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The Comparison of the Effectiveness of Schema therapy and Acceptance and Commitment Therapy on Depression and Anxiety among the Students of Hormozgan University of Medical Science, Iran

Azadeh Amiri Moghadam[1]

[1] PhD, Department of Health Psychology, South Tehran Branch, Islamic Azad University, Tehran, Iran

Quantitative Study

Abstract

Background: Mental health is an important aspect of students' health as the future of the country, and they areexposed to many stressors due to their age and social status. This research was conducted with the aim to compare the effectiveness of schema therapy and acceptance and commitment therapy (ACT) on depression and anxiety.

Methods: The present quasi-experimental study was performed with a pretest-posttest design and an experimental and a control group. The statistical population consisted of all students of Hormozgan University of Medical Sciences, Bandar Abbas, Iran, who enrolled in the 2014–2015 academic year. For this purpose, 48 students were selected through purposive sampling and were divided into two groups (experimental and control). Both ACT and schema therapy were performed in 12 weekly sessions. The data collection tools consisted of the Beck Depression Inventory II (BDI-II) and Beck Anxiety Inventory (BAI). The questionnaires were completed in the pretest and posttest stages. The data analysis was carried out using multivariate analysis of covariance (MANCOVA) in SPSS software.

Results: The results of MANCOVA showed that there is a significant difference between the effectiveness of schema therapy and ACT on depression and anxiety. Schema therapy was more effective in treating depression compared to ACT in the students (P < 0.001). Nevertheless, ACT was more effective in reducing students' anxiety than schema therapy P < 0.001).

Conclusion: It can be concluded that schema therapy was more effective in treating depression, but ACT was more effective in reducing anxiety in students.

Keywords: Schema therapy, Acceptance and commitment therapy, Depression, Anxiety, Students

Introduction

Universities are one of the most important environments in which the mental health of the youth can be evaluated. Moreover, students are creators of their country's future, constitute a considerable amount of the youth, and the developers of higher education centers. Stress, anxiety, and depression as mental health factors, in addition to the problems experienced by the

Corresponding Author:
Amiri-Moghadam; PhD, Department of Health Psychology, South Tehran Branch, Islamic Azad University, Tehran, Iran
Email: a.amirimoghadam85@gmail.com

students during their education, results in intervention with the professional role and taking responsibility for society members' health in the future (Ahmadian, Fata, Asgharnezhad, & Malakooti, 2008). Thus, decreasing stress, anxiety, depression, and psychological pressure among students has an important role in increasing interest in work and group cooperation and sense of accountability (Rajabi & Yazdkhasti, 2014). Various studies have shown that high levels of stress, anxiety, and depression can have negative effects on health, quality of life (QOL), educational progress, and students' enthusiasm to accept their professional roles; thus, attention to these issues and their consequences as well as the implementation of suitable strategies for their elimination is of great importance (Najafi Kalyani, Pourjam, Jamshidi, Karimi, & Najafi Kalyani, 2013).

Based on previous studies, it is believed that students with depression and anxiety cannot communicate effectively or adopt with others, and they are susceptible to physical diseases. These disorders can disturb the process of regulating and controlling emotions in them (Antai-Otong & Ward-Murray, 1995). This impacts the mental health of students, especially medical and nursing students. Medical and nursing students are witnessing suffering, death, and sadness every day in clinical environments and complaints, deterioration, death, and insomnia of the patient in hospitals. These situations increase tension in them and this tension, in turn, puts them at risk of anxiety and depression and affects the efficiency of the whole system which means the manner and quality of care (Agosti & Ocepek-Welikson, 1997).

