AMHSR ORIGINAL ARTICLE

Effectiveness of Metacognitive Therapy in Reducing psychological and MetaCognitive factors in Patients with Major Depressive Disorder in a Military Hospital

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ABSTRACT

Purpose: To investigate the effectiveness of metacognitive therapy in patients with major depressive disorder. The population of this study included all patients admitted to the Army Hospital No. 520 diagnosed with major depressive disorder from which 30 individuals were selected by using random sampling into experimental and control groups (n = 15 experimental and n = 15 control).

Materials and Methods: The research method was a quasi-experimental design in which pre-test andpost-test with control group design was used. The instrument consists of metacognitive therapy, Beck Depression Inventory (BDI-II) and the Metacognition Questionnaire (MCQ-30). Data were analyzed with inferential statistics methods including *t*-test for independent groups and analysis of covariance.

Results: Results in this study showed that meta-cognitive therapy reduces emotional symptoms (sadness, frustration, guilt, self-loathing, crying, restlessness, social withdrawal and irritability), cognitive symptoms (pessimism, expectation of failure, feeling of punishment, self-accusation, suicidal thoughts, indecisiveness, worthlessness, and difficulty in concentration), physical symptoms (disability, change in sleep patterns, fatigue, change in appetite and sexual interest) and metacognitive beliefs.

Conclusion: This study showed that metacognitive therapy is an effective method in reducing symptoms of major depressive disorder and should be considered within the treatment of the aforementioned disorder.

Keywords: depressive disorder, major; therapy; psychotherapy, group; methods; cognitive therapy; adult; humans.

AMHSR 2015;13:112-118
www.journals.ajaums.ac.ir

INTRODUCION

The term "depression" is used for various purposes like describing mood states or a concept in classification of mental disorders. Mood is a pervasive and sustained emotional disposition that is experienced internally and affects the individual's behavior and understanding of the world.[1] Greist and Jefferson suggested that when we diagnose the disease as a depression, we mean a durable enough disorder with specific signs and symptoms which have bad effect on the person's performance, creates confusion or consists of both of them.[2] depressive disorders are a group of mental disorders whose patients have depression without mania, having different intensity, such as major depressive disorder and dysthymic disorder.[1] It

can be said that the exact depressive mechanisms have not been explored yet. But overall, as some specific reasons for depression the following items can be mentioned: genetic factors, biological factors, environmental factors (psycho–social), life events and environmental stress, personality factors, learned factors, negative thinking and consuming drugs. Since many factors can lead to depression, there are various therapies for depression.[2] Yoonesi and Rahimian Boogar state about psychological therapies: "Despite various therapies for most mental disorders, meta-analyzes show that still a significant number of patients with these disorders don't respond to these therapies or show modest improvements.[3] In order for a therapy to be more widely available, it is necessary to be simpler and less annoying in addition to be in a short term and yetdoesn't require great expertise. One of these altered and relatively new techniques is Metacognitive Therapy (MCT). MCT is a treatment that is readily available everywhere for patients.[4] MCT just like the cognitive-behavioral model, believes that a psychological disorder is the result of distorted thinking; however, these two approaches have different explanations about the nature and causes of distorted thinking. MCT states that psychological disorders are the product of metacognitive schemas which are consistent with the thoughts and beliefs that cognitive-behavioral therapy (CBT) emphasizes on.[5]

