



Effect of impulse control training on depression and anxiety mother of children with developmental coordination disorders

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Original Article

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Abstract

Caring of children with psychiatric disorders have significant impact on caregivers especially mothers. So aim of this study was to investigate efficacy of impulse control training on depression and anxiety in mothers of children with developmental coordination disorders (DCD). The study is quasi-experimental by using pretest and posttest with control group. The study population consisted of mothers and children with developmental coordination disorder in rehabilitation clinics in the Hamedan city. Of these 16 participants assigned to experimental and control groups were selected by convenience sampling. Psychological evaluation includes clinical interviews, according to the American Psychological Association and DSM-V Beck Anxiety Inventory (BDI-II) and Beck Depression Inventory (BAI). Impulse control was done according to Spray treatment protocol in the experimental group with 8 sessions of 90 minutes and the control group received no training. Scores of pretest, posttest and follow-up of 3 weeks after training in both groups were analyzed. Results showed that treatment of impulse control in reducing anxiety 8.71 and depression 10.46 in experimental group was effective in comparison of control group that efficacy of this treatment was maintained during follow-up. So the treatment of impulse control has been effective in the treatment of anxiety and depression. According to results of this study and previous researches impulse control treatment program can be program of interventions for depression and anxiety disorders and can promote mental health in patients with psychiatric disorders.

Keywords: Depression, Anxiety, Developmental Coordination Disorders

Introduction

Neurodevelopment disorders (NDD) are disorders in which growth, normal development of brain and central nervous system is impaired, this disorder refers to problems in the function and nervous system that simultaneously with individual growth has been negatively affected

on person's emotion, learning ability and memory [1] Motor disorders is one of the neurological disorders which consists of children's slow motor in walking and growing skills such as sitting, crawling, and walking but their verbal skills are very good and

include: 1) developmental motor coordination disorder. 2) Stereotyped movement disorder and tic disorders [2]. Patients in skills that need to coordinate physical movements. The delay suggests that the problems causing delays in the academic success and necessary activities of life. These problems should not be due to neurological, sensory or mental impairment [3]. Children with developmental coordination disorders (DCD) show these defects neurological symptoms as involuntary reactions, clumsy or poor quality physical movements in physical work, hypertonia, weak muscle tonus means amount of muscle rigidity and consistency or muscle at rest, learning disabilities and attention deficit hyperactivity disorder [4]. Many children with this disorder pass through their growth stages well and the greatest delay in coordination skills at age 3 or 4 years show that the child is expected to perform complex motor skills [3]. Delays in motor skills such as dressing, or activities such as running and cycling fast or defects in motor planning skills will eat while walking or land happens to others doing the movements in the community creates phenomenon is stigma spread down the length of generation and much larger part of the extended family [5].

According to researches, parents of children with neurodevelopment disorders, experience more depression and anxiety in comparison to parents of children with healthy [6-8]. However, this effect varies according to the nature of disorders in children and some family variables [5]. Disorders which are acute in the beginning have different effects on family life compared with chronic diseases [4]. Since these are chronic disorders have greater impact on the mental health of family caregivers especially mothers [5]. Early treatment of these disorders can prevent risky behaviors [9]. The World Health Organization estimated that depression and anxiety are top of the list of psychological disorders and was allocated about 25% of patients referred to health centers in the world [10-11]. Statistics showed that these disorders rounded out the top four in 1990 [12] which this statistics in the past decade became the second

common psychological disorders that nearly 121 million people suffer it in the world that in 2010 depression was the second most costly disease [11] and anxiety was costly treatments in 2013 among all psychiatric diseases [3].

The data showed that the mood disorders start in situation in which happened a pretty big change in human life [12] and birth of child is most important change in the couple's life that is along with high anxiety and excitement and parents are often blamed for their children's disease and deliberately were excluded from the therapy plan [13].

