The Effectiveness of Acceptance and Commitment Therapy on the Improving of Resilience and Optimism in Adolescents with Major Depressive Disorder

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Abstract

Background and Objective: *In today's society, depression is one of the most prevalent types of psychological disorders which is also so common among adolescents. The goal of this research was the study of effectiveness of Acceptance and Commitment Therapy (ACT) on the improving of resilience and optimism in adolescents with major depressive disorder.* ***Materials and Methods:*** *This study was conducted semi-experimentally with pretest-posttest control group design and two months follow up period. According to the inclusion criteria 16 adolescent girls with major depressive disorder was selected through availability sampling and then randomly assigned into two experimental and control eight member groups. In order to evaluate the variables, Connor-Davidson Resilience Scale (CD-RISC) and Life Orientation Test-Revised (LOT-R) were applied. Adolescents in experimental group were treated by Acceptance and Commitment Therapy in eight sessions, each lasted 60-90 minutes. Data were analyzed by using the SPSS-23 software and analysis of variance with repeated measures statistical method.* ***Results:*** *The findings showed that Acceptance and Commitment Therapy has had significant effect on the improving of resilience and optimism. This also persisted in the follow up period.* ***Conclusion:*** *According to the results of this research, the use of Acceptance and Commitment Therapy in order to improve resilience and optimism in adolescents with major depressive disorder is recommended to all psychologists, consultants and psychiatrists of private and governmental treatment centers, and also consultants of schools and educational centers.*

Keywords: Major Depressive Disorder, Resilience, Optimism, Acceptance and Commitment Therapy, Adolescents.

1. Introduction

The World Health Organization defines depression as a major mood disorder that is associated with low mood, loss of interest, feelings of worthlessness and guilt, eating and sleeping disorder, decreased energy and difficulty concentrating (WHO, 2016). In recent years, the age of onset of depression has markedly decreased and it has turned into a common issue among children and adolescents. There is a 1-fold increase in depression symptoms between 13-15 years old, and female adolescents have been reported to have a 2-fold increased susceptibility to the risk of persistent depressive disorder (PDD) than their male counterparts (Berk, 2007).

One common point among people with depression is intolerance against failure and hardship; in this sense, depressed people usually lose their hope in a short time and give up (Roy, Sarchiapone & Carli, 2007; Lee & Cranford, 2008). Resilience is a prominent feature that leads people to resist misfortune and adversity and to increase their chances of overcoming them. Resilience is best defined as successful adaptation to adverse conditions (Zautra, Hall & Murray, 2010). Components of resilience are negatively correlated with symptoms of depression among adolescents (Moljord, Moksnes, Espnes & Hjemdal, 2014) and amend the risk of suicidal ideation in patients with depressive disorders (Min, Lee, & Chae 2015). Another issue which has recently been given much attention by positively-oriented psychology is optimism. Optimists are people who expect good things to happen to them (Carver, Scheier & Segerstrom, 2010).

When dealing with a problem, optimists demonstrate a greater resilience (even if their progress is difficult or slow) (Snyder & Lopez, 2002). High optimism is associated with decreased severity of depression symptoms (Boelen, 2015) and decreased suicidal thoughts (Huffman, et al., 2016).

Adolescents with depression are pessimistic, see no future ahead and assume failure in reaching their goals. Moreover, such group of people believe that they are not useful, not charming and worth nothing (Fox, 2002). These are signs and symptoms that are inefficient, inconsistent, irrational and negative in approaches such as cognitive-behavioral therapies, and need to be modified, altered or deleted through different techniques. However, in acceptance and commitment therapy (ACT), the objective is not to change such symptoms, but to change the client's relationship with their thoughts and feelings so that others do not perceive them as signs. The ultimate goal is to transform these painful thoughts and emotions from their old form, i.e., traumatic symptoms of anomalies, which prevent rich and meaningful life, into a newer form, i.e., normal human experiences, which are part of a rich and meaningful life (Hayes & Strosahl, 2010).

A majority of previous studies on ACT have been associated with adult population and its effectiveness on improving resilience and optimism in adolescents with depression has been ignored. Because many parents do not regard their adolescent problem serious until it becomes critical and do not seek for help, application of therapeutic interventions could dramatically reduce future psycho-social problems.Given that the effectiveness of ACT on depression (Hayes, et al., 2011; Livheim, et al., 2014; Thekiso, et al., 2015; Walser, et al., 2015), resilience (Aghaei & Heidari, 2016; Badiee, 2016; Mohammadi Khashouei, 2017) and optimism (Sadegh Pourmoradi, 2016) has been confirmed and that there is a negative relationship between resilience and optimism with major depressive disorder (Baldwin, et al., 2008; Moljord, et al., 2014; Velden, et al., 2007; Zhou, et al., 2017), the main research question raised is as follows: Does ACT have impacts on promoting resilience and optimism in adolescents with major depressive disorder?

