

Comparing the effectiveness of cognitive behavioral therapy and behavioral activation therapy on psychological Hardiness in depressed people

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Abstract

Introduction: Severe emotional, social and economic stress of depressive disorder for patients, family and community on the one hand and the increasing annual prevalence in the general population plus suicide as a catastrophic consequence of depression is still at the forefront of mental health issues. The aim of this study was to compare the effectiveness of cognitive-behavioral therapy and behavioral activation therapy on psychological hardiness in depressed individuals.

Methods: According to the purpose of this research, it was quasi-experimental applied research with pre-test and post-test with two experimental groups and a control group. The statistical population of the study included all people with depression in Babol who referred to psychotherapy clinics in Babol in 2022. From the above statistical population, at first, 50 people who obtained a moderate to high score in the Beck Depression Inventory were randomly selected, and in the next stage, according to Cohen's formula, 45 of these 50 people were divided into 3 groups of 15 (2 experimental groups and one the control group were randomly assigned to answer the Ahvaz Psychological Hardiness Questionnaire Kiamarsi, Najarian and Mehrabizadeh. The results were analyzed by Spss 26 software.

Results: The results showed that the main effect of behavioral behavioral therapy and behavioral activation was significant ($P < 0.001$). Behavioral and 55% of the changes are due to the effect of behavioral activation intervention. Also, there is no significant difference between the effect of two methods of behavioral methodology and behavioral activation on psychological hardiness ($p < 0.248$) and both treatments have a similar effect on psychological hardiness.

Conclusion: According to the findings, it is concluded that cognitive behavioral group therapy and behavioral activation can be effective in improving the psychological toughness of depressed people.

Keywords: Behavioral Activation Therapy, Cognitive Behavioral Therapy, Depression, Psychological Stubbornness

Received: 18/May/ 2022

Accepted: 30/August/ 2022

Citation: Kiaian Mousavi F., Mafakheri A., Mohammad zade Ebrahimi A. Comparing the effectiveness of cognitive behavioral therapy and behavioral activation therapy on psychological Hardiness in depressed people, Family and health, 2023; 12(4): 89-105

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Introduction:

Depression is one of the most common disorders that mental health professionals deal with, and epidemiological studies have also reported this disorder as the most common psychiatric disorder. This disorder is characterized by decreased energy and interest, feelings of guilt, difficulties in concentration, anorexia, and thoughts of death and suicide (1). Depression is associated with personal suffering, and dysfunction in occupational, social, and family roles and is one of the main causes of disability and mortality (2). Epidemiological results have shown that the lifetime prevalence of this disorder is between thirteen and nineteen percent. Currently, more than 350 million people suffer from depression in the world (3).

Depression can affect all aspects of a patient's life. One of these aspects is psychological Hardiness, which was proposed by Kubasa in 1979. Psychological Hardiness is a set of personality traits that act as a source of resistance and as a protective shield in the face of stressful life events. Psychological Hardiness is a general orientation toward ourselves and the surrounding world and includes three components of commitment, control, and struggle (4). A person who has a high level of psychological Hardiness has three general characteristics: he can control or influence events and considers psychological stressors to be changeable, he can feel deeply involved or committed to the activities he does, and also He believes that change is an exciting struggle for greater intensity and considers it an aspect of life (5).

It is inevitable to pay attention to psychotherapies in the treatment of depressed patients. Researchers believe that integrated approaches provide more effective capacity to help solve psychological problems of people in different conditions and that one of the effective treatments in the treatment of depression is behavioral activation. Behavioral activation therapy as a valid short-term intervention emphasizes improving the quality and lifestyle and reducing negative emotions in people (6). This treatment increases the feeling of pleasure and success by increasing valuable activities, which is simple and has no side effects. Behavioral activation emphasizes the exchange between the person and the environment over time and the identification of environmental stimuli and coping responses involved in the etiology and persistence of depressive mood (7). In the largest study that has been conducted so far in the field of comparison of the effectiveness of depression treatments, it was found that behavioral activation therapy has better results in the treatment of severely depressed patients than drug therapy and cognitive therapy (8). The behavioral activation method can also be used to cure the coexistence of depression and anxiety (9).

