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Efficacy of Dialecticalical Behavior Therapy (DBT) Techniques on Improving Cognitive Emotion Regulation Strategies in Women with MS

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Abstract: Today, dialectical behavior therapy is being applied as an effective method for treatment and improvement of many emotional disorders and problems. Hence, the present study is aimed in investigation of effect of dialectical behavior therapy (through assessment of the impact of components of mindfulness, distress tolerance, emotion regulation and interpersonal efficiency) on improving cognitive emotion regulation strategies in women with MS. Applied method in this study is semi-empirical method. Statistical population of the study consists of women with MS referred to AS Association of Sari. Out of the women, 80 women were qualified to participate in this study. Inclusion criteria have been Lack of receiving both pharmacological and nonpharmacological treatment (psychotherapy) in the field of cognitive emotion regulation at the time of study, at least 2 years of diagnosis of MS, literacy at least in the eighth grade and readiness to participate in the study. The individuals fulfilled cognitive emotion regulation questionnaire and out of those individuals with low score, 20 individuals were selected using simple random sampling and were divided to two experimental and control groups. Experimental group was under interference of dialectical behavior therapy for 6 weeks in group form and control group was in waiting list. Both groups fulfilled Cognitive Emotion Regulation Questionnaire (CERQ) in base stage and session 6 and at the end of therapy. For purpose of data analysis, SPSS Software has been applied and data analysis is done using covariance analysis test. Obtained results from the study demonstrate that dialectical behavior therapy can improve negative cognitive emotion regulation strategies significantly (0.000); although, it has no significant effect on improvement of positive cognitive emotion regulation strategies in patients with MS. Obtained results show that dialectical behavior therapy can improve negative cognitive emotion regulation strategies in patients with MS.

Key words: Multiple Sclerosis (MS), dialectical behavior therapy, cognitive emotion regulation strategies, dialectical, (CERQ)

INTRODUCTION

One of the chronic diseases is Multiple Sclerosis (MS) which is mainly emerged in youths in early adulthood. The reason for this disease is unknown and there is no absolute treatment for it. However, the new hypothesis presented today about etiological origin of MS refers to cerebrospinal venous insufficiency. Destruction of neural tissue and white matter of brain can lead to cognitive disorder. The process is called as destruction of myelin sheath (Motl *et al*., 2009). The disease is mainly emerged in adults of 15-50 years old and is one of the most common disorders in early days of adulthood and the ratio of the disease in women is 2 or 3 times more than men (Bol *et al*., 2009). The most common problem with MS patients is health and mental impairment and depression. Depression may be resulted from organ or non-organ damage of brain. Sometimes, differentiation of depression and fatigue from each other is hardly possible (Kraft and Marseille, 2008).

Cognitive emotion regulation includes use of behavioral and cognitive strategies to change the intensity and duration or persistence of emotional experience (Gross and Thompson, 2007). Effective emotion regulation needs some skills such as being aware of emotions and accepting them (Gratz and Tull, 2010). Studies have demonstrated that people use different emotion regulation strategies under stressful conditions to modify or adjust their emotional experience (Troy, 2012; Aldao *et al*., 2010). One of the most common strategies is emotion regulation using cognitive strategies. Cognitions or cognitive processes help people to regulate their

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emotions and feelings and to be powerful against intensity of their emotions (Hasani, 2010). Recent theories and research results have significant emphasis on role of disorders related to emotion regulation in emergence and Etiology of depressive disorders and other forms of psychopathology (Alavi *et al*., 2011).

One of the innovations in regard with psychological treatment considering emotion regulation skills is Dialectical Behavior Therapy (DBT) (Babaei *et al*., 2012). Dialectical Behavior Therapy (DBT) is one of the modern treatment approaches with high effect on treatment-resistant disorders and has also a hopeful effect on depression (Alavi *et al*., 2011). The strategy combines interferences related to cognitive behavior therapy on basis of principle of change with teachings and techniques of oriental philosophy of mind based on principle of acceptance and present 4 interference components in its treatment method: mindfulness and distress tolerance as acceptance component and emotion regulation and interpersonal effectiveness as change components (Asmand *et al*., 2015). DBT is in fact the way to change and modify cognitive behavioral treatment strategy (Meigouni, 2011). In this regard, client-centered acceptance and empathy has been combined to behavioral-cognitive problem solving and social skill training and has been applied (DiGiorgio *et al*., 2010).

