The comparison of the effectiveness of memory specificity training and behavioral activation therapy in women with treatment-resistant depression

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Original Article

Abstract

BACKGROUND: Women are about twice as likely as men to develop depression during their lifetime. Depression, as a chronic and recurrent disorder, leads to loss of academic, occupational, personal, and social performance. The aim of this study was to compare the effectiveness of memory specificity training (MEST) and behavioral activation (BA) treatment on rumination, dysfunctional attitude, and psycho-social adjustment in women with treatment-resistant depression (TRD).

METHODS: The present study was a quasi-experimental research with pre-test, post-test, and follow-up. The statistical population included all of the women with diagnosis of TRD in Rafsanjan, Iran, in 2018. 37 subjects were randomly selected and assigned to two experimental groups and one control group. Data were collected by Beck Depression Inventory (BDI), Ruminative Response Scale, Psychosocial Adjustment to Illness Scale (PAIS), and the Dysfunctional Attitude Scale (DAS). To analyze the data, multivariate analysis of covariance (MANCOVA) and SPSS software were used.

RESULTS: Both treatments (MEST and BA) had a significant effect in the improvement of symptoms compared to the control group. The MEST has been more effective in reducing depression, rumination, and dysfunctional attitude than BA therapy (P < 0.01).

CONCLUSION: This study indicates that MEST and BA treatment are effective methods for alleviation of TRD and symptoms in women.

KEYWORDS: Behavioral Activities; Women; Treatment-Resistant Depression

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Introduction

Depression is one of the leading causes of disease-related disability in women. The prevalence of depression is twice as high in women as in men and has a high comorbidity with other disease states, making depression pervasive and debilitating for women. The difference begins in early life and persists through to mid-life, and as such, these reproductive years have been labelled by some as a 'window of vulnerability'. In addition, relationships between sex hormones and the neurotransmitters purported to be responsible for depression are complex. What appears to be universally accepted is that treatment, with drugs, for low mood in women during midlife years may be beneficial, and should be

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considered.[1] 30%-50% of patients with major depressive disorder (MDD) do not respond to antidepressant medications but can response to psychological therapy.[2]

Those who have failed to have an adequate response to the routine antidepressant therapy are usually considered as patients with treatment-resistant depression (TRD),[3] which may result in psychophysiological compromise.[2] TRD is a form of severe depression.[7] Patients with TRD often fail in several treatments with standard antidepressants and have a undesirable long-term prognosis.[4]

Memory specificity training (MEST) is a therapy for depression, based on the assumption that personal memories are an important component of human experience, which not only play a key role in building a sense and identity but also an important leadership role for the future. When the personal experiences of the past are recorded, these memories provide reminders of lessons learned from the past. These reminders help people solve the same problems as they face again, and draw a plan for their future performance. The way people remember their past, whether in general or in the special form, has important implications for psychological functions. Decreasing specific memories can have a decreasing effect on depression, in addition to correlating with the problem of social problem-solving and the increasing sense of helplessness and unwanted increase in unwanted memories.[5]

Functional avoidance associated with the relative lack of exposure to distressed memories caused by a reduction in the specificity of memories, in the long run, leads to a decrease in psychological improvement.[6] In the study of Raes et al., the MEST program was used to reduce the overgeneral memory (OGM) in patients with depression. The results showed that the MEST program was successful in reducing this vulnerability and treatment of depression.[6] According to research conducted in recent years, the phenomenon of OGM or retrieval of non-specific memories is highly correlated with depression and traumatic anxiety disorders. In accordance with the Williams theoretical model, the reduction of negative specific memories due to inability to use previous experiences leads to human inefficiencies in the process of effective solution of social problems and creation of a vicious circle. Excessive dysfunction of the memory system by avoiding recalling and suppressing the recovery of negative emotional memories in the long run can exacerbate and maintain mood disorders such as depression.[7] Raes used the MEST program to reduce OGM in patients with depression, and the results showed that the MEST program was successful in reducing this known vulnerability factor and treating depression.[8]

Foroozandeh conducted a study with the aim of investigating the effect of special event memory training on the resilience and depression of depressed girls in Isfahan City, Iran. The results showed that the level of depression in the experimental group decreased significantly after the sessions were completed and the resilience scores changed in a significant manner.[9]