Another approach used in this research to reduce depression in people is cognitive behavioral therapy. This treatment is adapted from the cognitive theory of Aaron Beck (1964). Cognitive behavioral therapy is a treatment method composed of two approaches, behavioral therapy, and cognitive therapy. In the approach of cognitive behavioral therapy, the main part of the treatment is based on the here and now, and the goal of treatment and education is to enable patients to make positive changes in their lives. In cognitive behavioral therapy, cognitive restructuring and changing the content of thoughts are used, and ineffective attitudes and beliefs are identified and challenged using cognitive techniques and behavioral tests (10). Rajabi et al. (2017) found in

research that group cognitive behavioral therapy significantly reduced the level of depression in the experimental group compared to the control group (11). Therefore, according to the mentioned contents, this research aims to compare the effectiveness of cognitive behavioral therapy and behavioral activation therapy on psychological Hardiness in depressed people.

Research method:

According to its purpose, this research was a semi-experimental type of applied research in the form of pre-test and post-test with 2 experimental groups and one control group. The statistical population of the research included all the people suffering from depression in Babol who visited psychotherapy clinics in the city in 2019. From the statistical population, at first, 50 people from those who scored medium to high in the Beck depression questionnaire were randomly selected, and in the next step, according to Cohen's formula, 45 of these 50 people were randomly selected. There were 3 groups of 15 people (2 experimental groups and one control group). The criteria for entering the research: 1. diagnosis of depression using the Beck Depression Questionnaire and clinical interview 2. at least 3 months have passed since the diagnosis of depression 3. patients weren't suffering from acute and chronic mental illnesses 4. age conditions of 20 to 50 years old 5. having the ability to read and write 6. willingness and consent to participate in the research. Exclusion criteria also include 1. receiving psychological interventions in the last 3 months. 2. patients who are determined during the treatment to not meet the conditions of the research 3. participating in other training courses at the same time. data collection tools include:

Beck depression questionnaire: This questionnaire has 21 items that measure the physical, behavioral and cognitive symptoms of depression. Each item has 4 options that are scored on the basis of zero to three and determine different degrees of depression from mild to severe. The maximum score in this questionnaire is 61 and the minimum score is zero. As a general rule, a score of 14-19 is mild depression, 20-28 is moderate depression, and 29 to 63 is defined as severe depression.

In a study, the alpha coefficient was 0.91, the correlation coefficient between the two halves was 0.89, and the retest coefficient was 0.94 after a one-week interval. (12) Mutabi et al. (2011) also reported Cronbach's alpha coefficient as 0.91 and the retest validity of this scale as 0.96 within a week in a sample of 94 people in Iran (13).

Ahvaz Psychological Hardiness Questionnaire: It is a paper self-report scale that has 27 items. This scale was created by factor analysis by Kiamarathi et al. in a sample of 523 students and it measures psychological Hardiness. Each subject gets a score between 0 and 81 in this questionnaire, and the higher a person's score is, the more stubborn he is.

Kiamarathi et al. have used two methods of retesting and internal consistency to measure the reliability of this scale. The correlation coefficient between test and retest with a time interval of 6 weeks, in a sample of 119 subjects, was reported as 0.84, 0.85, and 0.84 for all subjects, female subjects, and male subjects, respectively. Cronbach's alpha coefficients were used to evaluate and measure the internal consistency of the psychological Hardiness scale in a sample of 523 people. Cronbach's alpha coefficient for psychological Hardiness was 0.76 for all subjects, 0.76 for female

subjects, and 0.76 for male subjects. The reliability of this scale was found to be 0.75 using Cronbach's alpha method in the research of Seifi and Taqavi (2018) and the internal consistency method was used to verify the validity of the questionnaire, and the correlation coefficients of the items were between 0.14 and 0.50 (14).