DBT in group can lead to systematic acceptance of emotions and behavior and ability to control impulses and emotional awareness. Steil *et al*. (2011) have conducted a study to investigate effect of dialectical psychotherapy designed for Post-traumatic stress disorder resulted from sexual abuse in childhood of 29 women with PTSD and other disorders (Abedi *et al*., 2012).

Babaei *et al*. (2012) have found that training emotion regulation skill based on DBT can be effective in field of treatment and prevention of return of drug abuse. Van Dijk *et al*. (2013) has found in a controlled case study that training DBT skills can decrease risky and self-traumatic behaviors. Zarbakhsh and Dorghandian have shown in a study that DBT in group can affect cognitive emotion regulation of patients with MS.

According to the effect of DBT on improvement of cognitive emotion regulation and mental disorders such as depression and anxiety, the present study is aimed in investigation of the effect of dialectical behavior therapy techniques on improving cognitive emotion regulation strategies of women with MS.

MATERIALS AND METHODS

This study is conducted using semi-empirical method and the research design is in form of two experimental and control groups in 3 steps of pre and post steps. Statistical population consists of all women with MS under treatment of MS Association of Sari City Iran by 2015. Firstly, out of qualified individuals with inclusion criteria, 80 people announced their preparation to participate in the study and fulfilled Cognitive Emotion Regulation Questionnaire (CERQ). Out of the individuals, 35 people had low scores and out of them, 20 people were selected using simple random sampling method and were divided to two experimental and control groups with 10 people in each group. Before implementation of interference, the participants were ensured about privacy of their information and they were asked to go out of the study whenever they were uninterested to participate in the study. Inclusion criteria of the study are lack of receiving both pharmacological and nonpharmacological treatment (psychotherapy) in the field of cognitive emotion regulation at the time of study; at least 2 years of diagnosis of MS; literacy at least in the eighth grade and readiness to participate in the study. Exclusion criteria included lack of using alcohol and drugs, lack of psychological disorders and lack of consuming psychiatric drugs.

Experimental group was under interference of DBT in 12 sessions and during 6 weeks in group (2 sessions per week and each session with 1 h and a half to 2 h) and control group was in waiting list. Both groups fulfilled Cognitive Emotion Regulation Questionnaire (CERQ) in base step and session 6 and last session (session 12) of the treatment. For purpose of data analysis, SPSS22 Software is applied and data analysis was done using covariance analysis test.

Instrument Cognitive Emotion Regulation Questionnaire (CERQ): CERQ has been designed by Garnefski *et al*. (2001) in Netherlands and two English and Dutch versions. CERQ is a multidimensional questionnaire applied to identify Cognitive coping strategies of individuals after negative experiences. Despite to other coping questionnaires that consider no difference between individual thoughts and real actions clearly, the questionnaire evaluates thoughts of individuals after a negative experience or traumatic events. The instrument is a self-report instrument with 36 items. Implementation of the questionnaire is very easy and can be applied for people over 12 years old (both normal and clinical groups). CERQ has stable empirical and theoretical base and is formed of 9 subscales. The mentioned subscales include self-blame cognitive strategy; acceptance; rumination; positive refocusing; refocus on planning; positive re-evaluation; inattentiveness; disaster pretending and other-blame. Score range of the scale is

from 1 (almost never) to 5 (almost always). Each subscale includes 4 options. Total score of each subscale is obtained through addition summation of scores of the items. Hence, score range of each subscale is to 4-20. High scores in each subscale refer to more use of the mentioned strategy to cope with stressful and negative events (Garnefski *et al*., 2001). Moreover, the scale has a 18-item form in which two items are considered for each subscale.

Persian version of CERQ has been validated by Besharat (2009) in Iran. In study of Besharat, psychometric properties of the form are reported including the internal consistency, test-retest reliability, content validity, convergent validity and discriminant validity are reported in favorable level. Moreover, Besharat (2009) has adopted a preliminary investigation on psychometric properties of the questionnaire in a general population (n = 368, 197 women and 171 men) and has reported Cronbach alpha for subscales from 67-89%. Correlation coefficients between scores of some participants in the study (43 women and 36 men) have been estimated in two stages with the interval of 2-4 weeks for subscales of the questionnaire from r = 57-r = 76%.

Obtained results from the study by Hassani (2010) have demonstrated that 9 subscales of Persian version of CERQ have good internal consistency and Crnbach alpha range is obtained from 76-92%. Score of items and total score of adaptive and maladaptive subscales were correlated significantly (r = 46-r = 75%) and value of retest correlation coefficient (51-77%) showed durability of the scale.

