wrong beliefs about their children's illness.[9,10] Although families become more knowledgeable of autistic disorder, they may still lack appropriate knowledge about this disorder.[8]

The stress experienced by parents may affect the interrelationship between them and their child.[11] Therefore, the relationship between the child's abnormal behaviors and family's functions is bilateral and mutual. In other words, the child with autistic disorder influences the family function and reacts to the family environment.[12]

The function of the family is affected by the level of its empowerment. The dimensions of empowerment are beyond self-confidence or self-efficiency in individuals. Empowerment embraces environmental modifications, enhancement of individual's abilities and motivations for the advancement and optimization of activities based on the individual's talents and experiences.[13] The family's empowerment could be assessed using individuality and interactive and behavioral aspects. The individuality dimension includes parent's beliefs in and perceptions of self-control and self-esteem. The interactive dimension contains the individual relationship with his/her social surroundings. Finally, the behavioral aspect is about the person's control of the environment.[14]

The family's empowerment needs the consideration of multi-dimensional interventions.[15] The family-focused care is an important part of healthcare staff's interventions working with children with chronic disorders.[16] Group therapy, consultation, and psychological trainings in groups for patients and their family members have been shown effective for resolving health-related issues.[17] On the other hand, the fundamental assumption in cognitive therapy is the effect of cognitions on emotions and behaviors. Giving the wrong perspectives of parents about this disorder,[9,10] cognitive rehabilitation may help parents adjust their opinions.

It is believed that mothers are main caregiver of children and often attempt to provide the best care possible to their own children.[18] Therefore, the aim of this study was to examine the effect of group therapy using a cognitive approach on empowerment of the mothers of the children with autistic disorder.

Methods

Design: This randomized clinical trial was carried out with the mothers of children with autistic disorder who referred to Autism Society Rehabilitation Center in Tabriz, Iran.

This research was conducted after obtaining an approval from the Regional Research Ethics Committee of Tabriz University of Medical Sciences, Tabriz City (5/4/2736). Also, the protocol of this research was registered at the Iranian Registry of Clinical Trials (IRCT) website with the code of IRCT201204246834N3. Procedures followed were in accordance with the Helsinki Declaration of 1975, as revised in 2008. The researcher informed the participants of the study method and aim, and their rights to withdraw from the study at any time without any penalty. The anonymity of the participants and confidentiality of data were considered by the authors. Informed consent was obtained from all individual participants included in the study.

The mothers of children with the autistic disorder were recruited from Autism Society Rehabilitation Center. Given the mean and standard deviation (SD) of 4.03 ± 0.64 reported by a previous study,[19] the power of 0.9, statistically significant level of 0.050, and the probability of samples' attrition of 20%, the sample size was determined 40 persons in each group (the intervention and control groups).

Inclusion criteria for the selection of the

mothers were: having the child with autistic disorder, being at least 18 years of age, having no cognitive severe physical or mental disorder according to mothers, statement, the empowerment score of less than 45 in the Family Empowerment Scale (FES), and an education level of higher than high school. The inclusion criteria for the children were: being 4-18 years of age and being diagnosed with autistic disorder by a psychiatrist according to the Diagnostic and Statistical Manual of Mental Disorders-4th Edition (DSM-IV) six months prior to the study, and further establishment of the diagnosis was done by trained clinical psychologists using Autism Diagnostic Interview (ADI) in Autism Society rehabilitation center in Tabriz. Moreover, if the mothers participated in a similar study or were absent from intervention sessions for more than two times, they would be excluded from this study. The process of the study was shown in figure 1.

Using the random numbers' website, ("random.org"), the samples were allocated randomly into two groups of intervention and control by a research assistant that was independent from the study. He hid the allocation sequence from the researchers by putting allocated groups in sequentially numbered, opaque, sealed envelopes. Sequentially, the envelops were only opened by the secretary after obtaining informed consent from the participant with inclusion criteria and writing his/her name in the registration booklet. Because of the nature of intervention, blinding of participants and the therapist was not possible.

