Comparison of Group Psychotherapy Effectiveness based on Acceptance and Commitment Therapy Matrix with Group Behavioral Activation Therapy on Quality of Life and Alexithymia in Depress Mood Females

Amin Khaledinia[1], PhD candidate; Behnam Makvandi[1*], PhD; Parviz Asgari[1], PhD; Reza Pasha[1], PhD

[1]Department of Psychology, Ahvaz Branch, Islamic Azad University, Ahvaz, Iran

Corresponding author: Behnam Makvandi, Department of Psychology, Ahvaz Branch, Islamic Azad University, Postal Code: 37333-61349, Ahvaz, Iran. **Tel/Fax:** +98 61 33348420; **Email:** makvandi_b@yahoo.com

Abstract

Background: Research has shown that the incidence of psychological well-being problems among students is on an increasing trend. According to the Pennsylvania State University Center for Public Health Psychology, the number of students seeking mental health help rose by 50% between 2015 and 2016. The present study was conducted to compare the effectiveness of group acceptance and commitment therapy (ACT) matrix with group Behavioral Activation Therapy on quality of life and Alexithymia in depress mood females.

Methods: In a quasi-experimental pre-test-post-test design with a control group, 45 students with mood depressive disorder were selected following initial clinical evaluation and research conditions. They were randomly divided into three groups of Behavioral Activation Therapy (n=15), ACT matrix (n=15), and control (n=15). The experimental group received six sessions of weekly treatment based on acceptance and commitment employing matrix method with group Behavioral Activation Therapy. All the participants completed the Hamilton Depression Scale, the World Health Organization Quality of Life Questionnaire (WHOQOL-BREF), and the Alexithymia Scale (AAS-26), in three stages: pre-test, post-test, and one-month follow-up. The obtained data were analyzed using SPSS V. 23

Results: The results revealed that weekly treatment based on acceptance and commitment employing matrix method with group Behavioral Activation treatment positively affected the quality of life F=6.324; P=0.004), and reduced Alexithymia-associated symptoms (F=1.780; P=0.181). The results were maintained in the one-month follow-up phase.

Conclusion: Group psychotherapy based on acceptance and commitment through matrix method with group Behavioral Activation Therapy had a significant effect on increasing the quality of life and reducing the symptoms associated with Alexithymia in depressed females.

Keywords: Matrix acceptance and commitment; Behavioral activation, Quality of life, Affective Symptoms, Students

How to Cite: Khaledinia A, Makvandi B, Asgari P, Pasha R. Comparison of Group Psychotherapy Effectiveness based on Acceptance and Commitment Therapy Matrix with Group Behavioral Activation Therapy on Quality of Life and Alexithymia in Depress Mood Femalesp. Women. Health. Bull. 2021;8(1):26-36. doi: 10.30476/whb.2021.87951.1082.

1. Introduction

The lack of mental health among university students is becoming a global concern and is estimated that depression will become the second most common illness in the world by 2020 (1). A systematic analysis of previous researches has indicated that there is a greater incidence of depression for college students than that for the general population (2). A recent study showed that the prevalence of depression among students was 35% (3). If a person is in such situation, this process could affect the individuals' quality of normal life, psychological stability, and mental health. Psychological well-being is often a desirable state of mind that incorporates the elements of cognitive, mental, and social health (4). Moreover, it is associated with different aspects of emotional functioning, including personal growth,

feelings (5). Social well-being is related to feelings of social cohesion, integration, and social participation (6).

Psychological well-being is associated with resilience and means the ability to maintain health in spite of life's grievances, such as enduring pain or time and resilience in the face of adversity (7, 8). Researches have reported that the quality of life and depression have an inverse relationship with life satisfaction in students (9, 10). According to a comparative study on Iranian and non-Iranian students, Iranian students were significantly better in terms of physical and mental health compared to their foreign peers. Non-Iranian students had relatively higher levels of anxiety and depression and lower quality of life (11).