One of the second generation's approaches applied for patients with depression and anxiety is schema therapy (Julian, 2011). Schema therapy focuses on self-destructive thinking patterns, feelings and behaviors that are rooted in an individual's childhood and

are repeated throughout his/her life. These patterns are called early maladaptive schemas (EMSs) in the framework of schema therapy. Failure to meet basic needs (the need for safety and acceptance, identity, self-arousal, fun, and restraint) during childhood can lead to the formation of EMSs (Kaviani & Mousavi, 2008). Young has introduced EMSs and maladaptive coping mechanisms that automatically and consciously maintain each other, and therefore, lead to interference in a person's ability to meet his/her basic needs. In this treatment model, cognitive, empirical, interpersonal, and behavioral strategies are used to change EMSs (Young, 1999). Therefore, it seems that schema therapy with emphasis on EMSs developed during childhood and adolescence can be effective in treating depression. The results of studies on depression indicated that EMSs are one of the main predictors of depression severity during treatment (Mason & Hargreaves, 2001).

Another effective treatment for the improvement of depression and anxiety is acceptance and commitment therapy (ACT). In ACT, it is first attempted to increase the individual's psychological acceptance of his/her mental experiences (thoughts, feelings, etc.), and consequently, decrease ineffective controlling actions (Cuijpers, van Straten, Schuurmans, van Oppen, Hollon, & Andersson, 2010). The patient is taught that every action to avoid or control these unwanted mental experiences is ineffective or has a reverse effect and intensifies them, and thus, these experiences should be accepted completely without any internal or external attempt to eliminate them. By motivating individuals to commit action focused on specified objectives and values and to accept mental experiences, depressive and obsession thoughts, trauma-related thoughts, fears, social anxiety, and etc. can be avoided (Dolle, Schulte-Korne, O'Leary, von Hofacker, Izat, & Allgaier, 2012). Recent studies on ACT have provided satisfactory results and evidence of the effectiveness of the clinical use of ACT especially with patients with

mood and anxiety disorders (Gammon & Morgan-Samuel, 2005; Halvorsen et al., 2009; Hayes & Strosahl, 2004). Pourfaraj Omran (2011) has studied the effectiveness of group-based ACT on social phobia in students and reported that the scales of the social phobia decreased significantly in the intervention group relative to the control group and no considerable variation was observed in the follow-up. Therefore, the present study aims compare the effectiveness of schema therapy and ACT on depression and anxiety among students of Hormozgan University of Medical Sciences, Bandar Abbas, Hormozgan, Iran.

Methods

The current semi-empirical study was conducted with a pretest-posttest design and an experimental and a control group among medical sciences students in Bandar Abbas. The statistical population of this study included all male and female students of Hormozgan University of Medical Sciences in the 2015-2016 academic year. The research sample of this study consisted of 44 medical sciences students of Bandar Abbas who referred following a call at the university to form a treatment group for boys and girls interested in participation in training and therapy sessions for decreasing depression and anxiety. After an interview regarding anxiety and distribution of the Beck Depression Inventory II (BDI-II) and Beck Anxiety Inventory (BAI), it was decided that students whose average scores in these questionnaires were higher than average, indicating high anxiety and depression, would be identified as qualified to participate in the sessions. Therefore, from among these students, 48 individuals with high anxiety and depression were selected as the sample of the study. They were randomly divided into two groups of intervention and control, 16 individuals in each group. In this study, the data collection tools used were the BDI-II and BDA.

Beck Depression Inventory II

In the BDI-II, subjects are asked to take into account their feelings during the last 2 weeks and answer the questions. This inventory is designed to assess depression severity in adults and adolescents of over 13 years of age and consists of 21 items. The validity and reliability of the BDI-II have been studied repeatedly and the results reported have been at a high level. Beck et al. reported that the internal consistency reliability coefficient of the items ranged from 0.73 to 0.86 and the correlation coefficient between the BDI-II and Minnesota Multiphasic Personality Inventory (MMPI) was 0.74 (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). In the current study, the reliability of the BDI-II was obtained using Cronbach's alpha ($\alpha = 0.82$).