Training package: Training package has been derived from dialectical behavior therapy book by McKay *et al*. (2007).

Session 1: Distress tolerance: Welcoming and introducing the therapist and group members. Rules of the group (privacy and confidentiality, homework, pretest), conceptualization of problem and required goals were explained to prepare referees of distraction skill.

Session 2: Distress tolerance: assessment of tasks of last session and presentation of self-relaxation using 5 senses (sight, smell, hearing, taste and touch) and positive self-expression techniques and homework.

Session 3: Distress tolerance: review of homework of last session, conscious breathing and relaxation exercises and giving homework.

Session 4: Mindfulness: checking homework and training skills of what (to observe, describe and participate) and how (not to judge, be mindfulness and be effective), concentration of an object, concentration on a moment, 3 min record of thoughts and giving homework.

Session 5: Mindfulness: checking homework of last session and explanation of concept of fundamental acceptance, avoid negative judgments and paying attention to initiator mind and giving homework.

Session 6: Mindfulness: checking homework of last session, judgment non-fusion practice; category light practice; internal-external focus practice; I sentences along with awareness and giving homework.

Session 7: Emotion regulation: checking homework of last session; explanation of (what is emotion and what components it has); training pattern of identification of experienced emotions in current moment and labeling them that can lead to increase in ability to control emotions (emotion record); identification of barriers against changing emotions; reduction of vulnerability against emotional mind (presenting solutions fitted to conditions of MS) and giving homework.

Session 8: Emotion regulation: checking homework of last session; consistency of thought and emotion; description of emotions, gentile smile technique, reducing the vulnerability of the excitement by following a healthy lifestyle and giving homework.

Session 9: Emotion regulation: checking homework of last session, increase in positive emotions, conscious breathing and training expression of emotions in a healthy manner (emotional discharge and self-relaxation) and giving homework.

Session 10: Interpersonal efficiency: checking homework of last session, explaining importance of interpersonal relations, explanation of importance of awareness in interpersonal relations, describe the communication style (aggressive or passive) key interpersonal skills; barriers to the use of interpersonal skills (old habits, turbulent emotions, fear, inability to identify needs with abusive 8relationships; homework: completing worksheets communication styles; practice to determine adjustment between what you want or what other want; practice of identification of interpersonal values; conflict registration practice; risk assessment practice and planning practice for risk-taking and giving homework.

Session 11: Interpersonal efficiency: checking homework of last session; describe concept of assertiveness and its necessity; describe listening to assertiveness

listening and barriers to listening; describe necessity of self-knowledge to achieve effective relationship; training anger control principles; training principles of solving conflicts and giving homework.

Session 12: Summary and an overview of what was said at the sessions.

RESULTS AND DISCUSSION

According to Table 1, 55% of respondents were in age range of 20-30 years old (most frequency) and 10% of the respondents were in age range of 40-50 years old (least frequency). Also, most frequency in terms of education level has been related to diploma to 40% and least frequency has been related to below diploma to 5%. Moreover, married individual formed 65% of respondents and single individuals formed 35% of the participants.

According to Table 2, it could be observed that mean values of posttest of positive emotion regulation strategies in experimental group are more than mean values of pretest and in control group, mean values of posttest have been decreased a little.

According to Table 3, it could be found that estimated t-value for pretest of two control and experimental group for positive and negative strategies with df of 18 and in confidence level of 95% has p-value more than $\alpha = 0.05$. Therefore, there is no significant difference between experimental and control groups in terms of mean values of pretest and posttest of variables inserted in Table 3 (positive and negative strategies) and both groups are same for these variables.

In order to determine effect of dialectical behavior therapy in group on enhancement of positive cognitive emotion regulation strategies in women with MS, covariance test is applied. In this test, the aim by parameter is group (control and experimental) and the aim by covariance parameter (assistant parameter) is pretest value. In covariance analysis, dependent variable is post-test interval score and independent variables include two-level deductive variable of group (control and experimental) and covariance variable is formed by pretest interval variable.

In Table 4, it has been found that group factor ($F = 4.194$) has $p = 0.056$ that is more than $\alpha = 0.05$. Hence, it could be found that the difference of increase in positive cognitive emotion regulation strategies between control and experimental group is not significant. In other words, dialectical behavior therapy in group can't lead to enhancement of positive cognitive emotion regulation strategies in women with MS. Modified R value (0.4) indicates that 40% of variance f dependent variable (posttest positive cognitive emotion regulation strategies) could be discriminated by group and pretest and remained variance (60%) could be discriminated by other unknown factors.

