

THE EFFECT OF TRAINING SPECIFIC AUTOBIOGRAPHICAL MEMORY ON THE ATTRIBUTION STYLE OF ADULT DEPRESSED PATIENTS

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ABSTRACT

Introduction: Depression has been the greatest and the most common mental illness in the current century and, in fact, is the first mental disorder that has long been of interest to philosophers and physicians. According to researchers, people with depression have a unique way of attribution style that can be considered as one of the fundamental causes of this disorder. The aim of this study was to investigate the effect of training specific autobiographical memory on the attribution style of depressed adults.

Materials and methodology: The method of this research is experimental with the control group. The population included all adult depressed patients who referred to the psychiatrist's offices in Isfahan and the sample consisted of 18 participants who were selected randomly. For the implementation of the study, the ASQ attribution style questionnaire was used. The data were analyzed through the analysis of covariance using the SPSS software.

Results: The results indicated that training autobiographical memory can have significant effect on improving the attribution style of depressed adults ($p < 00.1$).

Discussion and conclusion: The results showed that this training causes the absorption of emotional experiences with a new structure in the cognitive system and the individual accepts it as one of their usual experiences. In fact, by recalling specific memories, individuals are helped to think about past events and consider positions with more realistic attributions.

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Introduction

Depression has been the greatest and the most common mental illness in the current century and, in fact, is the first mental disorder that has long been of interest to philosophers and physicians. Depression is one of the most common mental disorders that has economic, emotional and social burden for patients, families and communities [1]. The results of the study of Parker and colleagues showed that nearly 121 million people suffer from depression worldwide [2]. Depression has allocated the fourth rank to itself among the ten major causes of the global burden of disease and it is predicted that it will have become the world's second leading cause of burden of disease by 2020 [3]. According to the results of the study, the prevalence of clinical depression is also high in Iran. This disease can have devastating effect on the thinking and behavior of human [4]. This disease affects the human capacity in behavior, thinking performance and feeling and the individual becomes dissociative and secluded and his relationship with others is reduced. The range of depression disorder starts from feelings of sadness, helplessness, incompetence and reluctance to living and at higher levels and by the passage of time, it leads to inanity and suicide [5]. Aaron

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Temkin Beck has raised the cognitive triad concept for the thoughts of depressed people. According to this theory, because of negative thinking, people become depressed. He believes that depressed individuals use negative automatic thoughts about themselves, the world (e.g., specific people or, in general, all people) and their future. The meta-cognitive model of depression introduces intellectual rumination or suppression as the most important feature of depression. The purpose of meta-cognitive therapy is to understand the causes of intellectual rumination or suppression and to remove this maladaptive process [6]; therefore, their removal has been emphasized in order to reduce the depression symptoms. Wells believes that the rumination cycle or individuals should be attacked in the meta-cognitive model of depression treatment [7]. Both cognitive-behavioral and meta-cognitive treatment approaches emphasize that the content of beliefs and thoughts determines the type of experienced disturbance. Thoughts related to risk cause anxiety and thoughts related to failure and counting oneself worthless lead to feelings of sadness. Emotional disorder is a problem in which a person is caught in a state of agitation. This type of disorder is chronic or recurrent. Emotional disorder is the result of meta-cognitive processes that lead to the formation of certain thinking styles and catches up the individual in long-term situations or recurrent processing of negative information about themselves. In the same way, the reaction of people to situations is affected by the impressions and their cognitive assessment of the situation. Hence, the idea that has been considered in the past two decades is the explanatory style or methods of individuals of stressful events which can have an important role in the mental health. Contrary to what one may think, there are different perceptions and interpretations of a specific occurrence or event that some interpretations lead to the growth and health of humans and others can lead to disease and problems. The key to such different perceptions and interpretations lies in the attribution style. The attribution style or explanatory style is the interpretation that individuals imagine in their mind of the causes of environmental events. Attribution is a process through which the internal or external causes of the individual's behavior can be judged [8]. Attribution or assignment is a process that through which human being seeks the external or internal reasons of their around events [9].