Beck Anxiety Inventory

The BAI includes 21 items and measures the severity of anxiety in the subjects. Beck, Steer, and Garbin have reported the internal consistency of the BAI as 0.92. Moreover, they estimated the reliability of the BAI as 0.75 using a 1-week test-retest. The diagnostic and factor structure of this questionnaire were simultaneously investigated through content validity and the high efficiency of this tool in measuring anxiety severity was confirmed (Imel, Malterer, McKay, & Wampold, 2008). Furthermore, Mahmoud Aliloo et al. evaluated the content validity of the Persian version of the BAI in assessing anxiety 2 times every 10 days in 30 groups of 30 students and its consistency using test-retest was reported as 0.86 (Mokhtaripour, Goudarzi, Siadat, & Keyvanara, 2007). Using Cronbach's alpha, the reliability of this questionnaire was found to be 0.91.

Group therapy sessions were held at a big room with chairs arranged in a circle so that all members could see each other and they were allowed to move about freely. To collect data, first, the participants answered the BAI and BDI-II. Then, the 32 participants were randomly divided into two groups of 16 individuals and the experimental group participated in ACT sessions during 80 days (2 sessions a week). The control group did not receive any treatment programs and only the pretest and posttest were carried out in this group.

Table 1. A summary of the schema therapy training sessions

Sessions	Contents
First session	Explaining the schema model in a simple, clear language, the ways the early maladaptive schemas were formed, developmental roots, and its areas, functions of schema, styles, and maladaptive coping responses
Second session	Explaining the schemas, conceptualizing of the problems of the patients based on the schema-based approach, and collecting all the information obtained during the assessment, identifying dysfunctional schemas in patients, investigating the objective evidences confirming and rejecting the schemas based on the patient's past and current life
Third session	Teaching two cognitive schema therapy techniques including tests of schema validation and the new definition of supporting evidence
Fourth session	Teaching and practicing two other cognitive techniques, evaluating the advantages and disadvantages of the patients' coping styles, contacting between the different aspects of schema and healthy aspects and learning answers of healthy aspects by the patient
Fifth session	Teaching techniques to provide schemas training cards, recording schemas in a schema checklist during daily life
Sixth session	Offering rationale for using the experimental techniques, mental imagery, mental conceptualization in the form of an imaginary dialogue, strengthening the concept of a healthy adult in the patient's mind, identifying unsatisfied emotional needs, and fighting against the schema at an emotional level
Seventh session	Creating opportunities for patients to communicate with their parents and identify the needs unsatisfied by their parents, helping patients to express their blocked emotions on a traumatic event, and providing the patient with support
Eighth session	Finding new ways to communicate and give up the avoidant and excessive compensatory coping style, providing a comprehensive list of problematic behaviors, determining the change priorities, and identifying the therapeutic targets
Ninth session	Mental imagery of problematic situations and dealing with the most problematic behavior, practicing healthy behaviors through imagery and role-playing and performing tasks related to new behavioral patterns, and reviewing the advantages and disadvantages of healthy and unhealthy behaviors
Tenth session	Overcoming the barriers to behavioral changes, summary, and conclusion

A week after the last session, subjects in both groups completed the BAI and BDI-II again (posttest) to compare the scales between the groups in the pretest and posttest.

To evaluate the effect of the interventions and controlling pretest scales, multivariate analysis of covariance (MANCOVA) was used. SPSS statistical software (version 22, IBM Corporation, Armonk, NY, USA) was applied to perform data analysis.

Table 2. A summary of the acceptance and commitment therapy plan

Sessions	Contents
First session	Familiarizing members with the research subject, familiarizing group members with one another and establishing a therapeutic relationship, general measurement, control methods measurement, establishing creative inability, and completing the questionnaires
Second session	Investigating the inner and outer world in acceptance and commitment therapy; creating the willingness to quit inefficient programs and the realization that control is the problem not the solution, and substituting control with something, i.e., willingness
Third session	Identifying the individual's values, specifying his/her goals, specifying the required actions, and specifying obstacles
Fourth session	Examining each person's values and deepening previous concepts
Fifth session	Realization of fusion and departure and doing exercises for departure
Sixth session	Realization of fusion with the conceptualized self and training methods to depart from it
Seventh session	Mindfulness and emphasis on living in the present
Eighth session	Examining the story of life and committed action

