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## **Efficacy of Acceptance and Commitment based Therapy on Depressive Symptoms and Cognitive Emotion Regulation Strategies in Depressive Students**

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This study aimed to determine the efficacy of acceptance and commitment based therapy (ACT) on depressive symptoms and cognitive emotion regulation strategies in depressive students. The research method was a quasi-experimental study with a pre test, post test, follow-up design and a control group. The sample was selected by multistage sampling and included 40 students who were matched by age, educational status, lack of mental or physical diseases, clinical interviews and by scoring over 19 on the Beck Depression Inventory, Second Edition (BDI-II) along with other criteria considered in this research. The participants were randomly divided into a control and an experimental group. The research instruments included the BDI-II and cognitive emotion regulation questionnaire (CERQ). The experimental group received eight sessions of ACT and the control group did not receive intervention. The results showed a significant difference between groups in terms of depression and CER strategies ( $p < .01$ ). The rate of depression and negative CER strategies in the experimental group was significant lower than in the pre-test and control group and their positive CER strategies were significantly higher. These

results were persisted significantly to the follow-up period. The present study showed that ACT effectively reduced depressive symptoms and negative CER strategies and increased positive CER strategies in depressive students.

**Keywords:** acceptance and commitment based therapy (ACT), depressive symptoms, cognitive emotion regulation strategies

Depression is one of the most common disorders that mental health providers are called upon to treat (Young, Rygh, Weinberger & Beck, 2008). Epidemic studies have reported depression to be the most common mental disorder (Segal, Williams & Teasdale, 2002). Approximately about 20 to 25 percent of women and 10 to 17 percent of men are affected by depression during their lives (Kessler, Berglund, Demler, Jin, Koretz, Merikangas, Rush, Walters & Wang, 2003; Levinson, 2006; Eilenberg, Hoffmann, Jensen & Frostholm, 2017). This disorder is often chronic and relapsing, each succeeding episode of depression increases the risk of another occurrence (Kessler et al., 2003). Recent estimates suggest that 50 to 60 percent of people who experience an episode of depression will experience a second episode, 70 to 80 percent of those will experience a third episode and 90 percent of people who have had three episodes of depression will experience a fourth episode (American Psychiatric Association, 2000; Burcusa & Iacono, 2007).

The student population is an important social group that is at risk of depression (Buchanan, 2012). Studies show that students who suffer from depression have experienced more difficulty in their academic work and they obtain lower grades than non-depressed students (Lyubomirsky, Kasri & Zehm, 2003; Moyer, Murrell, Connally & Steinberg, 2016). Generally, depression is significantly related to reduced academic performance (Hysenbegi, Hass & Rowland, 2005), leaving school (Meilman,

Manley, Gaylor & Turco, 1992), high incidence of smoking (Kenny & Holahan, 2008; Lee, Rinder, Staten & Danner, 2005; Cranford, Eisenberg & Serras, 2009), high levels of anxiety (Rawson, Bloomer & Kendall, 1994; Wersebe, Lieb, Meyer, Hoyer, Wittchen & Gloster, 2016), suicide attempts (Arria, Ogrady, Caldeira, Vincent, Wilcox & Wish, 2009) and an increased in self-destructive behavior (Serras, Saules-Cranford & Eisenberg, 2010). Studies show that depression imposes an economic burden on communities and families (Gladstone & Beardslee, 2009). Because of the prevalence of depression among college students, they are recognized as a vulnerable and at-risk group (Buchanan, 2012).

The National Institute of Mental Health emphasizes the development and expansion of intervention to decrease the spread of clinical depression among high-risk populations (Hollon, Thase & Markowitz, 2002; Trompetter, Lamers, Westerhof, Fledderus & Bohlmeijer, 2017). Due to the prevalence of depression among the student population, there is an urgent need to develop effective and empirically-confirmed intervention aimed at this group (Gawerysiak, Nicholas & Hopko, 2009). Weak emotion regulation is a common diagnostic factor associated with various forms of psychopathology (Kring & Sloan, 2010; Mansell, Harvey, Watikins & Shafran, 2009; Watkins, 2008). Theorists have argued that difficulty in the application of cognitive emotion regulation strategies may be a very important diagnostic factor that forms the basis of various types of mental health such as anxiety and depression. (Mansell Harvey, Watikins & Shafran, 2009; Mosses & Barlou, 2006; Kring & Sloan, 2010; Aldo & Nolen-Hoksema, 2010). Therefore, there is a need to develop studies on emotion

regulation in patients with anxiety and depression ([Cambell-Sills, Brown & Hofman, 2006](#)).