Symptoms of depression can be psychological, physical, and/or social. Psychological symptoms may include feelings of low mood, sadness, hopelessness, low self-esteem, feelings of guilt, irritability and intolerance, a lack of motivation or interest, difficulty in making decisions, and thoughts of self-harm or suicide. Physical symptoms include changes in sleep pattern, changes in weight and appetite, unexplained aches and pains, and a lack of energy or loss of interest in sex. Social symptoms include reduced productivity at work, avoidance of social activities and friends, and difficulty with home and family life.[10] According to definition, effective psychological therapies for depression such as cognitive-behavioral therapy (CBT), behavioral activation (BA), and

interpersonal therapies are also focused on reducing or improving these negative aspects, such as changing ineffective beliefs, identifying avoidance behaviors, and solving interpersonal problems.[11]

BA therapy is a form of behavioral therapy that is based on functional behavioral analysis and behavioral theory of depression. Based on behavioral theories, the main cause of most mental disorders, especially depression, is the avoidance of participation in individual and social activities. Individual and social avoidance can lead to an increase in the hours of being at home, inactive or passive activities, recalling and reviewing past memories, negative ruminations, loneliness, and even these processes can lead to escalating passive behaviors and signs of depression, self-criticism, low self-esteem, negative emotions as well as decrease of positive reinforcement. Behavioral viewpoints suggest that reducing positive reinforcement for healthy behaviors and increasing the negative and positive strengthening of depressed behaviors leads to depressive mood, and this leads to a reduction in useful activities and, consequently, an increase in avoidance and depressive behavior that is associated with creating a defective cycle that can increase or intensify the symptoms of depression.[11]

BA therapy is a structured treatment that enhances behaviors of the contact of a person with environmental and enhancement positive reinforcement. This process will lead to a recovery in mood, thinking, and quality of life.[12]

In an experimental effort to compare BA, cognitive therapy, and drug therapy in treating adults with major depression, the results showed that in patients with severe depression, BA similar to drug therapy leads to decreased symptoms, and both are significantly better than cognitive therapy. BA treatment as a short-term and cost-effective treatment is effective in improving the symptoms of depression and anxiety.[10]

According to the mentioned points, the purpose of this study is to compare the effectiveness of the MEST and BA therapy on women with TRD.

Methods

This was a quasi-experimental research project with pre-test, post-test, and follow-up with two experimental groups and one control group.

The research community included all of women with diagnosis of TRD in Rafsanjan, Iran, in 2018. 37 persons were selected randomly among participants and volunteers in psychotherapy and were randomly assigned to 3 groups (two experimental and one control). The MEST group participated in 4 sessions of therapy and BA group participated in 5 treatment sessions; the control group received 3 sessions of placebo.

The inclusion criteria in this research were: age range from 18 to 55 years, taking medication for at least 10 weeks and following medication instructions, and obtaining a score of at least 14 in the Beck Depression Inventory (BDI); the exclusion criteria included: people with diagnosis of bipolar disorder, psychosis, obsessive-compulsive disorder (OCD), substance abuse, and people who received psychological treatment at least in the last year. Figure 1 shows the flowdiagram of study.

In this research, three questionnaires were used which are presented below:

BDI-Second Edition (BDI-II): This scale is an overviewed form of the BDI designed to measure the severity of depression. The questionnaire consists of 21 items, which ask respondents to rank the severity of the symptoms on a scale from zero to three. The studies on BDI-II validity, reliability, and construct validity have yielded a desirable factor for this questionnaire.[13]