Procedure: Before the intervention, the samples were asked to fill in the data collection tool. Those mothers scored less than 45 were chosen and randomly assigned into two groups of intervention and control. The intervention group were divided into four subgroups with 10 people in each one. Every subgroup attended 10 sessions of group therapy with an average duration of 90 minutes for each session. The samples actively participated in the sessions. The group leader, a member of the research group who had sufficient experiences and skills in cognitive group therapy, facilitated communication in the sessions. Data collection was repeated two months after the completion of group therapy by the groups. Educational materials for group discussions during the sessions were borrowed from the book complied by Free,[20] which were briefly described in table 1.

Measures: Data were collected using a questionnaire that consisted of two parts: (i) the demographic characteristics questions such as the mother's age, number of children, level of education, the mother's career, the residence status, the child's age, and length of rehabilitation period; (ii) the FES, which was a self-reporting tool designed by Koren et al.[21] to investigate the degree of parents' empowerment who had the child with the mental health disorder.

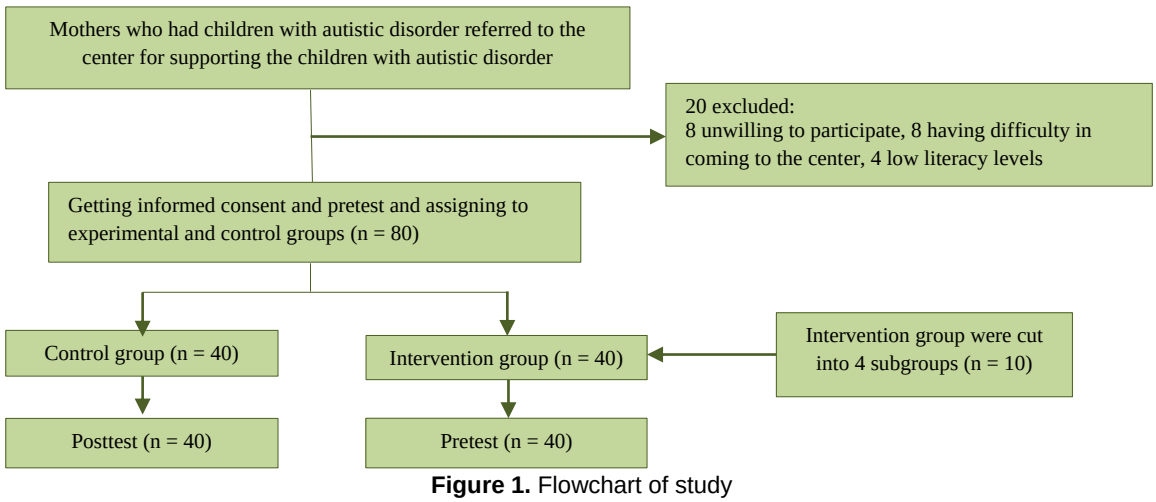

Figure 1. Flowchart of study

Table 1. The educational materials used for group therapy

1st session	Acquaintance of the members of the group, explaining the idea behind the educational program, aim of the group therapy, length of program, and length of sessions, clarifying the rules of the group, describing educational programs including home assignments, an introduction to cognitive therapy and group therapy, application of cognitive group therapy in the families of children with autistic disorder
2nd session	How thoughts create emotions, identifying automatic thoughts (recognizing beliefs and their effects on feelings), the analysis of a certain situation (on the basis of the child with autistic disorder), educating the family about the children with autistic disorder (handing out some educational booklets about the child with autistic disorder with the aims of understanding autistic disorder and features accompanying it, origins and prevalence of autistic disorder and methods to cope with it, its burden on the family and other children, the progression of the disability and future of the child with autistic disorder), conclusion and assignment [recording automatic thoughts, careful studying the educational booklet(s)]
3rd session	Discussing previous sessions' homework, distinction between thought and reality, and distinction between thoughts, feelings, and conditions, ABC model (recognition of the thoughts and teaching the oncoming event, the target behaviour, and the consequence), conclusion and assignment (distinguishing situation, thoughts, and feelings form and ABC model)
4th session	Checking how the previous session's homework was conducted, getting to know the automatic thoughts and cognitive distortions, investigating reasons for disharmonious conducts and thinking, conclusion and assignment (casting off self-driven thoughts and cognitive distortions, becoming familiar with the templates of index for cognitive misrepresentations and categorizing cognitive misrepresentations)
5th session	The inspection of assignments submitted to the group's previous session, techniques for analyzing the supporting evidence and advocates, techniques for investigating the qualifications of evidence, conclusion and assignment (grading the feelings and thoughts form, a form to guess thoughts, a form to check witnesses and supporters)
6th session	Checking the previous session's assignments, techniques for analyzing advantages and disadvantages, changing beliefs and their relationships with excitements, teaching assertiveness, conclusion and assignments (analyzing the advantages and disadvantages form)
7th session	Checking assignments, techniques for empowering attorney, role-playing for the both aspects of thinking, conclusion and giving assignment
8th session	Techniques for behaviors as the result of character, techniques for revising negative thoughts through behaviors, instructions for problem solving, conclusion and assignment
9th session	Checking the given homework in the group, performing practical problem solving, conclusion and assignments for session 10
10th session	Reminding aims, conclusion and feedbacks on all previous sessions in the group