The way of conducting the present research was that the researcher first went to the psychotherapy clinics of Babol city. In order to select the subjects, the relevant questionnaires were placed in the centers. People who scored at least 14 in the Beck Depression Questionnaire and were diagnosed with depression during the clinical interview were selected as subjects and the psychological hardiness questionnaire of Ahvaz Kiamarshi, Najarian and Mehrabizadeh. Artist was also completed by them. After determining the list of people who referred to the centers, 45 people were selected according to the existing criteria and randomly placed in 3 groups (2 experimental groups and one control group). Cognitive behavioral therapy and behavioral activation therapy were performed once a week. In this regard, a pre-test was taken from each of the groups, and then these treatments were given intermittently according to the provided protocols and in full compliance with health protocols, including social distancing, disinfection of the environment, use of Masks, gloves and alcohol were used. In this way, due to the conditions of the corona pandemic and in order to preserve the health of the members, the 15 members of each group were divided into 3 groups of 5 people and the meetings were held in separate groups. During each session, cognitive behavioral therapy and behavioral activation therapy were implemented for 90 minutes, and the control group was not given any treatment. Before conducting the research, the subjects were asked to answer the questionnaires mentioned in the research. After finishing the treatment sessions, they were asked to answer these questionnaires again. The intervention was conducted by a doctoral student in psychology who has received the necessary training in the field of cognitive behavioral therapy and behavioral activation therapy. In the first session, the necessary measurements were made and the baselines were determined. The control group was assured that after the end of the research, 8 sessions of cognitive behavioral therapy and behavioral activation therapy will also be offered to them. Also, any person could freely withdraw from the program at any time from conducting the research. In this research, descriptive data analysis was used to describe the collected data, and data was analyzed using SPSS statistical software. Descriptive statistics indices (such as mean and standard deviation) were used to describe the data. In the inferential statistics section, the Shapiro-Wilk test was used to check the normality of the data, and the mixed analysis of variance was used to check the differences between groups, considering the factor within the group (test) and between the group (group membership). Benferroni's post hoc test was also used to compare the experimental groups with each other and with the control group.

The summary of the sessions presented was as follows:

Table 1- Cognitive behavioral therapy protocol

meetings	content
First	Introducing group members, automatic guidance, shaping the group, explaining the purpose of CBT, identifying how thoughts affect feelings, inviting people to introduce themselves to each other, explaining psychological hardness,
Second	Reviewing the previous meeting, the factors that trigger negative emotions (emotions, people, places and objects), introducing members to specific types of thinking, working on emotions and being stubborn in front of negative emotions.
Third	Reviewing homework, reviewing the previous session, identifying cognitive distortions and their impact on emotions, determining the factors that contribute to helplessness, planning methods to deal with negative emotions such as: stopping thinking.
Fourth	Reviewing homework, reviewing the previous session, the relationship between thinking and emotion, determining negative thinking patterns, fighting against negative thoughts and cognitive reconstruction, expressing beliefs and absolute values, paying attention to the cause of making these beliefs problematic, identifying thoughts and assumptions.
Fifth	Homework review, review of the previous session, functional analysis of thinking when emotional, planning and predicting depressing situations, practical solutions to fill clients' time in order to reduce depression
Sixth	Reviewing assignments, reviewing the previous session, working on the concept of goal setting, role-playing to practice emotion regulation responses, criticizing and being criticized, de-stressing skills, role-playing
Seventh	Reviewing homework, reviewing the previous meeting, how to communicate and contact people and how it affects mood, creating friendships that reduce depression, cutting off relationships with friends and acquaintances who are harmful.
Eighth	Reviewing the assignments, reviewing the previous meeting, reviewing the process of the previous meetings and fixing the changes made, forms for registering ineffective thoughts and explaining about the end of the meeting, providing techniques to continue and maintain the recovery process.

Table 2- behavioral activation therapy

meetings	content
First	getting to know the members of the group, stating the rules of the group, welcoming and getting to know each other; Expression of feelings by people before coming to the meeting; The reason for coming to this meeting and what they expect from the treatment sessions.