On the other hand, memory or remembering is the mental capacity to store, retain and recall information and experiences. Its base is the formation of the strong and sufficient temporary connections in the cerebral cortex. The ancient Greeks believed in Mnemosyne and know her as the divinity mother of science and art. The first person who studied memory on a regular and documented basis was Hermann Ebbinghaus [10]. Scientifically, memory can be divided into two parts of long-term memory and short-term memory. In situations where maintenance and storage of material are introduced for a few seconds (often less than 30 seconds), compared to situations that require the maintenance of material for a long time (from several minutes to several years), the type of memory is different. It is said that the first positions are associated with short-term memory and the second positions are associated with long-term memory. In the case of both types of memory, there are three stages of encoding, storage and retrieval. It should be noted that in some studies and sources, two kinds of memory called sensory and working memory have been mentioned [11]. In another classification, the autobiographical or episodic memory is mentioned; this type of memory is related to the individuals' memories of their own experiences that include incidents and events that occurred in the individual's life and are dependent on a specific time and place. This memory contains serial (chain) events and experiences. This memory is linked to the context of time and place [12]. The episodic memory is the personal memory of each person such as feelings and emotions related to a particular time and place. Autobiographical memory is a subset of this memory that implies the memory of a particular event in an individual's personal life such as the date of an important national event, the food that you ate last night, the name of an old classmate. Autobiographical memory is the memory that is concerned with a person's personal experience. Autobiographical memory is the memory of an individual's life events [13]. The most important feature of this memory is retrieving memories. This memory is vulnerable to distortion because its accuracy is very low. Autobiographical memory is a form of memory in which the events of the personal life are memorized which are related to the past concerned with the person himself [14]. Studies about autobiographical memory show that directed questions at the time of psychotherapy, especially past-oriented psychotherapy, such as psychoanalysis, frequent information of mass media about an event, interrogation of the courts from the defendant, and similar situations can lead to manipulation of memory. It seems that memory becomes fragile in special circumstances. Autobiographical memory is part of the memory that will be strongly influenced by depression so that depressed people retrieve the specific memories of their autobiographical memory with difficulty and remind more general memories compared with non-depressed individuals [15], [16]. In their study to assess the specific autobiographical memory training to support and train the treatment of depression, Dalgleish and colleagues (2004) states that in addition to being effective in the short-term intervention treatment of depression, this treatment is gentle, affordable and cross-culturally applicable. Considering the abovementioned issues, this study aimed to explore the effect of training specific autobiographical memory on the attribution style of depressed adults.

Materials and methodology

According to the study's overall objective to examine the effect of training specific autobiographical memory on the attribution style of depressed adults, the quasi-experimental research design for two groups (experimental and control) with pre-test and post-test was used. In this design, the two experimental and control groups were measured twice. In this study, the groups were divided into two groups based on random selection. After pre-testing both groups, the independent variable (training autobiographical memory) was performed on the experimental group and then both groups were evaluated with the post-test. The statistical population of the study was all the patients referring to the psychological center in Isfahan who had received a

diagnosis of depression by a neurologist. The inclusion criteria included a diagnosis of depression by a neurologist, studying in one of the degrees in universities, no other mental illness diagnosis by the neurologist, making commitment not to receive other psychological and psychiatric intervention until the end of the treatment. The sample included 12 patients in the experimental group and 12 patients in the control group. Three patients withdrew from the study in the experimental group and 9 participants (5 females and 4 males) completed the intervention. In this study, the independent variable was autobiographical memory training. In this intervention, an 18-word list containing the positive, negative and neutral sign words was used. A special memory returns to the experienced characteristics related to the events of a particular day and a long memory refers to the repeating events or events that may be related to a long period. Generally, our goal is moving memories towards being special memories and reducing the time delay. Among the methods of measurement in research methodology, Beck Depression Inventory (BDI-II), Attribution Style Questionnaire (ASQ), and clinical interview by a neurologist were used in this study. After the intervention, finally, the hypotheses of the study were analyzed. Initially, using descriptive statistical methods, the results of the obtained data from the research variables and intervention were described. Then, the appropriate statistical defaults were analyzed in order to use the parametric analysis of covariance, including Kolmogorov–Smirnov test to assess the normal distribution of scores in the population sample and Levin test to assess the equality of variances. Moreover, the impact of the pre-test was controlled by using analysis of covariance. Finally, the hypotheses of the study were analyzed using this statistical method.