Table 3. Descriptive findings for the control and experimental groups in the Beck Depression Inventory II and Beck Anxiety Inventory scores

Variable	Groups	Mean ± SD	N.	Confidence interval	
				Min	Max
BDI-II	ACT	67.56 ± 7.47	16	64.75	70.63
	Schema therapy	60.00 ± 3.01	16	56.92	62.80
BAI	ACT	64.00 ± 4.11	16	61.00	67.36
	Schema therapy	73.75 ± 7.87	16	70.38	76.74

BDI-II: Beck Depression Inventory II; BAI: Beck Anxiety Inventory; SD: Standard deviation

Results

To study the effect of experimental interventions (schema therapy and ACT), first, MANCOVA was performed on the dependent variables (BAI and BDI-II.

Then, to determine the efficacy of each experimental intervention, the least significant difference (LSD) was determined. The Shapiro-Wilk test results showed that the pretest BAI and BDI-II scores in the experimental and control groups were normaly distributed (P = 0.05). Moreover, the hypothesis of equality of variances was confirmed for the posttest BAI and BDI-II scores in the experimental and control groups. Therefore, to study the homogeneity slope of the regression line, each dependent variable was studied separately.

The results presented in table 4 indicate that there is a significant difference between the two groups at least in one of the dependent variables. The 4 tests of Pillai's trace, Wilks' Lambda, Hotelling's trace, Roy's largest root with Eta coefficient of 0.55 indicated that the group effect was statically significant (P < 0.001). Table 5 shows the results of a one-way analysis of variance (ANOVA) in the context of MANCOVA to compare the BAI and BDI-II in the two groups (schema therapy and ACT).

The results presented in table 5 indicate that one-way ANOVA is significant for the BDI-II score (P < 0.001, F = 14.77) and BAI score (P < 0.001, F = 18.11). Therefore, a significant difference was observed between theschema therapy and ACT groups in terms of the BDI-II and BAI scores.

As can be seen in table 6, the mean difference in depression between schema therapy and ACT groups was 7.82 that is significant (P < 0.001), and the mean difference in anxiety between schema therapy and ACT was -9.37 that is significant (P > 0.001). Therefore, considering that the mean BDI-II score of the schema therapy group was lower compare to the ACT group (Table 6), it can be concluded that schema therapy was more effective on depression in the students and decreased their depression. Thus, the performance of schema therapy was better in terms of decreasing depression. In contrast, ACT was more effective on anxiety in the students compared to schema therapy and caused a greater decrease in their anxiety.

Discussion

The present study was conducted to compare the effectiveness of schema therapy and ACT on depression and anxiety in students of Hormozgan University of Medical Sciences.

Table 4. Results of multivariate analysis of covariance for the Beck Anxiety Inventory and Beck Depression Inventory II

Effect	Test	Amount	F	Hypothesis df	Error df	P Ratio	Eta2
Group	Pillai's trace	0.55	16.42	2	27	0.001	0.55
	Wilks' Lambda	0.45	16.42	2	27	0.001	0.55
	Hotelling's trace	1.12	16.42	2	27	0.001	0.55
	Roy's largest root	1.12	16.42	2	27	0.001	0.55

df: degrees of freedom

Table 5. Results of a one-way analysis of variance in the context of multivariate analysis of covariance on Beck Depression Inventory II and Beck Anxiety Inventory scores

Resources	Variables (pre-test)	SS	df	MS	F	P-value.	Eta
Group	BDI-II	483.49	1	483.49	14.77	0.001	0.34
	BAI	693.53	1	693.53	18.11	0.001	0.39

BDI-II: Beck Depression Inventory II; BAI: Beck Anxiety Inventory; SS; Sum of squares; df: Degrees of freedom; MS: Mean of squares