Second	reviewing the assignment of the previous session; Presenting the behavioral activation treatment model; Daily review: reviewing assignments (Form 1) and solving problems; The logic of treatment: review of the assignment; Important points about the treatment structure: review of the assignment,
Third	Daily review: assignment review (form 1), list of life domains, values and activities: assignment review (form 2); Selection and ranking of activities (form 3), homework: daily review
Fourth	Daily review with activity planning: assignment review (form 1); Contracts (Form 4); Daily review with activity planning for the next week (form 1); Tasks: daily review with activity planning for the next week (form 1);
Fifth	Daily review with activity planning: assignment review (form 1); List of life domains, values and activities: review and revision of concepts (form 2); Tasks: daily review with activity planning for the next week (form 3)
Sixth	Daily review with activity planning: assignment review (form 1); Selection and ranking of activities: reviewing and revising concepts (form 3); Daily review with an activity plan for the coming week (form 1);
Seventh	Daily review with activity planning: assignment review (form 1); Selection and ranking of activities: reviewing and revising concepts (form 3); Daily review with an activity plan for the coming week (form 1).
Eighth	Daily review with activity planning: assignment review (form 1); Daily review with activity planning for the next week (form 1); Preparation for termination (termination); Duties: Daily review with planning

Results:

In the cognitive behavioral therapy group, the average age was 41.5, in the behavioral activation group, 40.8, and in the control group, 41.2. Table 3 presents other demographic information about the study participants.

Table 3- Demographic variables

Variable	group	Number	Percentage
gender	Cognitive behavioral therapy group	4 men and 11 women	26.67(male) and 33/73 (female)
	Behavioral activation group	5 men and 10 women	33.33(male) and 67/66 (female)
	Control	4 men and 11 women	26.67(male) and 33/73 (female)
marital status	Cognitive behavioral	11 married and 4 single	33.73 (married) and 26/67 (single)

	therapy group		
	Behavioral activation group	11 married and 4 single	33.73(married) and 26/67 (single)
	Control	12 married and 3 single	80(married) and 20 (single)
Level of Education	Cognitive behavioral therapy group	9 diplomas and below, 5 bachelor's degrees and 1 master's degree	60 (diploma and below), 33/33 (undergraduate) and 6/67 (postgraduate)
	Behavioral activation group	8 diplomas and below, 5 bachelor's degrees and 2 master's degrees	53.33 (diploma and below), 33/33 (bachelor's degree) and 33/13 (postgraduate)
	Control	9 diplomas and below, 4 bachelor's degrees and 2 master's degrees	60 (diploma and below), 26/67 (undergraduate) and 13/33 (postgraduate)

Table 4- Description of research variables by group type and test stage

Variables	Time	group					
		cognitive behavioral		Activation		Control	
		Average	standard deviation	Average	standard deviation	Average	standard deviation
Psychological hardiness	pretest	42.00	10.04	31.73	11.18	30.66	7.70
	posttest	53.60	9.75	43.26	11.12	31.06	7.69
	consistency	50.20	8.95	40.00	10.20	30.60	6.92

Statistics were used to describe the variable psychological Hardiness in Table 4.

Table 5- The results of covariance analysis with the aim of comparing the impact of two cognitive behavioral methods and behavioral activation on psychological Hardiness.

source of change (cognitive-behavioral)	The square root	Freedom levels	mean square	F statistic	meaningful	Efficacy
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group (intervention)	58.30	1	58.30	14.77	0.248	0.196
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The results of the analysis of covariance showed that there is no significant difference between the effect of the two methods of cognitive behavioral methods and behavioral activation on psychological hardiness ($p < 0.248$) and both treatments have a similar effect on psychological hardiness.