2. Materials and Methods

This research was a quasi-experimental study with pre-test, post-test, control group and follow-up period. The study population consisted of 13-18-year-old adolescent girls with major depressive disorder, who had referred to the psychiatric ward of Golestan Hospital in Ahvaz during May and June, 2016. Due to lack of access and possibility of random sampling, non-random convenient sampling method was used in this study. Hence, 16 subjects who met the inclusion criteria were introduced and then randomly divided into two experimental (n = 8) and control (n = 8) groups. Inclusion criteria consisted of being a student, not concurrently receiving other psychological treatments, the use of the SSRI (Selective Serotonin Reuptake Inhibitor) antidepressant if necessary, and attending at all meetings held for 13-18 year old adolescent girls with major depressive disorder (based on the DSM-5[1]diagnostic criteria and psychiatrists' view). In order to measure the variables, Connor-Davidson Resilience Scale and Life Orientation Test-Revised were separately placed at the disposal of both groups. In the experimental group, ACT interventions were individually run during eight60-90 minute sessions.After these sessions; the questionnaires were recompleted by both groups .To have follow-up investigations, the questionnaires were made available to the participants two months later. Summary of ACT protocol in the present study was as shown below for each session (Table 1).

3. Results

In the present study, 16 adolescents with major depressive disorder were studied in two experimental and control groups. The mean age values for the experimental and control groups were 15.88and 15.38 years, respectively. Table 2 shows descriptive statistics of resilience and optimism scores for separate groups in pretest, posttest, and follow-up period. To test the hypotheses, multivariate analysis of variance with repeated measures was used. Its two basic assumptions shall be considered prior to performing the statistical method:

1. Normal distribution of scores: Shapiro-Wilk test was used to investigate the normal distribution of scores (Table 3). According to the results in Table 3, Z-score value obtained from nonparametric Shapiro- Wilk tests revealed no significant difference between resilience and optimism of the participants in separate groups during pretest, posttest and follow-up periods at 0.05 (P>0.05). Hence, the null hypothesis that the data follow a normal distribution is accepted.
2. Homogeneity of variances: Levene's test was used to test this assumption (Table 4).

[1]Diagnostic and Statistical Manual of Mental Disorders- fifth Edition

According to the results in Table 4, F-score value obtained from Levene's test revealed no significant difference between resilience and optimism of the participants in separate groups during pretest, posttest and follow-up periods at 0.05 (P>0.05). Hence, the null hypothesis that the data possess Homogeneity of variances is accepted. Tables 5 and 6 represent the analysis of variance with repeated measures of the participants' resilience and optimism scores.

The results presented in Tables 5 and 6 indicate that the impact of the variable time at different measurement stages of the resilience (P=0.003) and optimism (P=0.001) scores is significant. That is, the difference between the mean scores of the pretest, posttest and follow-up is significant. Furthermore, the impact of the variable time at different measurement stages of the resilience (P=0.036) and optimism (P=0.013) scores is significant. This shows that the differences between the experimental and control groups are significant. In order to recognize significant differences between any two phases, the three steps were compared in pairs using Bonferroni post-hoc test (Tables 7 and 8).

As it can be observed in Tables 7 and 8, the differences between the mean scores of resilience (P=0.015) and optimism (P=0.010) are significant in pretest and posttest stages. Since the mean scores of resilience at pretest and posttest phases respectively are 26.88 and 44.75 for the experimental group and the equivalent mean scores for the control group respectively are 28 and 28.75, it can be concluded that the first hypothesis is confirmed. Furthermore, since the mean scores of optimism at pretest and posttest phases respectively are 9.25 and 16.75 for the experimental group and the equivalent mean scores for the control group respectively are 10.13 and 10.88, it can be concluded that the second hypothesis is confirmed.

Finally, lack of significant difference between the posttest and follow-up mean scores of resiliency (P=0.691) and optimism (P=1) represents the continuing effectiveness of ACTon the promotion of resilience and optimism since the completion of the intervention to follow-up stage.

4. Discussion

This study examined the effectiveness of ACT on the promotion of resilience and optimism in adolescents with major depressive disorder. The results showed that the ACT has an impact on the promotion of resilience and optimism in adolescents with major depressive disorder and this effect is also lasting after two months. These findings are consistent with the results of the studies conducted by Aghaei and Heidari (2016), Badiee (2016); Mohammadi Khashouei (2017) regarding the effectiveness of ACT on improving resilience and are in line with the research conducted by Sadegh Pourmoradi (2016)in terms of the effectiveness of ACT on the promotion of optimism. Findings were also in a similar vein with research by Baldwin, et al. (2008); Moljord, et al.(2014); Velden, et al. (2007); Zhou, et al. (2017) with respect to the existence of a negative relationship between resilience and optimism and major depressive disorder.