MCT is a new emerging approach whose effectiveness has been investigated in many scientific studies. Among them, Andooz in a study stated that the therapeutic approach based on Wells' metacognitive model was effective in the treatment of obsessive–compulsive disorder.Also the rates of depression, anxiety and stress decreased in patients.[6] In a randomized trial, metacognitive therapy was compared with applied relaxation in the treatment of patients with generalized anxiety disorder.[7] Results showed that metacognitive therapy was superior to appliedrelaxation in making improvements in anxiety, worry and negative metacognitive beliefs. Wells and colleagues, in an open clinical trial on patients with chronic Post-traumatic Stress Disorder (PTSD), treated 12 patients in an average of 8.5 sessions.[7] In these patients, duration of PTSD, ranged from 6 to 39 months. Substantial and statistically significant improvement was found in symptoms of post-traumatic stress, anxiety and depression.[7] Wells and King in an open trial treated patients with generalized anxiety disorder according to DSM-IV within 3 to 12 sessions, each session lasted 60-45 minutes. Using the criteria of clinically significant change in trait anxiety showed that 87% of patients were improved after treatment and all patients met the criteria of significant clinical improvement.[8] Simons, Schneider and colleagues studied the effectiveness of MCT on obsessive-compulsive disorder in children and adolescents.[9] All the 10 children were randomly assigned to either MCT situations or confrontation and response prevention. However, data suggest that this kind of therapy can be a useful alternative for confrontation and response prevention.[9] Wells and Sembi[10] examined six consecutive patients with PTSD according to DSM-IV by using A-B design with a follow-up of 3 and 6 months after treatment, in longer periods, 18-41 months after treatment. In all cases, treatment was associated with significant reductions in traumatic stress symptoms, anxiety and depression. Modest improvement in symptoms based on the Impacts of Events Scale (IES) was 83% and 69% in Pennsylvania Questionnaire. The metacognitive model of depression suggests that depression is made of the activation of depressive rumination and maladaptive coping behaviors in response to sad or negative thoughts.[11] Ruminants include insistence on negative thinking about the reason and meaning of sadness or depression.[12,13] Wells explains that the metacognitive model and therapy of major depressive disorder (MDD) focuses on understanding the causes of maladaptive rumination and removing this maladaptive process.[11] Rumination is the main feature of the Cognitive Attentional Syndrome (CAS) which is activated in response to negative and sad thoughts and experience of loss. Cognitive Attentional Syndrome causes persistence of sadness and negative beliefs and leads to depressive periods.[11] Although numerous studies focused on metacognitive therapy, few studies investigated the effect of this therapeutic approach on treatment of obsessive-compulsive disorder. Among the studies conducted in this field within the country, the research of Hashemi and colleagues can be pointed out.[14] Their results showed that the MCT which focuses on the control of the governing processes of cognition rather than focusing on the content of it can be effective in the treatment of patients with depression. So that the treatment caused significant changes in patient's symptoms and also significant and substantial changes in symptoms of depression, anxiety and rumination in depressed patients.[14] In the context of major depressive disorder (MDD), the results of a study have provided preliminary evidence on the effects of MCT.[7] In this study with the A-B multiple-baseline design, patients were treated within six to eight weeks of MCT sessions. In 6-month follow-up all patients meet the criterion of standard improvement in Beck Depression Inventory.[7] Wells and colleagues[7] followed the multiple-baseline

study that mentioned a few lines above by studying the effects of MCT in patients with major depressive disorder through an open trial. Therapy was accompanied with considerable improvement in symptoms of depression and anxiety that was assessed through the grading by interviewer and self-assessment scale. Treatment led to major reduction in rumination and maladaptive metacognitive beliefs. The use of formal criterion to determine significant clinical changes and improvements based on the Hamilton depression scale in samples treated showed that 75% of patients after treatment and 66% in the 6-month follow-up showed full recovery.[7] Papageorgiou and Wales[15] studied the effects of attention training in four patients with recurrent major depressive disorder. All the patients showed a significant improvement in anxiety and depression. Treatment outcomes were maintained at 3, 6 and 12 months of follow-ups after the treatment. Diagnostic screening of the 12-month follow-up revealed that none of the patients had the diagnostic criteria for major depressive disorder. According to the discussions, the research above studies the efficacy of MCT in major depressive disorder and modifying metacognitive beliefs of these individuals.[15]

MATERIALS AND METHODS

The present study is a quasi-experimental design in which pre-test – post-test with control group design was used. The population of the study consisted of all patients admitted to the Army Hospital No. 520 recognized with MDD. Thirty individuals of population were selected by using random sampling into experimental and control groups (n = 15 experimental and n = 15 control). The study was performed in all patients referring to the counseling center of the Army Hospital No. 520 in the period of the study who were self-introduced, other-introduced and referral from a psychiatrist and were measured with observation, clinical interview based on DSM-IV-TR, interviews formulation of MDD (proposed by Adrian Wells[5]) and Beck Depression Inventory (BDI-II). Finally, 30 people (patients with MDD) were randomly chosen from the mentioned population. These 30 subjects were randomly assigned to experimental and control groups with 15 people in each. The criteria for participating in the study were gaining high score (30 or above 30) in Beck Depression Inventory, a psychologist diagnosis according to the formulation of the interview, the interview based on DSM-IV-TR and lack of getting any medical treatment and psychological intervention(At least 6 months before the study began and now), not suffering from psychotic disorders, substance abuse, personality and being in the age range of 18 to 55 years old, alongside the consent of a person having at least high school graduates and observing moral codes. The control group received no intervention during the test and they were assured that after performing the treatment on the experimental group their complete the treatment will be followed up. Also 8 sessions (based on Wells model) was designed for the experimental group that were conducted in the Army Hospital No. 520 individually and twice a week. After selecting eligible patients and replacing them, they were randomly assigned into control and experimental groups. The pre-test was done afterholding the briefing session, then 8 sessions of MCT were conducted for each member of experimental group individually. The control group received no intervention at this stage. Then post-test was givento both control and experimental groups. The whole process took about 5 months of research, including Phase I: finding patients and performing pre-test, Phase II: treatment process, and Phase III: performing post-test. Given the assumptions of this study, data collected with descriptive and inferential statistical methods were analyzed. The indices of the descriptive statistics were frequency, frequency percentage, mean and standard deviation, also in the inferential statistics the assumptions have been analyzed with *t*-test for independent groups and analysis of covariance. The tools used for data analysis was Statistical Package for the Social Science (SPSS Inc, Chicago, Illinois, USA) version 19.