Dysfunctional Attitude Scale (DAS): It was developed to measure pervasive negative attitudes of a person with depression towards self, outside world, and future.
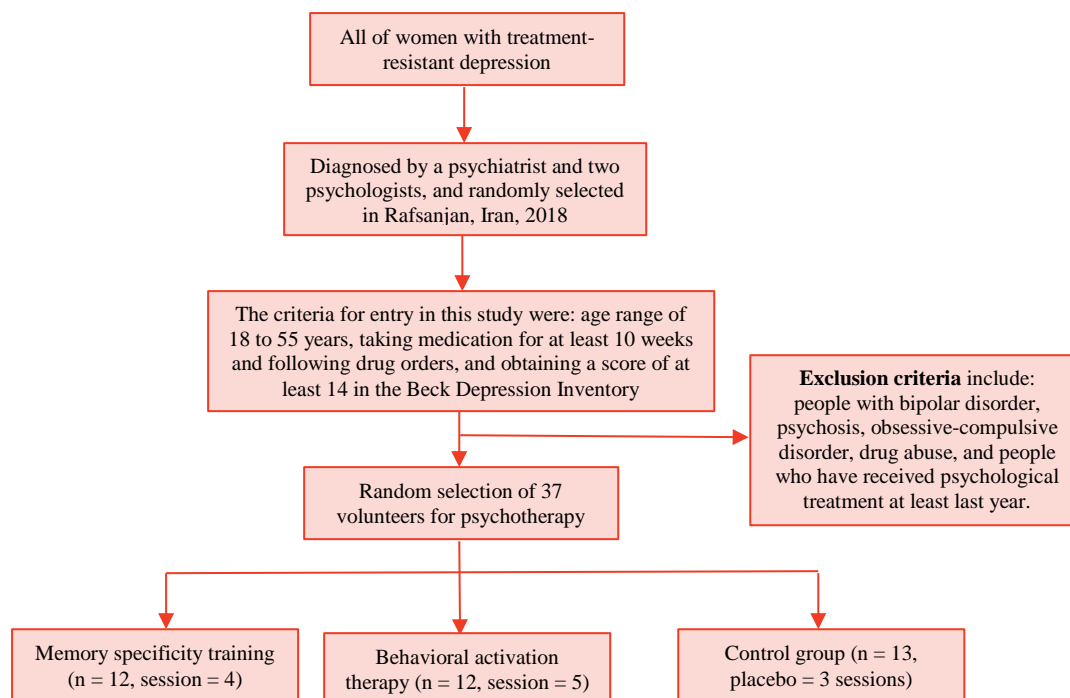
Figure 1. Flowdiagram of study

The DAS follows Beck's construct of cognitive dysfunction. This scale has 40 questions in the Likert scale of 7 options. Validity of this scale was reported for whole questionnaire as 0.71 and Cronbach's alpha coefficient was 0.93.[14]

Psychosocial Adjustment to Illness Scale (PAIS): This questionnaire includes 46 questions, which are based on a four-degree scale (0-3), including seven areas of health care orientation, occupational environment, home environment, sex, extended family relationships, social environment, and psychological distress. In the original reliability study, Cronbach's alpha for each of the sub-scales was reported to be 0.47, 0.76, 0.77, 0.83, 0.62, 0.80, 0.85, respectively. Psychometric measurements of psychosocial compatibility scale toward disease indicate that this scale has satisfactory reliability and validity indexes.[15]

Ruminative Response Scale: Nolen-Hoeksema in 1991 developed a self-study questionnaire that evaluated four different types of responses to negative mood. Based on empirical evidence, this scale has high internal stability. Cronbach's alpha coefficient ranges from 0.88 to 0.92.[16]

Table 1 shows the demographic findings of this study.

Table 1. Demographic information

Variables	n (%)	Significance between groups
Gender		P = 0.430, $\chi^2_{(3)} = 2.72$
Men	7 (20.0)	
Women	30 (80.0)	
Education		P = 0.057, $\chi^2_{(9)} = 16.53$
High school	7 (20.0)	
Diploma	19 (51.1)	
Bachelor's degree	10 (27.0)	
Above bachelor's degree	1 (6.9)	
Marital status		P = 0.780, $\chi^2_{(6)} = 3.22$
Single	6 (3.1)	
Married	30 (80.0)	
Divorced	1 (6.9)	

MEST: Memory specificity training; BA: Behavioral activation

According to the demographic findings of this study, most of the women were married with a frequency of 30 (80%).