To explain these findings, it can be mentioned that as there is a significant positive relationship between resilience and optimism and the relationship between resilience and optimism is an important feature (Theresa, 2010), it can be expected that this method which could lead to the promotion of resilience can also increase the target group’s optimism and vice versa.

According to the pathology model of ACT, people who feel depressed and fatigued try to passively reduce their grief, and fatigue through isolation. One of avoidance strategies that depressed individuals used to avoid inner experience is rumination. Such avoidance patterns in one’s behaviors can hinder his movement towards worthwhile goals and jeopardizes him. Avoidance and strive to remove negative experiences may cause short-term relief; however, the negative experiences are more likely to arise with more intensity.

One of the components of the ACT is acceptance. A client who has decided to have treatment and is decided to make a change in his life, appropriate techniques to initiate treatment can be creative distress with regard to his previous avoidance strategies and introducing acceptance component. A depressed adolescent, however, has little motivation for the treatment and when he is asked to exclusively consider his problem from the perspective of the component acceptance, he probably would fail to accompany. Hence and since the first sessions of the treatment, the clients’ values along with other components of ACT were reviewed. Using the metaphor "skater girl", the client found that the pain of fall for a novice skater can more easily be accepted with having its learning value in mind and she can be optimistic. Acceptance means to view and accept an event or situation and it does not necessarily refer to a favorable event or situation.

Given that resilience is the ability to successfully adapt with adverse conditions (Zautra, et al., 2010), depressed adolescents have been resilient if they can actively accept their annoying emotions and not avoid them. Components of self as context and cognitive defusion allow clients not to regard depressed mood as equal to their identity, and only consider it as an experience, which, although perceived, is not the whole story of their life. With the help of the metaphor "clouds in the sky", the depressed adolescent realized that his disturbing thoughts and feelings are hollow and light, like clouds in the sky, sometimes dark and disturbing and sometimes white and charming; yet he always has a fixed and lasting mind. Cognitive defusion causes one's reduced vigilance towards disturbing thoughts and feelings, resulting in a reduced negative assessment against such thoughts and feelings. This allows one to preserve one's resilience against them and to feel optimistic about oneself, the world and future.

Among other components of the ACT is sustained contact with every moment of life. Mindfulness exercises can be involved in treatment of clients who need more contact with the present moment. Mindfulness includes description, act with awareness and acceptance without judgment (Hayes & Shenk, 2004). Mindfulness exercises such observing thoughts (experience a wandering mind) and counting breaths facilitate the observation of thoughts and senses here/now and prevent one from getting stuck in there/later through verbal conflict with thoughts and feelings. The use of these techniques makes it clear that the human mind constantly regrets for the past or worries about the future. The adolescents were trained to sarcastically appreciate their mind for an attempt to distract them off of the present moment, and with high motivation coming from their lives' values, maintain their commitment actions. Therefore, clients with resilience not only blame themselves against setbacks and failures, but also actively embrace them, do not consider evaluative thoughts about themselves as mere facts and demonstrate realistic optimism towards the future.

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Table 1: Summary of ACT protocol