The FES consisted of conceptual dimensions: (i) the level of empowerment and (ii) the way of expressing empowerment. According to the first one, empowerment could occur in three levels including the family (12 items), service system (12 items), and community/political (10 items).

The first part was about the family dealing with day to day life problems; the second part was about parents' actively working with the service system to receive healthcare services needed for their child. Finally, the third part involved parents' advocacy for improving healthcare services to children in general, rather than specially for their own child. The second dimension included three parts. The first part contained parents' judgments and feelings. The second part covered parents' knowledge and ability to acquire the knowledge and expertise. The final part considered behaviors displayed by parents.[21]

The FES was translated from English to Farsi using the forward-backward method. For content validity, the FES was given to two faculty members in the field of nursing, five psychiatrics, and two psychologists. Their feedbacks were applied to the FES for a maximum accuracy in data collection. For reliability using the test re-test method, 15 participants were requested to fill in the FES in a two-week interval. The coefficient of correlation was reported 0.89.

Statistical analyses were directed using the intention-to-treat (ITT) principle.

Table 2. Comparison of child and mother characteristics at baseline between groups

Characteristics		Intervention group	Control group	P	χ^2	Statistical indicators	
						t	95% CI
Mother's age (year) (mean ± SD)		33.12 ± 5.63	34.12 ± 5.47	0.950	-	0	-2.47-2.47
Child number (mean ± SD)		1.4 ± 0.63	1.3 ± 0.63	0.660	-	0.325	-0.22-0.14
Education level [n (%)]	Diploma	26 (65.0)	25 (62.5)	0.940	0.111	-	-
	Associate	5 (12.5)	6 (15.0)				
	Bachelor	9 (22.5)	9 (22.0)				
Mother's career [n (%)]	Housewife	35 (87.5)	36 (90.0)	0.720	0.125	-	-
	Employed	5 (12.5)	4 (10.0)				
Residence status [n (%)]	From Tabriz	33 (82.5)	36 (90.0)	0.330	0.949	-	-
	From other cities	7 (17.5)	4 (10.0)				
Child's age (year) (mean ± SD)		6.37 ± 3.13	6.35 ± 2.61	0.960	-	0.317	-1.26-1.31
Child's gender [n (%)]	Male	10 (25.0)	9 (22.5)	0.790	0.069	-	-
	Female	30 (75.0)	31 (77.5)				
Length of child rehabilitation period (week) (mean ± SD)		16.40 ± 18.70	19.00 ± 18.88	0.640	-	0.634	-5.61-10.86

CI: Confidence interval; SD: Standard deviation

Data were analyzed using descriptive (frequency, frequency and percentage, mean and SD) and inferential [t-test, χ^2, and analysis of covariance (ANCOVA)] statistics via the SPSS software (version 13, SPSS Inc., Chicago, IL, USA). P-value < 0.050 was considered statistically significant.

Results

In this study, 40 mothers who had the child with the autistic disorder and referred to the Autism Society Rehabilitation Center took part in either intervention or control groups. The demographic characteristics of the samples are shown in table 2. Also, the samples in the groups did not have any statistically significant differences in terms of demographic characteristics (Table 2).