Women exposed in two large groups of stress, means stress caused by biological identity and the stress of professional responsibilities. Reproductive action is stress symptoms in women and the other sources of stress in women are professional responsibilities and housework which are care of the elderly and children with special needs Khodayari [14] and the prevalence of mild depression that caused by depression and anxiety in women is more than men that is manifested in children in many ways, such as visiting multiple doctors and authoritarian parenting style [15] which could be for this reason that there is positive relationship between occurrence negative stress and onset of depression and about 20 to 50% of people who experience severe stress suffer from depression [11].

Anxiety disorders are the most common psychiatric disorders in the general populations [16]. According to the World Health Organization, around 100 million Europeans [15] and 19 million Americans suffer from this disorder [17], that prevalence of this disorder in women is twice than men [1]. About 30 to 40% of people at some stage in their life suffer from disorders that are associated with anxiety [2]. As a result, Resulting anxiety disorders are heavy burden for society and individual and it takes more time than other mental health problems and may be paralyzed as a physical disease [18]. According to the survey in Iran, it indicated that between 11.9 and 23.8% spectrum of these disorders are varied and is one of the

most common disorders in Iran as the most global studies [19].

According to the above, depression and anxiety disorders are increasing and the extent of this disorder has caused numerous treatments including pharmacotherapy and psychotherapy has been presented and evaluated it. Nevertheless, although that research supporting the efficacy of existing therapies, the efficacy, relative, and there is still no treatment that can be attributed solution to the treatment of these disorders [20]. On the one hand, it has numerous side effects of drug therapy [21] and high costs [3] on the other hand, despite the fact that much psychotherapy are effective for the treatment of mood disorders, it is still faced with high levels of anxiety and depression relapse [22].

In fact, while in the treatment of disorders, the aim should be complete healing, many patients fail to achieve or keep without indication [23] or show their problems in different ways such as physical disorders and the presence of residual symptoms of this disorder, even in patients who show complete recovery is common. The residual symptoms are strong predictor of relapse. The rate of recurrence in patients with residual symptoms is three to six times greater in patients who are without symptoms [24].

These results referred inadequate of current treatments and need for more effective treatments for these disorders. Impulse control training is one of those treatments of mood disorders disorders that can be semi anxiety and depression and doesn't have been of researchers' interest.

Impulse control training is kind of the cognitive behavioral intervention and also is an intervention that was created by Spray with aim of Identification of impulsive motives, delay and ultimately reducing cravings and involuntary for action [25]. This study by accepting and providing field of mothers' understanding and awareness and accepting the pain due of negative and destructive emotions and familiar with understanding the thoughts and feelings that cause impulsive and self-destruct behaviors helped to reduce negative emotions and

internalized depression of mothers externalize after frustration birth of child with psychiatric disorders and feeling of inadequacy and guilt and anxiety about the future drawn into the present and would be reduce by examining the thoughts, feelings and explaining and identifying coping responses which were internal and external and lead to conflict .

Goldstein and Goldstein [26] believe that frequently unstable is the result of the poor impulses control behavior. Studies about treatment of mood disorders field showed that this treatment is effective for mood disorders and anxiety disorders [27]. Also cognitive-behavioral interventions have effect on thoughts, cognitions, beliefs and causes its increasing [28-30]. Other researches showed that training of self-control causes to improve behavioral self-efficacy and emotional behavior [31].

In general the negative effects of mood disorders on different aspects of life, few researches about mental health of mothers with children below the threshold of mental disorders, lack of research about effects impulse control training in various fields of this disorder on human life, by using the results of this research in consulting, and healthcare environments to provide context for further research are the reasons for this research. This study sought to answer this question whether training of impulse control is effective to improve anxiety and depression disorders in mothers of children with developmental coordination disorder?

Method

The present study is quasi-experimental by using pretest and posttest with control group. The study population consisted of mothers and children with developmental coordination disorder who referred to mentally and physically therapy clinics, physician, neurologist and psychiatrist clinics in the Hamedan city, Iran, that by identifying and satisfying mothers and briefing on group (which included objective evaluation) among those who were willing to participate

in intervention and also qualified individuals were invited in the experimental group (gaining one standard deviation score above the mean). The sample group consisted of 16 mothers of children with developmental disorders that were selected by convenience sampling method (during five months in the clinic that after falling to 14 participants who were assigned to two groups of impulse control training and control group.