The Attribution Style Questionnaire (ASQ)

This questionnaire is a self-report instrument. The questionnaire contains twelve hypothetical situations. For each event, four questions have been raised. Although the first question, which is about the most important cause of this event, is not applied in the scoring, it is necessary so that the participants can answer the following three questions based on the cases related to the event such as whether being internal or external, stable or unstable and general or specific. Bridge has reported the Cronbach's alpha coefficient of 0.8 for the questionnaire [17]. Soleimani Nejad (2000) has reported the Cronbach's alpha coefficient of 0.74 for the overall questions of the questionnaire.

Results

The mean and standard deviation of the pre-test and post-test scores of the depression components, overall positive attribution and overall negative attribution in both experimental and control groups are presented in Table 1.1.

Table 1.1 The mean and standard deviation of the pre-test and post-test scores of the depression components, overall positive attribution and overall negative attribution in both experimental and control groups

Research component	Group	Pre-test			Post-test		
		No.	Mean	SD	No.	Mean	SD
Overall negative attribution	Experimental	9	4.33	0.67	9	3.67	0.53
	Control	9	4.45	0.65	9	4.56	0.55
Overall positive attribution	Experimental	9	3.71	0.53	9	4.04	0.3
	Control	9	3.82	0.41	9	3.6	0.39
Pessimistic attribution	Experimental	9	4.39	0.55	9	3.74	0.27
	Control	9	4.48	0.58	9	4.5	0.46
Optimistic attribution	Experimental	9	3.66	0.31	9	4.23	0.12
	Control	9	3.76	0.23	9	3.69	0.32
Negative stability attribution	Experimental	9	4.36	0.6	9	3.81	0.43
	Control	9	4.4	0.64	9	4.44	0.66
Positive stability attribution	Experimental	9	3.26	0.49	9	4	0.4
	Control	9	3.37	0.45	9	3.14	0.29

As can be seen in Table 1.1, the mean of the overall negative attribution component in the pre-test in the experimental group is 4.33 and in the control group is 4.45. The mean of the post-test in the experimental group is 3.67 and in the control group is 4.56. The mean of the overall positive attribution component in the pre-test in the experimental group is 3.71 and in the control group is 3.82. The mean of the post-test in the experimental group is 4.04 and in the control group is 3.6. The mean of the pessimistic attribution component in the pre-test in the experimental group is 4.39 and in the control group is 4.48. The mean of the post-test in the experimental group is 3.74 and in the control group is 4.5. The mean of the optimistic attribution component in the pre-test in the experimental group is 3.66 and in the control group is 3.76. The mean of the post-test in the experimental group is 4.23 and in the control group is 3.69. The mean of the negative stability attribution component in the

pre-test in the experimental group is 4.36 and in the control group is 3.81. The mean of the post-test in the experimental group is 4.4 and in the control group is 44.4. The mean of the positive stability attribution component in the pre-test in the experimental group is 3.36 and in the control group is 0.49. The mean of the post-test in the experimental group is 3.37 and in the control group is 3.14.