Emotion regulation strategies are cognitive responses to events that consciously or unconsciously evoke the thrill of trying to change the amount and intensity of emotional experiences or events ([Aldo & Nolen-Hoksema, 2010](#)). Evidence suggests that cognitive strategies such as rumination, blame and disaster seemed to be positively correlated with depression and other pathological aspects. This correlation is negative in strategies such as positive re-evaluation ([Garnefski, Legerstee, Kraaij, Vanden & Teerdas, 2002](#)). Recent studies have found that effective and efficient emotional regulation is vital for mental health and difficulty with emotion regulation is related to problematic behavior and mental disorders, such as substance abuse, self-harm, depression, anxiety, borderline personality disorder and post-traumatic stress disorder ([Roberton, Daffern & Bucks, 2012](#)).

In the early 1990s, therapy evolved with the development of innovative treatments using the principles of mindfulness, awareness of and acceptance of the present moment ([Cardaciotto, 2005](#)). Acceptance and commitment based therapy, which was introduced by Hayes in 1986, hypothesizes that trauma is associated with the attempt to control or avoid negative thoughts and emotions. This therapy emphasizes changing the relationship between inner experiences and references ([Roemer & Orsillo, 2010](#)). The underlying principles of ACT include: (1) reception with a desire to experience pain or other disturbing events without action to curb them and (2) action based on value or commitment coupled with the willingness to act as personal meaningful goals, it is more than the removal of unwanted experiences that interact with other

non-verbal connections in a way that results in healthy functioning.

ACT involves empirical experience and exposure-based exercises, linguistic metaphors and methods such as mental care (Vallis, Ruggiero, Green, Jones, Zinman & Rossi, 2003). This type of therapy has six basic principles: diffusion, reception, contact with the present moment, self- observation, values and responsible action (Harris, 2006). The ultimate goal of acceptance and commitment is to help to increase psychological flexibility (Rowland, 2010). Psychological flexibility means the ability to contact the present moment and is a psychological reaction in which a person becomes conscious and changes his behavior or stabilizes himself according to his selected values (Fletcher & Hyes, 2005). Finally, acceptance and commitment increase psychological flexibility and examines language and cognitive problems (Rowland, 2010).

ACT directs the patients to see their thoughts and emotions as separate and allows therapists to reform are national framework and negative cognition states. This therapeutic strategy is like extrapolating in the narrative of therapy (Rowland, 2010). Bohlmeijer, Fledderus, Rokx, & Pieterse (2011) evaluated the effectiveness of ACT on depression in Dutch women. Intervention based on acceptance and commitment led to a significant reduction in the symptoms of depression for these women. This decrease had been maintained at the three-month follow-up. A decrease was observed in anxiety and fatigue. The results of this study show that early intervention based on ACT to increase acceptance was effective in reducing symptoms of depression. Folke (2012) concluded that individuals who were unemployed because of depression and who received acceptance and commitment-based education were cured of depression and

enjoyed better general health and quality of life than the control group.

Because mental health is essential to effective and satisfying life and the mental health of society, especially for its effective and productive strata, it is necessary for the dynamism, prosperity and prosperity of that society. The prevalence of depression among students has a negative effect on their academic and future job performance and imposes costs on society and families. There is an urgent need to develop effective treatments for the student population. The purpose of this study was to determine the effects of ACT on symptoms of depression and suicidal thoughts among the undergraduate students at two universities in Lahijan. The question to be addressed is whether or not ACT can affect the depressive symptoms and cognitive emotion regulation strategies of university students.

### **Method**

The research method was a quasi-experimental study with a pretest, posttest, and follow-up design and control group. Their search population comprised male and female undergraduate students enrolled in the summer term of the 2014-2015 academic years who had been diagnosed with depression in the city of Lahijan, in Gilan province, in Iran. The samples were selected by multistage sampling from among students at two universities in Lahijan having a summer term, these were the Islamic Azad University, Faculty of Science, and Deilaman Private University, Faculty of Technology. The sample from 20 classes at each university were selected and two-thirds of the students of each class were randomly selected.

The Beck Depression Inventory, Second Edition (BDI-II) was distributed among 600 of these students. After collecting the questionnaires and scoring them, 174 of the participants who scored 19 or more (average depression) were selected to be interviewed for more precise review of their depressive symptoms and adherence to the inclusion and exclusion criteria. A total of 59 out of the 174 took part in interviews. After conducting a structured clinical interview, 51 of them were diagnosed with depression. Of these, 40 undergraduate students were randomly selected to receive the BDI-II and a structured clinical interview for depression. Twenty students were then randomly assigned to the experimental group (based on ACT) and 20 patients to the control group (waiting list).