MANCOVA was used to evaluate the difference between the efficacy of schema therapy and ACT in decreasing depression and anxiety in medical sciences students in Bandar Abbas. The results indicated a significant difference in mean posttest scores of BDI-II and BAI between the schema therapy and ACT groups. This means that the independent variables (schema therapy and ACT groups) were effective on the dependent variables (depression and anxiety), but this effect was not equal. Therefore, there was a significant difference between the schema therapy and ACT groups in this regard. The results of the LSD test indicated a greater decrease in the mean BDI-II score of the students in the schema therapy group compared to the ACT group. This result suggests that schema therapy was more effective on depression. In contrast, the results of the LSD test showed a greater decrease in the BAI score of the students in the ACT group compared to the schema therapy group. This means that ACT was more effective on anxiety in the students. Hence, it can be concluded that although both schema therapy and ACT were effective on decreasing anxiety and depression among the students, the efficacy of schema therapy was greater on depression and the efficacy of ACT was higher on anxiety. The results of

this research were in line with that of the studies by Hemmati Sabet, Navabi Nejad, and Khalatbari (2016), Izadi, Neshatdust, Asgari, and Abedi (2014), and Ashoori (2015). It is worth mentioning that very few studies have compared the efficacy of these two therapy methods.

For example, a study compared the effectiveness of metacognitive therapy and schema therapy in decreasing depression and anxiety symptoms of nursing and midwifery students. They found that at the fallow-up stage both methods of schema therapy and metacognitive therapy had significantly decreased depression and anxiety; however, at the follow-up stage, there was no significant difference between the methods (Maddux et al., 2009). Furthermore, a study compared the effectiveness of schema therapy and group cognitive therapy on anxiety in the female clients of Hamedan's Health And Treatment Department. They indicated that schema therapy was more effective than group cognitive therapy on anxiety among these women with high-risk sexual behaviors (Dehghan Naiery & Adib Hajbaghery, 2006). Moreover, Izadi et al. (2014) compared the effectiveness of ACT and cognitive-behavioral therapy on the symptoms of 8 patients with obsessive-compulsive disorder (OCD).

Table 6. The results of the least significant difference test regarding Beck Depression Inventory II and Beck Anxiety Inventory scores

Criterion variable	Groups	Mean difference	SE	P-value	Confidence interval	
					Min	Max
BDI-II	Schema therapy ACT	7.82	2.03	0.001	3.65	12.00
BAI	Schema therapy ACT	-9.37	2.20	0.001	-13.88	-4.86

BDI-II: Beck Depression Inventory II; BAI: Beck Anxiety Inventory; SE: Standard error

Their results indicated a considerable decrease in the frequency of obsessive actions, severity of OCD symptoms, the amount of belief in obsessive thoughts, distress, and the necessity to react to them, as well as anxiety and depression scores in post-treatment evaluation in 8 patients and this decrease was maintained 1 month after therapy.

To explain these research findings, it can be said that few studies have been conducted on the comparison of the effectiveness of schema therapy and ACT inside and outside the country, but numerous studies have confirmed the effectiveness of these two methods in decreasing anxiety and depression. In the comparison area, it can be deduced that as depression has reacted more in cognitive therapies to individual's schemes then the stronger effect of schema therapy in students' depression is justifiable. Both methods have been shown to be successful in decreasing anxiety, but few comparisons have been made in this regard. These studies showed that ACT was more successful in decreasing anxiety compared to schema therapy (Renner, Lobbestael, Peeters, Arntz, & Huibers, 2012; Rezaei-Adryani, Azadi, Ahmadi, & Azimi, 2007). Thus, the hypothesis of the existence of a difference between schema therapy and ACT in decreasing depression and anxiety among the students of Hormozgan University of Medical Sciences is confirmed. The present study like other studies had limitations including the short duration of the execution of the desired interventions, and time limitation for greater consideration of the contents of the sessions. Moreover, the participants of this study consisted of male and female students of medical sciences; therefore, the findings of this study cannot be generalized to other classes of society such as men and women, patients in hospital centers, and other diseases. Thus, these limitations should be taken into consideration in using the results of this study.

Conclusion

It can be concluded that schema therapy was more effective in the treatment of depression, but ACT was more successful in the treatment of anxiety.

Conflict of Interest

Authors have no conflict of interests.

Acknowledgments

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