Table 2. Mean and standard deviation (SD) of research variables

		Control (mean ± SD)	BA (mean ± SD)	MEST (mean ± SD)
Description	Pre-test	54.93 ± 4.97	51.86 ± 5.33	48.00 ± 7.30
	Post-test	37.93 ± 7.56	12.13 ± 6.39	10.80 ± 4.53
	Follow-up	36.80 ± 8.02	14.20 ± 3.56	10.00 ± 3.50
Rumination	Pre-test	50.40 ± 2.33	45.53 ± 1.92	51.53 ± 2.35
	Post-test	48.60 ± 1.10	34.20 ± 2.81	20.86 ± 1.85
	Follow-up	48.60 ± 1.75	27.20 ± 0.95	18.26 ± 1.26
Psychosocial adjustment	Pre-test	184.73 ± 7.50	173.33 ± 10.43	165.66 ± 6.35
	Post-test	153.66 ± 11.66	94.40 ± 7.98	84.26 ± 4.26
	Follow-up	107.00 ± 4.12	67.40 ± 3.35	52.66 ± 3.69
Dysfunctional attitude	Pre-test	52.93 ± 1.42	52.33 ± 1.73	49.46 ± 1.65
	Post-test	75.00 ± 8.12	175.80 ± 8.12	141.26 ± 9.25
	Follow-up	80.86 ± 7.63	181.20 ± 11.78	151.46 ± 9.27

MEST: Memory specificity training; BA: Behavioral activation; SD: Standard deviation

Most of the participation had a diploma and bachelor's degrees with the frequency of 19 (51.1%) and 10 (27.0%), respectively.

According to table 2, the scores of people in the experimental groups in the dependent variables decreased (or increased) more than the control group in the post-test stage. Besides, it shows that the scores of people within the experimental groups in the dependent variables decreased (or increased) from the pre-test stage to the follow-up.

The results of table 3 indicate that there was a significant difference between the experimental groups and the control group in the three variables of depression, rumination, psychosocial adjustment, and dysfunctional attitude in post-test and follow-up levels (P < 0.05).

Table 3. Analysis of covariance (ANCOVA) in variables in the post-test and follow-up

Variables	P	F	Eta
Depression			
Post-test	< 0.01	50.22	0.66
Follow-up	< 0.01	24.39	0.83
Rumination			
Post-test	< 0.01	87.04	0.78
Follow-up	< 0.01	17.82	0.63
Psychosocial adjustment			
Post-test	< 0.01	31.10	0.86
Follow-up	< 0.01	58.80	0.88
Dysfunctional attitude			
Post-test	< 0.01	28.20	0.91
Follow-up	< 0.01	39.65	0.79

The results of table 4 indicate that there was a significant difference in the effectiveness of the experimental groups and the control group in all variables. Moreover, there was a significant difference between the MEST group and the BA group in the variable of rumination and dysfunctional attitude.

Table 4. Benfrowny multiple comparison on variables in post-test

Variables	BA (mean ± SD)	Control (mean ± SD)
Depression		
MEST	-0.55 (0.42)	-27.87 (3.78)[*]
BA	-	-21.22[*] (2.58)[*]
Rumination		
MEST	-13.87[*] (2.81)	-25.22 (1.98)
BA	-	-18.45 (2.17)[*]
Psychosocial adjustment		
MEST	-17.88 (11.50)	-68.77 (9.45)[*]
BA	-	-54.87 (11.19)[*]
Dysfunctional attitude		
MEST	-33.87 (13.98)[*]	59.45 (13.44)[*]
BA	-	101.12 (14.10)[*]

[*]P < 0.05; MEST: Memory specificity training; BA: Behavioral activation; SD: Standard deviation

The results of table 5 indicate that there was a significant difference in the effectiveness of the experimental groups and the control group in all variables. Besides, there was a significant difference between the MEST group and the BA group in the variables of depression, rumination, and dysfunctional attitude.