Table 1.2. The results of Shapiro-Wilk test about the normal distribution of scores

Normal distribution of scores	Group	Shapiro-Wilk		
		Statistics	Degrees of freedom	Significance
Overall negative attribution	Experimental	0.934	9	0.515
	Control	0.882	9	0.165
Overall positive attribution	Experimental	0.917	9	0.369
	Control	0.803	9	0.055
Pessimistic attribution	Experimental	0.876	9	0.144
	Control	0.811	9	0.053
Optimistic attribution	Experimental	0.950	9	0.689
	Control	0.926	9	0.448
Negative stability attribution	Experimental	0.920	9	0.356
	Control	0.933	9	0.482
Positive stability attribution	Experimental	0.826	9	0.051
	Control	0.830	9	0.055

According to Table 1.2, the null hypothesis for the normal distribution of the scores of both groups in the variables of the study is confirmed; that is, the hypothesis of the normality of score distribution is confirmed in both experimental and control groups.

Table 1.3. The results of the Levin test on the default equality of variances of the two groups in the society

Scale	F	The first degree of freedom (numerator)	The second degree of freedom (denominator)	Significant (P)
The overall negative	0.063	1	16	0.806
The overall positive	0.255	1	16	0.620
Pessimistic attribution	0.013	1	16	0.911
Optimistic attribution	0.186	1	16	0.972
Negative stability attribution	0.033	1	16	0.857
Positive stability attribution	0.040	1	16	0.844

As can be seen in Table 1.3, the null hypothesis for the equality of variances of the scores of the two groups in the main variable of the study is confirmed in the pre-test; that is, the assumption of equal variances in both experimental and control groups in the post-test scores was confirmed for the scale of the study. According to the observance of the normal assumption and random selection of samples and the equality of variances, analysis of covariance was used to obtain inferential results.

Table 1.4. The results of analysis of covariance of the effects of group membership on the depressive scores and attribution style of adult depressed people

	Variables	Sum of squares	Degrees of freedom	mean squares	F	Significance	Effect	Statistical power
Attribution style	Pre-test	0.090	1	0.090	1.455	0.246	0.088	0.204
	Group membership	1.425	1	1.425	23.017	0.001	0.605	0.994
	Error	0.929	15	0.062	-	-	-	-

According to Table 1.4, after removing the effect of consistent variables on the dependent variable and according to the calculated F coefficient, it is observed that there is a significant difference among the adjusted mean of the optimistic attribution

scores of the participants based on group membership (the experimental group and the control group) in the post-test ($P < 0.01$). Thus, the third hypothesis was confirmed. Accordingly, the autobiographical memory training has been effective on increasing optimistic attribution scores of the participants in the experimental group. The amount of this influence has been 60.5 percent in the post-test.

Table 1.5. The results of analysis of MANCOVA on the mean of scores of optimistic attribution components

The experiment name	Amount	F	DF hypothesis	DF error	Significance (P)	Eta square	Statistical power
Wilks's Lambda test	0.188	15.836	3.000	11.000	0.001**	0.812	0.999

According to Table 1.5, the levels of experiment significance indicate that in the post-test stage at least in one of the positive internal components, positive stability and the overall positive in relation to two experimental and control groups, the mean of the experimental group increased compared to the control group ($F = 15.836$, $P = 0.001$). To realize the difference, the MANCOVA results have shown that the effect or difference is equal to 0.812 percent; that is, 81.2 percent of individual differences in the scores of positive internal, positive stability and overall positive components are related to the effect of group membership. The statistical power close to one indicator is the adequacy of the sample size.

Table 1.6. The results of MANCOVA analysis, the effect of group membership on the scores of optimistic attribution component

Variables		Sum of squares	Degrees of freedom	mean squares	F	Significance	Effect	Statistical power
Positive internal	Pre-test	1.036	1	1.036	10.156	0.007**	0.439	0.838
	Group membership	1.926	1	1.926	18.874	0.001**	0.592	0.980
	Error	1.327	13	0.102	-	-	-	-
Positive stability	Pre-test	0.647	1	0.647	7.104	0.019*	0.353	0.693
	Group membership	3.400	1	3.400	37.356	0.001**	0.742	1
	Error	1.83	13	0.091	-	-	-	-
Overall positive	Pre-test	0.637	1	0.637	7.267	0.018*	0.359	0.703
	Group membership	1.093	1	1.093	12.465	0.004**	0.489	0.903
	Error	1.140	13	0.088	-	-	-	-