Inclusion criteria included: 1) having diagnostic criteria of the developmental coordination disorders in children. 2) At least secondary school in the mothers' education level. 3) The lack of psychological

treatment at the same time with the aim of anxiety, depression disorder treatment after satisfaction of participants. Exclusion criteria were as follows: 1) Mothers with more than one child with special needs. 2) Divorced women or widow. 3) Mothers who had outside jobs. 4) Patients who were under psychotherapy. 5) Females who are heads of households.

The method of treatment based on the model of impulse control was based on Spray's treatment Protocol [25] which were taught at 8 sessions as a group by the center clinical psychologist that had counseling with these people more than 5 months.

Table 1 *Intervention program during the 8 sessions*

Training contents according to treatment Protocol
The first training session: This meeting aimed to introducing clients with researcher and paving the way for mutual understanding and researcher's expectations expressed.
The second training session: Monitoring and evaluation of thoughts and feelings which lead to impulsive behavior and declining
The third training session: Evaluation of thoughts and feelings and explanation and introducing coping responses that are internal or external, people were asked at this stage note all of the thoughts and feelings that lead to inconsistency in them.
The fourth training session: Delaying and Opposition of impulsive responses: in this session it was taught that oppose with responses which lead to impulsive behavior.
The fifth training session: by practice and feedback, was helped to control their impulsive behaviors and provide feedbacks to achieve a reasonable level of mastery and control over their own.
The sixth training session : therapist awareness about impulsive-based behavior incentives, if motivation of self-destructive behaviors has been defined less dangerous methods can be replaced to former behaviors and very likely that would be replaced by adaptive behaviors
The seventh training session: Establishment; at this stage actual situation presented and described in classes which patients have been faced with them. Also in this phase, group feedback and reinforcement methods were used and students were asked to extend the pattern of impulse control in all of their life's stages.
The eighth session of training: Conclusion, practice and implementation of the posttest.

Regarding the purposes of this study, Beck Depression Inventory-II and the Beck's Anxiety Questionnaire were used for Anxiety.

Beck Depression Inventory-II: It is one of the best tools for depression reflection. The questionnaire contains 21 items which evaluate physical, behavioral and cognitive depression. Each item has 4 choices which determines various level of depression from mild to severe [32]. This questionnaire concerns the psychological characteristics of depression more than the physical and psychological problems. Its correlation with the Hamilton questionnaire is 75%. 21 items of Beck Depression Inventory were classified into

3 groups of emotional, cognitive and physical symptoms. The results of meta-analysis on the Beck Depression Inventory showed that the internal consistency coefficient was 73% to 93% with the mean of 86% and Cronbach's alpha was reported for patients 86% for the patient group and 81% for non-patient. Results in study on students of Tehran University and Allameh Tabatabai University to evaluate the second edition of reliability and validity of the Beck Depression Inventory among Iranian population showed 78% for Cronbach's alpha and 73% for test-retest interval of two weeks [33].

Beck's Anxiety Questionnaire: It had been

designed in 1998. This test consists of 21 signs and symptoms of anxiety. Participant should answer these items as; high, medium, mild, never. As these options are scored as; 0 1 2 3. In this test, the score of 0 to 23 indicates mild anxiety, Score of 24 to 28 indicates moderate anxiety and score higher than 29 indicates morbid anxiety Beck's anxiety questionnaire was translated in to Persian by Ghomri Givi and Lotfalizadeh in Iran. Its correlation coefficient test with physiological parameters was obtained %89 [33].

Impulse control training: it is intervention that aimed to identify of incentives impulse, delay and ultimately reducing cravings and involuntary for action [25]. The Data was used by using descriptive statistic (mean and frequency test and standard deviation of

depression and anxiety components) and mixed ANOVA.