In order to determine effect of group DBT on enhancement of negative emotion regulation strategies in women with MS, covariance test is applied.

In Table 5, it has been found that group factor ($F = 238.952$) has $p = 0.000$ that is more than $\alpha = 0.05$. Hence, it could be found that the difference of decrease in negative cognitive emotion regulation strategies between control and experimental group is not significant. In other words, dialectical behavior therapy in group can't lead to reduction of negative cognitive emotion regulation strategies in women with MS. Modified R value (0.952) indicates that 95.2% of variance f dependent variable (posttest negative cognitive emotion regulation strategies) could be discriminated by group and pretest and remained variance (4.8%) could be discriminated by other unknown factors.

Obtained results from the study show that Dialectical Behavior Therapy (DBT) in group can improve negative cognitive emotion regulation strategies of women with MS. The results have been in consistence with findings of Zarbakhsh and Dorghandian based on effectiveness of DBT in group on cognitive emotion regulation in patients with MS and with findings by Babaei *et al.* (2012) based on effect of training DBT skills on prevention of return of drug abuse and with results by Van Dijk *et al.* (2013) based on effect of training DBT skills on reduction of risky and self-damage behavior and with findings by Kroger *et al.* (2010) on effect of DBT on reduction of impulsion, self-damage, improvement of emotion regulation and mood and emotional problems (such as depression, anxiety, emotional lability and irritability) and with findings by Choudhary and Thapa (2012) based on effect of DBT on reduction of inefficient behaviors. Also, the results of this study have been in consistence with findings by Soler *et al.* (2009) on people with personality disorder which demonstrated that people attending DBT sessions left the treatment less than others (34.5 compared to 63.5) and considerable improvement was observed in field of mood and emotional problems such as depression, anxiety, anger, emotional lability and irritability.

Second finding of this study showed that DBT in group can't enhance positive cognitive emotion regulation strategies in women with MS. This result has not been in consistence with findings by Van Dijk *et al.* (2013), Kroger *et al.* (2010) and Soler *et al.* (2009). The result may be resulted from this issue that DBT techniques are mainly focused on negative emotions and inefficient

Table 1: Demographic information of respondents

	Age rage			Education					Marital status	
Index	20-30	30-40	40-50	MA	BA	Post-diploma	diploma	Below diploma	Married	Single
Frequency	11	7	2	3	5	3	8	1	13	7
Percent	55	35	10	15	25	15	40	5	65	35

Table 2: Comparing statistical indices of pretest and posttest value of positive emotion regulation strategies for both groups

Groups	Test	Mean	SD	Min.	Max.
Experimental	Pretest	56.6	16.91	35	80
	Posttest	67	11.38	46	88
Control	Pretest	56.5	17.08	34	79
	Posttest	56.2	17.03	33	80

Table 3: Statistics of independent t-test for pretest values of variables of both groups

Variable	Index group	Mean	SD	N	df	t-values	Sig.
Positive emotion regulation strategies	Experimental	56.6	16.9	10	18	0.013	0.99
	Control	56.6	17.08	10			
Negative emotion regulation strategies	Experimental	40.5	7.6	10	18	0.564	0.58
	Control	38.5	8.24	10			

Table 4: Interactive effects (dependent variable: posttest positive cognitive emotion regulation strategies)

Sources	Sum of squares	df	Mean squares	F-values	Sig.
Pretest	1436.706	1	1536.706	10.434	0.005
Group	577.531	1	577.531	4.194	0.056
Error	313.714	17	137.7		
Total	80252	20			

$R^2 = 0.436$ (Adjusted $R^2 = 0.4$)

Table 5: Interactive effects (dependent variable of posttest negative cognitive emotion regulation strategies)

Sources	Sum of squares	df	Mean squares	F-values	Sig.
Pretest	715.385	1	715.385	185.329	0.000
Group	920.882	1	920.882	238.952	0.000
Error	65.515	17	3.854		
Total	22573	20			

$R^2 = 0.957$ (Adjusted $R^2 = 0.952$)

behaviors. On the other hand, studied women are probably competent to positive emotion regulation strategies or preferred to adjust and control inefficient emotions first of all.

CONCLUSION

In general, it could be mentioned that dialectical behavior therapy can affect negative cognitive emotion regulation strategies more than enhancement of positive emotion regulation strategies. Hence, the techniques can be used to meet problems of patients in field of emotion regulation.

LIMITATION

Small size of sample, lack of people with different age groups and literacy are main limitations of this study.

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