The cognitive emotion regulation questionnaire (CERQ) was administered to the experimental group at the beginning of the first session and subsequently to the control group as the pre-test. Absences during three sessions were considered a criterion for exclusion and the data for such persons was excluded. Consequently, three participants were excluded from the experimental group (two with more than three days of absence and one who withdrew from treatment); thus, three participants were randomly excluded from the control group. The final sample of the study on which the analysis was conducted consisted of 34 participants (17 in each group).

### **Clinical Interview for Axis I disorder in DSM-IV (SCID-I/CV)**

This checklist is an instrument for diagnosis based on the DSM-IV criteria and definition ([First, Spitzer, Gibbons & Williams, 1997](#)). The first of its two versions is the clinical version (SCID-I), which covers psychiatric diagnosis and is used

in clinical environment and designed for clinical research. The second is the complete and longer research version (SCID-I/R) that covers all diagnoses, the type and severity of criteria and progression of the disorder. [Bakhtiari \(2000\)](#) reported the reliability of this instrument as .95 in an Iranian population with retesting in one week ([Bakhtiari, 2000](#)).

### **BDI-II**

This questionnaire is the revised BDI and is consistent with DSM-IV criteria for depression ([Beck, Steer & Brown, 1996](#)). The questionnaire contains 21 items scored according to a 4 point Likert scale from, 0 to 3. [Fata, Birashk, Vahid and Dobson \(2005\)](#) implemented the questionnaire on a sample of 94 Iranian individuals and reported an alpha coefficient of .91, a correlation coefficient between the two halves of .98 in one week and a reliability coefficient of .94 ([Fata et al., 2005](#)). Kaviani reported validity coefficient of .70, a reliability of .77 and internal consistency of .91 for this questionnaire ([Kaviani, 2008](#)). In the current study, the Cronbach's alpha coefficient was .82.

### **CERQ**

CERQ was developed by [Garnefski, Kraaij & Spinhoven \(2001\)](#) in the Netherlands and has two versions (English and Dutch). CERQ is a multidimensional questionnaire used to identify cognitive coping strategies after experiencing negative events or situations. Unlike other coping questionnaires that do not clearly distinguish between thought and actions, this questionnaire evaluates person's thoughts after exposure to traumatic events or undergoing a negative experience. This questionnaire is a self-report instrument with 36 items and its implementation is easy for 12-year-old children and older

people (both normal and clinical subjects). It consists of nine sub-scales, each including four items. The total score of each sub-scale is obtained by adding the values for each statement. The Persian version of the CERQ was validated by [Besharat \(2009\)](#) and [Hasani \(2010\)](#) in Iran. [Besharat \(2011\)](#) found the psychometric properties of this form, including internal consistency, test-retest reliability, content validity, convergent validity and discrimination to be satisfactory.

[Besharat \(2009\)](#) carried out a preliminary study on the psychometric characteristics of this questionnaire in a sample of the general population 168 (97 women, 71 men) and reported the Cronbach's alpha coefficient of the subscales to be .67 to .89. The correlation between the number of participants (43 females and 36 males) was calculated twice at two and four weeks for the scale of the questionnaire was  $r = .75$  and  $r = .76$ , respectively. In this study, CERQ was calculated based on the validation of eight psychology experts and Kendall coefficients of .81 to .92 were reported for the subscales.

## Results

The experimental group followed ACT for eight 90-minute sessions twice a week. The protocol was designed in accordance with that of [Zetel & Hayes \(1986, 1987\)](#) and the principles presented in the ACT publication by [Iyzadi & Abedi \(2013\)](#) as adapted for use in these meetings. The control group received no intervention. Data analysis was performed using SPSS-16 software.

**Summary of ACT Sessions**

<b>Sessions</b>	<b>Objectives</b>
<b>1</b>	Introduction and getting acquainted with one another. Communicating with team members (referrals). Introduction to ACT orientation and objectives. Evaluation and conceptualization. Break.
<b>2</b>	Review of previous session. Discussion about painful experiences. Evaluation of clients. Creating innovative disappointment. Break.
<b>3</b>	Review of previous session. The problem of control and desire. Break.
<b>4</b>	Review of previous session. Introduction to blame. Introduction of clean and unclean pain. Decreasing dependence on depressive thoughts. Defining one's identity through a computer metaphor. Break.
<b>5</b>	Review of previous session. Introducing ourselves as wallpaper. Discussion about the decline in personal interest in individual events. Break.
<b>6</b>	Review of previous session. Application techniques: mindfulness, relaxation and entertainment.
<b>7</b>	Review of previous session. Added value, value assessment through prioritization. Break.
<b>8</b>	Review meeting to understand the nature of desire and commitment. Completing the BDI. Cognitive emotion regulation. Get feedback from clients. Break.