Table 6- Results of variance analysis with within-group repeated measurement design to investigate the effectiveness of cognitive behavioral therapy and behavioral activation therapy on psychological Hardiness.

group	source of influence	The square root	Freedom levels	mean square	F value	p Value
cognitive behavioral therapy	Time	504.30	1	504.30	171.364	0.000
	time * group	488.30	1	488.30	509.173	0.000
	error	41.200	42	2.943		
Behavioral activation	Time	512.53	1	512.53	252.66	0.000
	time * group	213.19	1	213.19	108.311	0.000
	error	28.467	42	2.033		

The findings of the table showed that the effect of intervention or cognitive behavioral therapy and behavioral activation therapy has become significant ($p < 0.05$), which means that the average psychological Hardiness in the post-test and follow-up phase in the cognitive behavioral therapy and behavioral activation therapy group has a significant change. and based on this, the research hypothesis is confirmed.

Table 7- The results of analysis of variance with intergroup repeated measurement design to investigate the effectiveness of cognitive behavioral therapy and behavioral activation on psychological Hardiness.

group	source of influence	The square root	Freedom levels	mean square	F statistic	meaningful	Eta squared	Statistica l power
cognitive behavioral therapy	group	106288.2	1	106288.2	390.752	0.00	0.60	0.79
	error	30005.9	26	1154.1				

Behavioral activation	group	66125.00	1	66125.00	189.109	0.000	0.55	0.61
	error	30005.9	26	1154.1				

According to the results of the main effect table of the behavioral therapy group ($F=390.752$ sig, $F \geq 0.000$) and behavioral activation ($F=109.109$ sig, $F \geq 0.000$), it was significant that according to the eta factor, it can be said in the intergroup section, 60% of changes in psychological hardiness are due to the effect of cognitive behavioral therapy intervention and 55% of changes are due to the effect of behavioral activation intervention.

Table 8 - The results of Benferoni's modified test for pairwise comparison of mean psychological Hardiness according to treatment approaches

group	analogy	Difference of means	standard error	p Value
cognitive behavioral	cognitive behavioral	10.20	3.21	0.080
	Control	19.60	3.21	0.000
Behavioral activation	cognitive behavioral	-10.20	3.21	0.080
	Control	9.40	3.21	0.017
Control	cognitive behavioral	-19.60	3.21	0.000
	Behavioral activation	-9.40	3.21	0.017

According to Table 7, the average difference in psychological hardiness between cognitive behavioral therapy and behavioral activation was not significant in the post-test and follow-up phase, which indicates that both treatments have a similar effect on psychological hardiness.

Discussion and conclusion:

The purpose of this study was to compare the effectiveness of cognitive behavioral therapy and behavioral activation therapy on psychological hardiness in depressed people. The results of the analysis of covariance showed that there is no significant difference between the effect of the two methods of cognitive behavioral methods and behavioral activation on psychological hardiness and both treatments have a similar effect on psychological hardiness. The result of this part is also confirmed by the previous researches (15, 16 and 17).

In the cognitive-behavioral approach, the underlying assumption is that the change in cognition leads to behavioral and emotional changes, so considering that worry is a negative emotion that

causes depression in most people, this approach through modifying and changing the component Inefficient cognitive skills can cause emotional and behavioral changes and reduce anxiety, which increases stubbornness by reducing anxiety. Cognitive-behavioral therapy teaches a person to explore, evaluate and change his cognitions and thoughts. This exploration and evaluation of thoughts and cognitions and ordering them helps to improve the metacognitive ability of the person and strengthens metacognitive strategies and deep processing, as a result, by changing false beliefs and cognitions, The amount of psychological hardiness increases. Cognitive-behavioral therapy teaches patients not to see themselves trapped in depression, and as a result, they can tolerate the problems associated with it and become stronger to fight it. In explaining this result, it can be said that cognitive-behavioral therapy taught patients to avoid exaggerated and catastrophic thoughts about depression and replace them with positive thoughts. Fighting and challenging distorted beliefs makes them develop a stubborn spirit and become more determined to heal themselves and challenge the disease. Cognitive techniques, identification and challenge with negative thoughts, search for help to find alternative ways of thinking, with this method, by creating change and transformation in the cognitive system of the person, it leads to changing his reactions by means of cognitive qualities. A person can correctly understand and interpret the facts (16).