Results

Totally, 16 participants among mothers of children with developmental coordination disorders who have been studied in mental work therapy clinics, neurology specialist and psychiatrist which were reduced to 14 participants (each group 7 has patients) after the loss in treatment process Characteristics of subjects were evaluated in terms of education, employment status. Mean age of mothers in intervention was 32-41 that mean in experimental group was 34.73 ± 3.02 years and in control group was 35.13 ± 3.42 years and their children's age were 4 to 12 years.

Table 2 Comparison of the frequency groups separately disorders in children, education level, and occupation, number of children, mothers and fathers

	The treatment group factor	Impulse control		Control group	
		Frequency	Percent	Frequency	Percent
Diagnosis of children	Cerebral palsy	4	57.15	5	71.43
	Clumsy	1	14.28	0	0
	Dyspraxia	2	28.57	2	28.57
Children's needs in the clinic	Occupational therapy and physiotherapy in clinics	7	100	7	100
	Speech Therapy	7	100	6	85.72
Education	Under Diploma (high school)	4	57.15	5	71.43
	Diploma	1	14.28	1	14.28
	Associate degree	2	28.57	0	0
	Bachelor's Degree or higher	0	0	1	14.28
Mother's job	House wife	4	57.15	4	57.15
	House works	2	14.28	3	42.85
	Office worker	1	28.57	0	0
Father's job	Unemployed	2	14.28	3	42.85
	Non-governmental	4	57.15	3	42.85
	Employee	1	28.57	1	28.57

In this study, descriptive statistics mean and standard deviation frequency test for components of depression and anxiety in the pretest, posttest, and follow-up was used (Table 3).

According to Table 3, it can be concluded that anxiety and depression in the experimental group has been reduced after the intervention, training and treatment of impulse control (In the experimental group after the intervention of

anxiety and depression was reduced moderate to mild levels) and during follow-up (3 weeks) after treatment, anxiety and depression scores remained fairly stable compared to the posttest changes, but this situation in pretest and posttest scores for control group was almost same and no changes has been occurred. However, significant differences in these variables require the application of appropriate

tests. Mixed analysis of variance was used to evaluate efficacy of research on depression

scores in three pretest, posttest and follow-up which results are presented in Table 4.

Table 3 The mean and standard deviation component of depression and anxiety in the pretest, posttest and follow-up (3 weeks)

	Test group						Control group					
	Pretest		Posttest		Follow-up		Pretest		Follow-up		Posttest	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Depression	25.65	2.53	15.71	3.12	24.42	3.02	24.42	3.45	24.82	3.32	23.92	3.12
Anxiety	22.05	3.04	13.53	3.03	23.52	3.25	23.52	3.63	24.07	3.71	24.62	3.45

Table 4 Results of mixed analysis of variance to evaluate effectiveness of research on depression scores in three pretest, posttest and follow-up Statistical

Indicators of changes		Total squares	df	Squares mean	f	Sig.	Squares	Power
Test		67.28	2	33.64	19.09	0.00	0.56	0.84
Group×test	Depression	52.81	2	26.405	16.57	0.00	0.48	0.76
Error		54.39	18	3.022				
Test		58.12	2	29.06	17.62	0.00	0.43	0.78
Group×test	Anxiety	49.21	2	24.605	13.48	0.00	0.31	0.73
Error		61.74	18	3.43				

As Table 4, differences between two groups of experimental and control, on the pretest, posttest and follow-up in depression is significant. Thus according to Table 3 it can be said that, this intervention resulted in a significant reduction in depression in the experimental group compared to the control group. Scores of experimental group in pretest, posttest and follow-up were (15.19,15.71,25.65) and in control group are (23.92,24.82,24.42) that in experimental group has reduced to 10.46. In anxiety, differences between two groups-experimental and control–in pretest, posttest, follow-up were significant. Scores of pretest, posttest and follow-up are 13.34, 13.54, 22.05 and in control group are 24.62, 24.07, 23.52 that it reduced to 8.79 in experimental group. So according to Table 4, it can be said that this intervention resulted in a significant reduction in anxiety in the experimental group compared to the control group.