Data Collection Tools

Beck Depression Inventory (B.D.I-II)

This questionnaire, which has 21 questions, is a revised form of the Beck depression inventory which had been developed in 1996 to assess the severity of depression symptomsin adolescents and adults. Beck Depression Inventory is one of the most widely used psychiatric diagnostic tools. The clinical observations to describe patients are essentially composed of two states or attitudes to specify the degree of depression with a four-degree range (from 0 to 3). Dobson and Mohammadkhani have earned alpha coefficient 0/92 for outpatients and 0/93 for students and test-retest coefficient within a week was 0/93. [16] In addition, in a study performed on 125 students of Tehran University and AllamehTabatabai University to evaluate the reliability and validity of BDI_II in Iranian population, the Cronbach's alpha was 0/78 and test-retest results within two weeks was 0/73. [17]

Metacognition Questionnaire (MCQ)

MCQ is a 30 item scale which is designed by

Cartwright-Hatton and Wells and is made to measure positive and negative beliefs of an individual towards worry. Each subject answers these items in multiple-choice way (from do not agree to much agree).Metacognition questionnaire has five components including: 1-Positive beliefs about worry; 2-Cognitive trust; 3-Cognitive awareness; 4-Negative beliefs about the uncontrollability of thoughts and 5-Beliefs about need to thoughts control. Cartwright-Hatton and Wells results indicated that the questionnaire has high internal consistency (Cronbach's alpha coefficient 72.0 to 93.0) and test-retest reliability has reported 0.87over 4 months.[18] ShirinZadehand colleagues in Iran have reported the Cronbach`s Alpha 0.71 to 0.87 and the test-retest reliability within 4 weeks 0.59 to 0.83.The range of responses for each question is specified from do not agree to completely agree that respectively have grades 1 to 4.[19]

Metacognitive Therapy (MCT)

The therapeutic package (the treatment structure) of the metacognitive model of depression consists of attention training technique. In this model, the attention training technique is used as a tool to promote meta-awareness, increased flexible control and releasing cognitive resources from depressive thinking styles. In addition, using attention training techniques regularly gives an opportunity to the patient to exercise every day and in this way, confront with the apathy and immobility caused by depression. MCT also emphasizes on discontinuation of the rumination process and changing negative metacognitive beliefs. The therapeutic process usually takes between 5 to 10 sessions and includes these components: 1-Case formulation; 2-Familiarizing patients with the therapy; 3-Attention training and detachable awareness attention training; 4-Challenging negative metacognitive beliefs (uncontrollability, disease pattern); 5-Challenging positive metacognitive beliefs about rumination; 6-Elimination of remaining traumatic behaviors and changing the process of threat detection; 7-Strengthening the new applications of process and 8-Prevention of recurrence.

RESULTS

Statistical Findings

Table 1 shows the mean and standard deviation of the components of depression and metacognitive beliefs in both experimental and control groups at pre-test and post-test stages. Considering the results, the means show the effect of MCT on all variables of the study (emotional symptoms, cognitive symptoms, somatic symptoms and metacognitive beliefs).

Inferential Findings

Hypothesis 1: MCT is effective in reducing emotional symptoms of the clients.

According to **Table 2**, the conditions have significant effects on post-test scores ($P < .001$); considering the eta squared, we can say that 53% of these changes are due

Table 1. Mean and standard deviation (SD) of depressive components and metacognitive beliefs scores in control and experimental groups.

Variables	Stage	Group			
		Experimental		Control	
		Mean	SD	Mean	SD
Affective symptoms	Pre-test	7.86	3.33	6.66	2.99
	Post-test	4.80	2.04	6.80	3.02
Cognitive symptoms	Pre-test	9.60	3.15	8.86	2.38
	Post-test	5.93	2.28	8.13	2.50
Somatic symptoms	Pre-test	10.13	2.29	7.93	3.15
	Post-test	5.60	2.44	7.73	2.84
Metacognitive beliefs	Pre-test	37.86	2.72	33.40	3.99
	Post-test	27.13	4.22	32.53	3.77

Table 2. Analysis of covariance of post-test scores for emotional symptoms in experimental group.