Behavioral activation therapy also emphasizes the effect of behaviors on mood and symptoms. The therapist guides clients to re-engage with potential sources of positive reinforcement, set task-oriented goals, reduce negative reinforcement patterns, and reduce avoidance (8). Therefore, behavioral activation with the aim of setting avoidance behaviors and re-establishing a regular routine, gives the individual the opportunity to reconnect with sources of positive reinforcement and such a downward spiral by working with clients to create opportunities. Cut for positive reinforcement .It is assumed that increasing participation in pleasurable activities increases psychological hardiness, and such an increase in activity and positive affect leads to a decrease in depression (9). Behavioral activation therapy is a therapeutic process that structurally increases behaviors that increase a person's contact with the reinforcing connections of the environment. This process leads to the improvement of mood, thinking and quality of life, and it is expected that the behavioral activation approach can have positive effects on creating and increasing mental health and improving the quality of interpersonal communication among depressed people (6).

Therefore, it can be concluded that the treatment of behavioral activation by involving people in rewarding activities and reducing ineffective behaviors can on one hand reduce the cycle of mental rumination and as a result increase cognitive flexibility and on the other hand By encouraging patients to continuously face behaviors that are inconsistent with their anxious mood, motivation, and desire, it creates the basis for reducing patients' depression; In other words, in the treatment of behavioral activation by targeting non-rewarding behaviors and creating an active behavioral style, the patient's cognitive and emotional flexibility capacity are also indirectly intervened, which this capacity building can lead to a decrease. Emotional and cognitive symptoms such as rumination, lack of concentration, unpleasant mood and negative thoughts. Behavioral activation therapy encourages patients to become more active or try to perform behavioral tasks related to their treatment process, even if they have no motivation to do so. Over time, such a process leads to an

increase in environmental reinforcement, followed by an improvement in mood and an increase in stubbornness (18). Behavioral activation with targeted planning and activity monitoring and providing new activities as an alternative to avoidant activities, by the clients themselves, leads to the growth and excellence of characteristics in people that have a direct relationship with It has psychological hardiness, and it consists of accepting oneself as a person who "can" and finds the ability to see and accept one's weaknesses and strengths, and this has a direct effect on the development of personal identity, autonomy and mastery. It creates the environment. Among other implicit behavioral activation exercises that are discussed during psychotherapy and if necessary, is the technique of increasing social skills and communicating effectively with others, which increases social support in communicating with others. (19) and this social support was one of the factors influencing psychological hardiness.

Acknowledgments

This article is taken from the doctoral thesis of the first author from Islamic Azad University, Bojnord branch. In this way, the authors appreciate and thank all the participants in this research and all those who effectively cooperated in conducting this research.

Ethical considerations

In order to comply with the ethical principles, the people participating in the research were assured that the information obtained from them will be protected and those who wish to be informed about their grades, only their grades will be provided to them. The present research was carried out by obtaining the ethics ID IR.IAU.BOJNOURD.REC.1400.004 from Islamic Azad University, Bojnour branch.

Research limitations

Any study inevitably suffers from limitations that make it necessary to interpret the findings in the context of limitations, including the fact that the small sample size in this research limited the generalization of the results. The age range of 20 to 50 years limited the generalization of the research results beyond these ages. In this research, factors such as social and economic class, drug use, and other stressful factors that may be effective in the research results have not been considered. It is suggested that in future researches, the issue should be investigated with a larger number of samples so that the generalization of the results can be done with more confidence. Comparing the effectiveness of these treatments with other psychological treatments and considering factors such as social class, economic class, and drug consumption in the research participants can also be useful. Considering the effectiveness of behavioral activation treatments and cognitive behavioral therapy in depression, the importance of applying these treatment methods to other family members is also emphasized. Supportive and responsible institutions and

associations should be used along with psychologists to treat and reduce the heavy economic burden, and team work should replace individual work. Considering that the treatment of behavioral and cognitive behavioral activation is a short-term method and works well in different situations, therefore, it is suggested to use this approach to solve other problems during the quarantine caused by the corona disease be used.

Conflict of interest

The authors state that there is no conflict of interest in this study.

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