According to table 3, the results of the independent t-test showed that the means of total empowerment and its dimensions had no statistically significant differences before the intervention. However, after the intervention, such differences between the groups were statistically significant (P < 0.001).

Given the control of confounding variables' scores, the researchers assessed the effect of the intervention on the post-test scores. Therefore, the baseline values were considered covariates.

Table 3. Comparison of levels of empowerment between both groups before and after intervention

Variables		Intervention group (mean ± SD)	Control group (mean ± SD)	Statistical indicators	
				CI	t
Total empowerment	Pre-intervention	107.45 ± 7.57	105.70 ± 6.10	-1.374-4.774	1.10
	Post-intervention	130.80 ± 4.90	107.50 ± 6.10	20.764-25.735	0.78*
Family	Pre-intervention	37.60 ± 4.90	35.60 ± 4.60	-2.172-2.122	-0.23
	Post-intervention	51.87 ± 2.60	38.25 ± 4.20	12.039-15.210	17.10*
Service system	Pre-intervention	41.67 ± 2.20	40.47 ± 2.40	-0.831-1.231	2.30
	Post-intervention	42.97 ± 2.80	41.35 ± 2.30	0.455-2.794	2.74*
Community/political	Pre-intervention	27.65 ± 2.50	26.95 ± 2.30	-0.305-3.355	1.60
	Post-intervention	35.95 ± 2.40	29.17 ± 5.20	6.923-9.076	14.80*
Knowledge	Pre-intervention	13.10 ± 2.03	12.65 ± 1.80	-0.424-1.324	1.02
	Post-intervention	17.20 ± 1.13	12.90 ± 1.79	3.631-4.968	12.80*
Attitude	Pre-intervention	12.35 ± 2.25	11.37 ± 2.12	-1.000-0.950	-0.51
	Post-intervention	17.52 ± 1.50	12.57 ± 2.09	4.137-5.762	12.13*
Behavior	Pre-intervention	12.17 ± 2.55	12.50 ± 2.24	-1.396-0.746	0.60
	Post-intervention	17.15 ± 1.05	12.77 ± 2.08	3.640-5.109	11.86*

*P < 0.001

CI: Confidence interval; SD: Standard deviation

Table 4. Analysis of covariance (ANCOVA) of total empowerment of mothers by cognitive group therapy and pre-test empowerment

Source	Dependent variable	Sum of squares	df	Mean square	f	P	´H²
Group	Family	3718.124	1	3718.124	402.359	< 0.001	0.839
	Service system	47.281	1	47.281	7.903	0.006	0.093
	Community/political	1152.227	1	1152.227	215.211	< 0.001	0.736
	Knowledge	328.795	1	328.795	240.415	< 0.001	0.757
	Attitude	492.005	1	492.005	189.002	< 0.001	0.711
	Behavior	400.630	1	400.630	193.684	< 0.001	0.716

df: Degree of freedom

The ANCOVA test showed a higher empowerment scores in the intervention group compared with the control group [$f_{(1,77)}$ = 379.639, P < 0.001, partial $\dot{\eta}^2$ = 0.83]. The partial Eta squared value of 0.83 showed that 83% of the variance in the empowerment as the dependent variable was explained by the independent variable (the group) (Table 4).

Discussion

This study was conducted to investigate the effect of group therapy using a cognitive approach on empowerment of mothers of children with autistic disorder. Our findings showed the effectiveness of the intervention on mothers' empowerment in the levels of family, service system, and community/political. The efficacy of cognitions over emotions and behaviors of individuals is the foundation for the cognitive therapy model.[22] It seems that the education of cognitive strategies for controlling and challenging negative thoughts would present individuals with a high spirit and hope for future life. It also makes them see a bright future that needs hard efforts to achieve. A person who makes cognitive mistakes is unable to evaluate himself and existing conditions in his/her life properly. Dempsey and Dunst,[23] quoting from Solomon et al.,[11] state that helping individuals see themselves as responsible for positive changes in their own life is an essential strategy to strengthen capability. As a result, cognitive therapy with the main focus on changing individuals' beliefs and thoughts can influence the empowerment of individuals.