**Table 1**  
**Mean Score of Depression and Cognitive Emotion Regulation Strategies in Experimental and Control Groups for Pre-test, Post-test and Follow-up**

Group	Variable	N	Pre-test		Post-test		Follow-up	
			Mean	SD	Mean	SD	Mean	SD
Experimental	Depression	17	32.76	10.57	22.52	11	20.82	<b>7.07</b>
	Positive CER strategies	17	64.23	11.28	70.85	8.21	70.05	<b>6.60</b>
	Negative CER strategies	17	53.05	11.59	41.11	10.58	40.64	<b>4.06</b>
Control	Depression	17	30.11	9.07	28.11	11.05	29.52	<b>8.67</b>
	Positive CER strategies	17	61.05	9.7	57.29	7.84	59	<b>6.64</b>
	Negative CER strategies	17	43.35	7.02	46.76	6.19	48.94	<b>5.2</b>

**Table 2**  
**Results of Homogeneity of Variance of Experimental and Control Groups**

Scale	df <sub>1</sub>	df <sub>2</sub>	F	sig
<b>Depression</b>	1	32	3.15	.085
<b>Negative Cognitive Strategies</b>	1	32	2.56	.119
<b>Positive Cognitive Strategies</b>	1	32	.026	.872

The results in Table 2 show that the Levene's test results on the dependent variable were not significant; therefore, the variance between the experimental and control groups were not

significant different in research variables and the assumption of homogeneity of variance is confirmed.

**Table 3**

**Results of Multivariate Variance on the Difference between Pre-test and Post-test Scores of the Dependent Variables (Depression and CER Strategies) in Experimental and Control Groups**

	Test value	F	Hypothesis df	Error df	sig.	Trace size
<b>Pillai's trace</b>	.796	24.33	4	25	.01	.796
<b>Wilks'lambda</b>	.204	24.33	4	25	.01	.796
<b>Hotelling's trace</b>	3.89	24.33	4	25	.01	.796
<b>Roy's largest root</b>	3.89	24.33	4	25	.01	.796

The results in Table 3 show that there is a significant difference in at least one of the dependent variables between groups. Accordingly, there is a significant difference between groups in at least one dependent variable. ANCOVA was used to find the difference. The results of this analysis are presented in Table 4.

**Table 4**

**Univariate Analysis of Variance on the Difference between Pre-test and Post-test Score Variables, Depression and CER Strategies in the Experimental and Control Groups**

Variable	Sum of squares	df	Mean square	F	Sig.	Trace size
<b>Depression</b>	738.77	1	738.77	29.47	.01	.513
<b>Positive Emotion</b>						
<b>Regulation Strategies</b>	885.01	1	885.01	19.14	.01	.406
<b>Negative Emotion</b>						
<b>Regulation Strategies</b>	1136.42	1	1136.42	49.02	.01	.636

The results presented in Table 4 show that there was no significant difference between groups for depression ( $F = 47.29$ ,  $p = .01$ ), positive CER strategies ( $F = 19.14$ ,  $p = .01$ ) and negative CER strategies ( $F = 49.02$ ,  $p = .01$ ). The findings show no significant difference for depression and CER strategies between groups ( $p = .01$ ).

**Table 5**

**Multivariate Analysis of Variance on the Difference between Post-test and Follow-up Scores, Depression and CER Strategies between Groups**

Variable	Value	F	Hypothesis df	Error df	Sig.	Trace size
<b>Pillai's trace</b>	.692	14.04	4	25	.01	.692
<b>Wilks'lambda</b>	.308	14.04	4	25	.01	.692
<b>Hotelling's trace</b>	2.24	14.04	4	25	.01	.692
<b>Roy's largest root</b>	2.24	14.04	4	25	.01	.692

The results in Table 5 show that there was a significant difference in at least one dependent variable between groups. It

can be stated that there is a significant difference between groups in at least one dependent variable. ANCOVA was used to find the difference. The results of analysis are presented in