Effect Source	SS	df	MS	F	*P* Value	Eta Square
Intercept	2.49	1	2.49	1.33	.25	0.04
Pre-test	366.12	1	136.12	72.52	.00	0.72
Condition	58.05	1	58.05	30.92	.00	0.53
Error	50.67	27	1.87	—	—	—
Total variance	1226	30	—	—	—	—

Abbreviations: SS: 58.05; df: 1; MS: 58.05 ; F: 30.92.

to the effect of MCT in experimental condition.

Hypothesis 2: MCT is effective in reducing cognitive symptoms of the clients.

According to **Table 3**, the conditions have significant effects on post-test scores ($P < .001$); considering the eta squared, we can say that 38% of the changes are due to the effect of metacognitive therapy in experimental cognition.

Hypothesis 3: MCT is effective in reducing physical symptoms of the clients.

According to **Table 4**, the conditions have significant effects on post-test scores ($P < .001$); considering the eta squared, we can say that 45% of the changes are the effect of metacognitive therapy in experimental conditions.

Hypothesis 4: MCT is effective in modification of metacognitive beliefs of the clients.

According to **Table 5**, the conditions have significant effects on post-test scores ($P < .001$); considering the eta squared, we can say that 60% of the changes are due to the effect of MCT in experimental condition.

DISCUSSION

Since the MCT in present study reduced emotional symptoms (sadness, dissatisfaction, guilt feeling, self-loathing, crying, agitation, social isolation and irritability), cognitive symptoms (pessimism, failure expectation, feeling punished, self-accusation, suicidal thoughts, indecisiveness, worthlessness, and difficulty in concentrating), somatic symptoms (low energy, changes in sleep patterns, fatigue, changes in appetite and sexual interest) and metacognitive beliefs, so it is obvious that MCT leads to this efficacy and confirms the research hypotheses. The result of this research is consistent with others[14,19-36] which can be a strong support for the effectiveness of this treatment.

According to present research findings and the results of other studies, and since MCT emphasizes on impaired thinking and shaping and continuing the emotional and affective disorders including MDD and also according to the emphasis of metacognitive model of MDD on realizing rumination reasons and removing this maladaptive process, reduction of symptoms or depression remission can be the result of removal of rumination and that is why rumination is the main feature of the cognitive attentive syndrome, which is activated in response to sad thoughts and loss of experience.

CONCLUSIONS

Since the cognitive attentive syndrome causes

Table 3. Analysis of covariance of post-test scores for cognitive symptoms in experimental group.

Effect Source	SS	df	MS	F	*P* Value	Eta Square
Intercept	5.50	1	5.50	1.80	.19	0.06
Pre-test	78.08	1	78.08	25.52	.00	0.48
Condition	51.23	1	51.23	16.75	.00	0.38
Error	82.58	27	3.05	—	—	—
Total variance	1681	30	—	—	—	—

Abbreviations: SS: 51.23; df: 1; MS: 51.23 ; F: 16.75.

Table 4. Analysis of covariance of post-test scores for physical symptoms in experimental group.

Effect Source	SS	df	MS	F	*P* Value	Eta Square
Intercept	0.77	1	0.77	0.21	.65	0.008
Pre-test	96.87	1	96.87	26.24	.00	0.49
Condition	83.86	1	83.86	22.72	.00	0.45
Error	99.66	27	3.69	—	—	—
Total variance	1564	30	—	—	—	—

Abbreviations: SS: 83.86; df: 1; MS: 83.86 ; F: 22.72.

Table 5. Analysis of covariance of post-test scores for metacognitive beliefs inexperimental group

Effect Source	SS	df	MS	F	*P* Value	Eta Square
Intercept	2.04	1	2.04	0.21	0.64	0.008
Pre-test	187.99	1	187.99	19.41	0.00	0.41
Condition	397.23	1	397.23	41.01	0.00	0.60
Error	261.47	27	9.68	—	—	—
Total variance	27369	30	—	—	—	—

Abbreviations: SS: 397.23; df: 1; MS: 397.23 ; F: 41.01.

continuation of sadness, negative beliefs and depressive periods by itself, so by removing these factors with the aid of MCT techniques, a remission is reached and the symptoms can be reduced or eliminated.

CONFLICT OF INTEREST

None declared.

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Received July 2015
Accepted August 2015