Table 5. Bonferroni multiple comparison on variables in follow-up

Variables	BA (mean ± SD)	Control (mean ± SD)
Depression		
MEST	-8.10 (2.89)[*]	-29.23 (2.33)[*]
BA	-	-21.56 (2.61)[*]
Rumination		
MEST	-17.87 (2.01)[*]	-31.55 (2.19)[*]
BA	-	-24.32 (2.13)[*]
Psychosocial adjustment		
MEST	-16.85 (5.32)	-51.11 (4.92)[*]
BA	-	-40.23 (5.12)[*]
Dysfunctional attitude		
MEST	-22.01 (12.65)[*]	76.98 (10.23)[*]
BA	-	99.32 (14.42)[*]

[*]$P < 0.05$

MEST: Memory specificity training; BA: Behavioral activation; SD: Standard deviation

Results

The results of table 3 indicated that there was a significant difference between the experimental groups and the control group in four variables of depression, rumination, psychosocial adjustment, and dysfunctional attitude in post-test and follow-up levels. The results of table 3 indicated that there was a significant difference in the effectiveness of the experimental groups and the control group in all variables. In addition, there was a significant difference between the MEST group and the BA group in the variables of rumination and dysfunctional attitude. According to the mean table, the influence of MEST on rumination has been better. While in the variable of dysfunctional attitude, the effect of BA has been better.

Besides, there was a significant difference between the MEST group and the BA group in the variables of depression, rumination, and dysfunctional attitude. According to the mean table, the influence of MEST on two variables (depression and rumination) has been better than BA. While in the variable of dysfunctional attitude, the effect of BA has been better than MEST.

Discussion

The aim of this study was to compare the effectiveness of the MEST and BA therapy on the women with TRD.

The results showed that both of the treatments (MEST and BA) for TRD were effective on the reduction of symptoms in the experimental groups compared to the control group, which is in line with the results of studies about effect of MEST on the recovery of depression, such as Sumner's study which used MEST on elderly people with depressive symptoms. The results of the treatment after 4 weeks showed that the experimental group had less depressive symptoms, less despair, more satisfaction with life, and more specific recovery than the control group.[17] In the study of Raes, it was also found that the MEST treatment led to a reduction in depression symptoms after 4 weeks.[18] Neshat-Doost et al. also examined the effect of MEST on Afghan teenagers. The results of their research showed that depression was reduced in the experimental group.[19]

The analysis of the findings showed that the treatment of MEST on depression, rumination, and dysfunctional attitude was more effective than BA therapy in post-test. This is in line with the results of Hicktok et al.[18] who studied the effect of MEST on patients in the process of depression improvement. The results showed that this treatment was an economical way to reduce the risk of cognitive factors in depression.

Forouzandeh and Ranjbar Kohan in research on the effect of teaching of specific narrative memory on the documentary style, the suppression of thinking, and the automatic thinking of people with depression showed that the improvement of specific memory of

the storyteller not only helped to improve the symptoms of depression, but also the variables involved in depression such as attribution, suppression of thinking, and automatic thoughts.[20]

Recent studies emphasize that harm in memorable pleasures leads to depression or a lack of recovery of depression.

An important feature of depression is the loss of the ability to get positive experiences and the lack of pleasure from previous experiences. There is evidence that positive memories in people with depression are less common or severely suppressed than non-depressed people .This feature can lead to damage to the person's ability to modify his/her mood, and also reduces the ability to adjust emotionally to certain positive memories.[21]

The results of Zemestani et al. study, consistent with the results of present study, showed that BA therapy as a short-term and cost-effective treatment had a significant effect on improving the symptoms of depression and anxiety, as well as reducing mental rumination in students.[22]

In a meta-analysis of BA therapy for depression, Cuijpers et al. showed that BA was effective in the treatment of moderately and severely depressed patients and led to a reduction in relapse compared to drug therapy.[23] The results of Mazzucchelli's research showed that this training was cost-effective and efficient for the treatment of patients with depression.[24]

BA is an approach to increase in behaviors that are likely to occur which leads to gaining the benefit of the patient's internal reinforcements such as pleasure or sense of accomplishment (like social attention) and this increase of reinforcements helps to improve the mood of the patient.

The aim of BA therapy is to educate people to change their life styles and make new laws in life and follow them. For example, people learn when they are sad, they be more active

and solve the problems. Therefore, running these strategies can be a progressive way to success for people with depression and this facilitates the achievement of positive reinforcement.[25]

Conclusion

This study indicates that memory specificity training and behavioral activation treatment as an effective method for alleviation of TDR and symptoms in women.

Conflict of Interests

Authors have no conflict of interests.

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