As Table 1.6 indicates, after removing the effect of consistent variables on the dependent variable and according to the calculated F coefficient, it is observed that there is a significant difference between the adjusted mean scores of positive internal attribution of participants in terms of group membership (the experimental group and the control group) in the post-test stage ($P < 0.01$). Thus, the hypothesis 1-4 was confirmed. Therefore, the autobiographical memory training had a significant effect on increasing positive internal attribution scores of participants in the experimental group. The amount of this influence in the post-test was 59.2 percent.

Discussion and conclusion

Depression seems normal and common but it is a serious and important disease and most people who experience it need medical treatment in order to recover. Most people who suffer from depression are not looking for ways to treat this disease, while the majority of people with even severe depression can be improved by medical treatment. Development of medications, psychotherapy and new ways to treat people who are suffering from this debilitating disease are the result of focused research on this disease [5]. Recently, the specific phenomenon of memory mainstreaming in depressed people, as one of psychological causes, has made researchers to investigate this characteristic and led mainstreaming towards recovering data specifically from memory. Autobiographical memory mainstreaming is a feature in cognitive style that appears during the growth period and thereby controls the emotions [18]. Autobiographical specific memory loss is known as a cognitive symptom and a predictor of depression [19]. Research has shown that autobiographical specific memory loss is not an unchangeable characteristic of the memory style of individuals [20] and is subject to change [21]. Given that the current study found no similar background, by intervention in autobiographical memory, more demystification has been done in this area. The results of covariance showed that autobiographical memory training increases optimistic attribution scores of adult depressed patients. Therefore, autobiographical memory training has been effective on increasing optimistic attribution scores of the participants in the

experimental group and the hypothesis is confirmed. The amount of this influence was 60.5 in the post-test. No similar research has been conducted in this context. The results of the study of a number of scholars such as Brittlebank and colleagues [13], [22], [23] and [24] have shown that there is a relationship between attribution style of the events occurred in the life and depression. Based on the theory of learned helplessness, people encountering with uncontrollable events learn that their responses and outcomes are independent from each other. This learning can lead to the expectation that the answers will be in vain and be extended to new position. Depression attribution styles include a tendency to ascribe unpleasant life events to internal, general and stable reasons. For example, these people attribute failure to low capacity rather than to luck, effort or difficulty of the task. In other words, attribution in these individuals is pessimistic. According to this theory, by recalling specific memories, individuals are helped to think about the past events and consider situations with more realistic attributions. On the other hand, the results of some previous studies refer to the improvement of problem-solving by autobiographical memory training in depressed patients [25]. Thus, another explanation for optimistic attribution style in these individuals is the increase of problem-solving ability; this means that even in situations where they attribute internal cause or stable causes to the position, they apply their problem-solving ability to change the circumstances. Another explanation to explain this hypothesis is based on the theory of cognitive changes. According to this theory, through exposure to traumatic experiences, emotional expression help people review life events, understand them better and find new meaning in them. This ultimately makes emotional experiences be adsorbed with a new structure in the cognitive system and the individual accepts it as one of the ordinary experiences of life [26]. The limitations of the study include the following: 1. The study population included patients with mild to moderate depression. Thus, the generalizability of these results to those with severe depression or those who are spending the bipolar depression period is limited. 2. One of the inclusion criteria for this study was attending a university degree in one of the sections; therefore, the generalization of the results to illiterate or semi-literate or people with no university education is limited. 3. The 20-30 year-old age group participated in this research, and generalizability to other age groups should be with caution. In addition, it is recommended that this study be conducted on people with severe depression and bipolar depression and be repeated with illiterate, semi-literate subjects or those with no university education.

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