**Table 6**  
**Univariate ANOVA on the Difference between Pre-test and Post-test Scores and Depression and CER Strategies between Groups**

Variable	Sum of squares	df	Mean Squares	F	Sig.	Trace size
<b>Depression</b>	804.45	1	804.45	25.18	.01	.743
<b>Positive CER Strategies</b>	1326.49	1	1326.49	14.78	.01	.346
<b>Negative CER Strategies</b>	725.72	1	725.72	32.72	.01	.539

The results presented in Table 6 show that there was no significant differences between groups for depression ( $F=25.18$ ,  $p=.01$ ), positive CER strategies ( $F=14.78$ ,  $p=.01$ ) and negative CER strategies ( $F=32.72$ ,  $p=.01$ ). The findings for depression and CER strategies indicate no significant difference between groups ( $p=.01$ ).

### Discussion

This study aimed to evaluate the efficacy of ACT on depressive symptoms and CER strategies among depressed students at universities in Lahijan. The aim was to study the efficacy of ACT on depressive symptoms and CER strategies among depressed students. The results showed that there was a

significant difference between groups for the pre-test and follow-up scores for depression and CER strategies. ACT reduced depression and negative CER strategies and increased positive CER strategies in the experimental group compared to the control group.

These findings are consistent with those of [Walser, Karlin, Trockel, Mazina & Taylor \(2013\)](#), who examined the efficacy of ACT on depressive symptoms. The findings indicated that ACT reduced depression. [Folke \(2012\)](#) concluded that long-term unemployed individuals who were depressed but received ACT training showed a decrease in depression and improvement in general health and quality of life compared to the control group. [Teasdale, Segal, Williams, Ridgeway, Soulsby & Lau \(2000\)](#) It can be said that people interpret what is happening and cause persistent reactions and feelings.

In individuals with depression, sad and negative thoughts tend to be permanent, which perpetuates depression. The ACT method helps individuals to experience thoughts as mental events and focus on breathing as a tool to live in the present. With this method, depressed individuals are trained to stop the cycle of rumination and negative thoughts. Flexible training on attention, mental enrichment, stopping rumination, positive and negative correction of erroneous beliefs and challenging negative beliefs about emotions reduces depression. Increased attention and awareness of thoughts, emotions and desires and the practical positive aspects of acceptance and commitment will coordinate adaptation behaviors and positive psychological states. I will improve the ability of individual-to-individual and social activities and the interest in this activity essential ([Hayes, 2004](#)). Acceptance and commitment, feeling without judgment, balanced consciousness, seeing clearly and accepting emotional

and physical phenomena as it happens also helps (Brown & Ryan, 2003).

Training and dedication helps to decrease sensitivity for physical and psychological symptoms and fosters acceptance of these feelings, leading to the use of positive CER strategies. Hayes (2005) also believes that the ACT approach, rather than focusing on resolving and removing harmful agents, helps clients control their previously-accepted emotions and insights and control thoughts that cause problems. ACT makes it possible for the client to change their relationship with their inner experiences, avoid experiential loss, increase flexibility and gain valuable practice routes. Changing relationships with inner experience includes expanding the inner consciousness and clarity. The purpose of the training is to experience thoughts and emotions as they happen naturally (Roemer & Orsillo, 2011). This treatment helps patients to understand the nature of their inner experiences, especially emotional functioning and the role that inappropriate relationships with internal experiences may have in continuing problems. Self-evaluation can help to raise awareness of the authority of internal experience. Particularly, they understand that their experiences are low and relevant to their situation and behavior. Therefore, sufficient time should be devoted to practical exercises that provide new ways to connect with inner experiences (Lee et al., 2005).

ACT emphasizes increasing valuable practice. Clients submit those behavioral objectives that have the most importance or value to them. This treatment, more than being a moral judgment, is personal care for the person who shows a particular action. These values include improved interpersonal relationships, education, self-care and having marital relations. The purpose is to engage in activities that are important to them,

but are avoided. An important component of target identification and clarification of important issues for the authorities is to bring awareness to the present moment on the basis of these values and attempt to do things. All the ways to fulfill the first objective make it practical to achieve this goal (Roemer et al., 2011).

The use of ACT is recommended where counseling and psychotherapy are responsible for providing services to young people, including students, and are involve in promoting health. It is also recommended that ACT should be done in the presence of at least two therapists. The limitations of this study relate to the samples of depressed students. Therefore, generalization of the results to other segments of society is not possible because this study was conducted on depressed students from two universities in Lahijan. An additional limitation was the lack of supervision for training assignments outside the training sessions.

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