Treatment sessions	Treatments and Techniques
First session	In this session, the objective was to get familiar and make therapeutic relations with the clients. Therapeutic relations can be a tool to model the relationships established by the clients regarding their own internal events. First, the clients' annoying thoughts, feelings, and emotions were investigated and the therapist then provided general explanation on ACT treatment. Depressed adolescents have low levels of motivation and hope for treatment. Initiating the treatment with the values of such clients can be regarded as a strategic method by the therapist (Bach & Moran, 2008). Thus, another purpose of this session was to measure the participants' values using the value description form and to check out the weekly performance of the individuals in the direction of their values.
Second session	First, an individual's performance was discussed to create innovative distress according to his values,harms and expenses caused by inner annoying thoughts, strategies adopted to control it, and the extent of success for such strategies to settle his problems. It emerged at the end of sessionthat "control is the problem in the ACT not the solution". Unlike external events, it comes true for inner events, indicating that "if you would not like to have something (annoying thoughts and emotions), you have to have it"!
Third session	In this session, it was described to the clients that internal events (thoughts, feelings and emotions) are not problematic by themselves; however, it is the clients' dealing with the events that should change. Thus, the component acceptance was introduced in the ACT treatment and metaphors, examples extracted from the clients' life and experimental exercises were used. Following the introduction of the above-mentioned components, the clients were also warned that false acceptance is not the goal of the ACT treatmentand acceptance should not be to avoid and get rid of annoying inner events.
Fourth session	In this session, the components cognitive defusion and mindfulness were introduced in the ACT therapy. To this end, metaphors such as (like clouds in the sky) and experimental exercises were used. At the end of the session, the clients restated their values and it was discussed that the values differ from the objectives and achieving the goals can serve distinct values.
Fifth session	Clients initially presented a report of their performance .After practicing mindfulness, the techniques introduced in previous sessions were expanded and there were some practices performed by the therapist and client.
Sixthsession	After practicing mindfulness, the component self was raised as background (and the content) through the metaphor of a chess board. Then, the six core processes of ACT were summarized by the therapist and client.
Seventh session	After practicing mindfulness, the FEAR and ACT algorithms were introduced. The FEAR algorithm was considered as a barrier to move towards values and includes Fusion, Evaluation, Avoidance, and Reason-giving. It also causes psychological inflexibility. The ACT algorithm that leads to psychological flexibility includes Acceptance, Choose, and Take action.
Eighth session	In this session, one's commitment to take action in line with his own values in the coming days were evaluated and the clients were asked to use a ten-point scale to rate their own commitment .Finally, it was explained to the clients that they should be their own therapists, and always emphasize on behavioral objectives and regard the fact improvements in the treatment process are gradual.

Table 2: Descriptive statistics of resilience and optimism

Variable	Group	Stage	Minimum	Maximum	Mean	Standard Deviation
Resilience	**Experimental**	Pre-test	15	37	26.88	8.58
		Post-test	33	57	44.75	10.03
		Follow up	32	56	43.63	9.01
	Control	Pre-test	19	41	28	7.71
		Post-test	10	58	28.75	14.27
		Follow up	16	49	27.75	10.26
Optimism	**Experimental**	Pre-test	5	14	9.25	3.01
		Post-test	10	21	16.75	3.28
		Follow up	11	21	16.63	3.42
	Control	Pre-test	5	17	10.13	4.05
		Post-test	4	16	10.88	4.29
		Follow up	6	17	10.13	3.56

Table 3: Shapiro-Wilk Test of Normality

Group	Test	stage					
		Pre-test		Post-test		Follow up	
		Resilience	**Optimism**	**Resilience**	**Optimism**	**Resilience**	**Optimism**
Experimental	Shapiro-Wilk Statistic	0.92	0.98	0.86	0.92	0.93	0.95
	sig	0.43	0.93	0.12	0.42	0.49	0.71
Control	Shapiro-Wilk Statistic	0.93	0.93	0.92	0.89	0.91	0.94
	sig	0.5	0.49	0.39	0.22	0.33	0.6

Table 4: Levene's Test to Examine Homogeneity of variances

Variable	Stage	F	Df1	Df2	Sig
Resilience	Pre-test	0.3	1	14	0.59
	Post-test	0.02	1	14	0.89
	Follow up	0.06	1	14	0.82
Optimism	Pre-test	0.71	1	14	0.41
	Post-test	0.97	1	14	0.34
	Follow up	0.06	1	14	0.82

Table 5: AVOVA with Repeated Measures Test of Resilience

Source	Sum of Squares	Df	Mean Square	F	Sig	Partial Eta Squared
Time	831.54	1.24	670.83	10.9	0.003	0.44
Group	1260.75	1	1260.75	5.35	0.036	0.28
Time*Group	776.38	1.24	626.33	10.18	0.003	0.42

Table 6: AVOVA with Repeated Measures Test of Optimism

Source	Sum of Squares	Df	Mean Square	F	Sig	Partial Eta Squared
Time	164.29	2	82.15	9.4	0.001	0.4
Group	176.33	1	176.33	7.99	0.013	0.36
Time*Group	133.79	2	66.9	7.66	0.002	0.35

Table 7: Bonferroni Post-hoc Test in Pre-test, Post-test and Follow up Stages of Resilience

stage)J) (I(	Mean Difference) I – J(	Std.Error	Sig
Post-test Pre-tes	-9.31	2.79	0.015
Follow up	-8.25	2.4	0.012
Post-test Pre-test	9.31	2.79	0.015
Follow up	1.06	0.85	0.691

Table 8: Bonferroni Post -hoc Test in Pre-test, Post-test and Follow up Stages of Optimism

stages **(J)** **(I)**	**Mean Difference** **(I – J)**	**Std.Error**	**Sig**
Post-test Pre-test	-4.13	1.18	0.010
Follow up	-3.69	1.2	0.025
Post-test Pre-test	4.13	1.18	0.010
Follow up	0.44	0.68	1