Numerous studies have found that a factor

of vulnerability could be emotional dysfunction (alexithymia) that makes a person mentally disturbed with negative emotions, psychological helplessness, and the inability to experience positive emotions (12, 13); in particular, due to stress response that is usually altered in its cognitive (lack of emotional awareness) and behavioral (maladaptive coping and lack of emotional expression), and neurological elements, individuals with Alexithymia did not seem to cope adequately with stressors (increased arousal). This altered response to stress could prolong the exposure to stressors and intensify the somatovisceral response in a long time (13). In addition, studies have reported that Alexithymia is associated with psychiatric disorders, such as psychosomatic disorders (14-17) and depression (15, 18, 19). Certain researches have studied the role of alexithymia, anxiety, and depression in preventing university students from being self-efficient (20, 21). According to their results, there is a negative inverse relationship between Alexithymia and students' self-efficacy. Due to various stressors, including academic load, insufficient time, and final exams, different psychiatric disorders are more prevalent in students than that in non-students in the same age group (20, 21).

These findings have revealed the adverse effect of Alexithymia on mental health. Alexithymia is a cognitive processing disorder with a negative effect on emotional processing (22). In view of the extremely high incidence of depression and enormous burden of disease on patients, the health system, and community, we need to conduct highly comprehensive prevention researches suggesting effective treatment strategies and certain measures concerning disease control (23, 24). According to the analysis of other studies, a significant difference was observed between the mean post-test quality of life of depressed students in the acceptance and commitment treatment group with the control group (23, 24). It seems that in this particular field, no matrix (ACT) research has been done (23, 24). However, according to the theoretical foundations and research background, studies have been conducted on the effectiveness of acceptance and commitment therapy (ACT) in different samples, and their results have been effective (25-27).

People with Alexithymia had less behavioral inhibition and the drive mean in people with Alexithymia was lower (28). Among the third-generation treatments, Behavioral Activation Treatment (BAT) might be particularly useful in the treatment of the emotional difficulties in alexithymia (29). In other studies, behavioral activation has been

reported to be effective on treating Alexithymia (30, 31). Consequently, this study aimed to compare the effectiveness of Behavioral Activation Treatment for depression (BATD) and ACT matrix on quality of life and Alexithymia of depressed college females.

2. Methods

This study was a trial with a control group, in which we used the quasi-experimental design. It is a clinical study based on a single CONSORT guideline (the outcome analyzer was blinded to the study groups) and two simultaneous arms via an allocation ratio of 1:1. It was carried out at Payame Noor University of Imam Khomeini between October and November 2018-2019 on 87 students suffering from depression aged between 18 and 35 years. The inclusion criteria comprised female students who resided in the town of Bandar Imam Khomeini, being diagnosed with depression utilizing Beck Depression Inventory Second Edition (BDI-II) and Cut-off Point (score 17 and above in Depression Inventory-II) and the diagnostic interview, being between 18-35 years old. The exclusion criteria included the patients with the following conditions: not being subjected to any psychiatric or medicinal treatments six months prior to the start of the research, being unwilling to participate in the research, having a background of psychological illnesses, extreme personality disorders, and bipolar disorders, having a physical disorder whose symptoms are associated with depression, not using psychoactive agents and opioid, alcohol addiction, missing two days of the therapy (Table 1). G-Power was employed to select 35 participants as the research sample, based on the analysis by Waller and colleagues. (32), taking into account the depression variable and the highest standard deviation of the depression subscales (m1=11.8, m2=7.2 with the expectation of a 35 percent reduction in the depression score due to intervention). The sample size was calculated on the basis of sample loss.

Initially, the researcher visited the students at Imam Khomeini's Payame Noor University and prepared a list of students with mood depressive disorder. Subsequently, the goal of this study was thoroughly explained to them and a face-to-face meeting was held with the qualified students. We obtained informed written consent forms. The subjects with mood depressive disorder were selected using a randomized cluster sampling method. Afterwards, 45 of them were randomly selected and divided into three groups (15 in each group). Two of the groups received BATD (33) and ACT matrix (34) interventions and a one-month follow-up. The sociodemographic questionnaire,