Discussion

Aim of this study was to investigate efficacy of impulse control training on depression and anxiety in mothers of children with developmental coordination disorders (DCD). The results of current research showed that training impulse

control caused reducing level of anxiety and depression symptoms in comparison of control group. The therapeutic principle of this technique is a form of cognitive-behavioral interventions [25]. Mindfulness is in thoughts, feelings and behavior that had made up to reduce emotional suffering caused by the difficulties of life that is beyond the capacity of individual coping and since mood disorders that begins in case which happens big difference in people's life [12]. One's own thoughts and feelings involved in their daily lives and long-term abnormal reactions that raises problematic and hard to involve participants clinicians in the treatment of skills, knowledge, thoughts and feelings, coping responses, internal or external, maladaptive thoughts and feelings, skills, responses to deal with unexpected delay, bring participants to the reasonable level of mastery and control with empathy and understanding and balance training group and the patient will be asked different solutions to achieve the best solutions to be reminded of a sudden reaction. In reaction the client, without the skills necessary to react in a way is more creative. This is one of the reasons that impulse control has been effective in reducing emotional disorders in this study. This result

is consistent with Spray's research [25] that the treatment of cognitive behavioral therapy is one of the most important and half in patients with clinical disorders (psychological disorders that people suffer it in period of their life) is effective on the mental health influence. Newman Vidiom and Nathan's research [34] showed that impulse control training skills were effective in problem-solving skills and enhances life skills. Mueller, Bart and Dugerty [35] in this study showed that other impulsive control training are effective on sudden behavior, mood disorders and other disorders [26].

Goldstein and Goldstein [26] showed that impulse control training has key role in decreasing behavioral and anxiety disorders which the efficacy of this treatment can cause changes in thoughts and feelings and acceptance. The most important ability of the training to clients is that this training let participants to delay emotions and finally train reduction of severe and involuntary tendency to do and brought back the anxiety about future to the present by examining thoughts and feelings and to identifying and explain the inner and outer coping responses and leads to reduction of inconsistent.

Pooshanha and colleagues also showed efficacy of impulse control training at unsteady behaviors and sudden impulses, depression and anxiety disorders which this effect had remained in follow-up period. This study by accepting and providing understanding and accepting of mothers and accepting pain of negative emotions and introduction to understanding the thoughts and feelings that leads to self-destructive behavior and impulsive and has helped to reduce negative emotions and externalize the insidious depression.

The studies of Najami, Ramsi and Rosan and Biderman and colleagues showed the efficacy of this treatment on beliefs of those sudden and risky behaviors and suggested that this treatment is effective in chronic and persistent disorders over time and train accepting skills, change and problem solving to patients and families with chronic patients and is preserved in follow-up period. Mothers of children with ADHD are highly sensitive to any reaction which this treatment

is not only to train parenting to mothers and respond to child but also it's effective in other social situations. Because these mothers due to lack of problem solving attitude and stigma of society and social environments in which they are expected to find an elusive presence and solitary and the efficacy of this study is that mothers of children with Developmental Coordination Disorder done that to a large extent been neglected and professionals in the centers focus on children's disorders to children and families. Limitation of this study was that the pretest was conducted in the first week after admission that the patient's clinical condition were not good so it's likely that effect the element of time to pretest anxiety and depression scores is shown higher than it is. Since the factors of causes of mood disorders in mothers (Such as the exclusion of the spouse, frustration, guilt and weakness), may be different so it's recommended for future researches in addition to the above limitation, this way would be used in families of mental and physical and other mood disorders.

Conclusion

This study showed that anxiety and depression in mothers of children with developmental coordination disorder are high and mothers' mental health were low and the treatment of impulse control has reduced the severity of symptoms of depression and anxiety.

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Contribution

Study design: NZ, SZ

Data collection and analysis: NZ, HJ

Manuscript preparation: NZ, ZA

Conflict of Interest

"The author declares that they have no competing interests."

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