A study on parents and children with the bipolar disorder reported that cognitive behavior therapy (CBT) made parents stronger to cope psychologically with their children with pediatric bipolar disorder (PBD) in such a manner that CBT reduced stress in parents and increased their knowledge of the disorder and methods of copying with it.[24] The education of parents as a fraction of CBT is required to transfer skills to children with autism for reducing the burden of treatment through making children as the assistants of healthcare professionals during the treatment process.[15]

On the other hand, the studies of Minjarez et al.[25] and Banach et al.[26] showed the significant effect of group therapy on the empowerment of family members of children with the autistic disorder.[25,26] Some benefits of group therapy for families are the feeling of being supported and also exchanging experiences and knowledge among the group members.[19] In a study, group therapy helped with the empowerment of mental health in the mothers of children with different kinds of disability.[27] In fact, in group therapy, mothers instruct one another and could meet their own needs in an environment of less stress and more enthusiasm. A lack of knowledge about the sources of social support is a reason for low empowerment among mothers.[28] Therefore, the empowerment intervention elevates mothers' awareness and empowers them especially in social affairs. According to Wakimizu et al.'s study, self-efficiency in mothers is a sign of being empowered.[28] Probably, the contents of present study's intervention increased the others' empowerment through affecting the mentioned variable.

According to our findings, the difference in the extent of changes in mothers' knowledge, attitude, and behavior between

two groups was statistically significant. The knowledge subscale included parents' awareness and their abilities for acquiring it.[21] Cooperation and interaction among the members of the group can build up their knowledge and experiences for bringing up the children. A study by Dykens et al. reported that group therapy in those families who had children with exceptional problems elevated their knowledge of their child's needs and the methods of treatment and rehabilitation.[27] In West et al.'s study, the CBT increased the knowledge of parents about the needs of their children with the bipolar disorder.[24]

The subscale of attitude is consisted of beliefs and feelings held by the parents.[21] In this research, comparing the differences between the means of the attitude change indicated a statistically significant difference between the groups. Group therapy could generate opportunities for the expression of feelings by the members of the group, sharing their experiences on caring for the child with autistic disorder, and treatment and rehabilitation problems. The interactions of group members with each other and supervision and guidance by the group leader motivated the mothers to learn suitable ways for dealing with their child's growth and development. These are the behaviors through which parents display their empowerment.[21]

Our results showed that group therapy caused significant changes in the way mothers presented their behaviors. In Samadi et al.'s study, a family-centered short course improved the function of families with children suffering from autistic disorder.[29] In 2015, another intervention with a group arrangement to empower some families of children with thalassemia changed the family's attitudes toward thalassemia, empowered them for taking care of their children, improved their inter-family communication and attachment, and enhanced trust in themselves for managing the caring needs of family members. It also helped bring a balance in the family needs and the way they used to meet their needs.[30]

The participants in this study were the mothers of children with autistic disorder. Obviously, our findings cannot be generalized to all members of the family. Therefore, a similar study with the other members of the family is suggested. Also, considering the fact that the follow up in this study was conducted for two months after the intervention, investigations with longer periods of follow up are suggested.

Conclusion

This study showed that group therapy with a cognitive approach empowered the mothers of children with autistic disorder. It also developed their knowledge, attitude, and behavior regarding their ill child. This method can be used by healthcare professionals for the provision of care to children with autistic disorder in educational organizations and rehabilitation centers.

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Authors' Contribution

Hossein Ebrahimi conceived of the study, participated in its design and coordination, and helped draft the manuscript; Nafiseh Abdorrahmani participated in the design, performed the intervention, collected the data, and helped draft the manuscript; Ayyoub Malek participated in the design and coordination of the study; Jalil Babapour-Kheiroddin participated in the design of the study and performing the intervention, and performed the statistical analysis; Maryam Vahidi participated in the design of the study and statistical analysis and drafted the manuscript. All authors read and approved the final manuscript.

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Conflict of Interest
Authors have no conflict of interest.

Ethical Approval
This research was approved by the Regional Research Ethics Committee of Tabriz University of Medical Sciences (5/4/2736).

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