Table 1: Content and Treatment Sessions

Behavioral Activation Therapy	Acceptance and commitment treatment with matrix method
Session 1: Introduction, statement of the session rules, explanation of depression, explanation of Behavioral Activation model, introduction and statement of goals, introduction of treatment logic.	Session 1: Introduction, introducing the matrix and drawing the matrix, as an observer, paying attention to the five senses and mental experiences.
Session 2: Identification of alien behaviors and functional analysis, functional analysis of behaviors, review of the previous session.	Session 2: Evaluating the long-term effectiveness of avoidance measures, scoring actions and introducing the vicious cycle.
Session 3: Functional analysis of behaviors, identification of stimuli that evoke behavior and stimuli that maintain behavior.	Session 3: Identifying attention and problems with controlling internal events, introducing thieves' attention hooks and completing the hooks worksheet.
Session 4: Revision over the previous session, functional analyzing and strengthening the effective coping methods, identifying values and activities related to them.	Session 4: Teaching verbal aikido, accepting unpleasant feelings and avoiding conflict.
Session 5: Functional analysis of behaviors, identification of stimuli that evoke behavior and stimuli that maintain behavior.	Session 5: Introducing Self-Compassion, an Opportunity for Compassion to Self-Compassion Self-Letter, Self-Compassionate Growth.
Session 6: Summarizing and reviewing the content, strengthening the participants' activities to deal with depression.	Session 6: Training and practicing by writing a letter from the future itself, controlling the power of vision.

Beck Depression Inventory (BDI-II), the Quality of Life Questionnaire (BREF-WHOQOL), and Ahvaz Alexithymia Scale (AAS-26) were completed in the interviews. The students with mild to moderate depression (14–28 depression scores) were enrolled in the study. The participants were divided into intervention and control groups through stratified block randomization (with blocks of 4 and 6) according to the history of mood depressive disorder. The intervention was clarified on paper and put in sequentially numbered opaque sealed envelopes by an individual who, in order to cover up the allocation sequence, was not involved in sampling and data analysis. The envelopes were issued to the participants. Half of the envelopes were allocated to the individuals with a history of depression for stratification based on mood depressive disorder while the other half were allocated to those without a history of mood depressive disorder; the category type was thus determined.

The collected data were evaluated utilizing SPSS V. 23. Our descriptive statistics, comprising the mean and Standard Deviation (SD), as well as empirical and statistical studies, included covariance analysis (ANCOVA) and variance uniformity Levene. P values below 0.05 were considered to be significant. After calculating the scores of pre-test and post-test in the three groups, we performed Levene's test for homogeneity of variances and ANCOVA in order to evaluate the effectiveness of the ACT matrix and BATD on the depression of the students (Table 1). After measuring the pre-test and post-test scores in three classes, the Levene variance homogeneity test and ANCOVA were conducted to assess the efficacy of the ACT matrix and BATD on the students' depression (Table 1 and Figure 1).

Research Tools

Structured Clinical Interview, for Axis Disorders (II-SCID): First and colleagues. proposed this interview (35). The Iranian version was verified in Iran by three clinical psychology professors and its reliability was accepted at 0.955. (36). The internal accuracy of this questionnaire was determined to be 0.85 in the present analysis.

Quality of Life Questionnaire (BREF-WHOQOL): This questionnaire is a short form of a 100-question questionnaire compiled after merging some areas and eliminating a number of questions. It includes 26 questions. Physical Health Sub-Scale: Sum of scores of questions 3- 4- 10- 15- 16-17-18 in the questionnaire. The scores of these subscales range from 7 to 35 and the difference between the two is 28. Mental Health Sub-Scale: Sum of scores of questions 5-6-7-11-11-19-26 in the questionnaire. The scores of this subscale range from 6 to 30 and the difference between the two is 24. Social Interface Scale: Sum of scores of questions 20-21-22 in the questionnaire. The score range of this subscale is between 3 and 15 and the difference between the two is 12. Environmental Health Sub-Scale: Sum of scores of questions 8-9-12-13-14-23-24-25 in the questionnaire. The scores of this subscale range from 8 to 40, the difference between which is 32. Quality of life and general health: Sum of scores of questions 1 and 2 in the questionnaire. The scores of this subscale are between 2 and 10 and the difference between the two is 8. Cronbach's alpha was 0.82 for physical health, 0.81 for mental health, 0.80 for environmental health, and 0.68 for social relationships. The validity of this instrument was evaluated and reported to be acceptable employing two methods of differential validity and structural
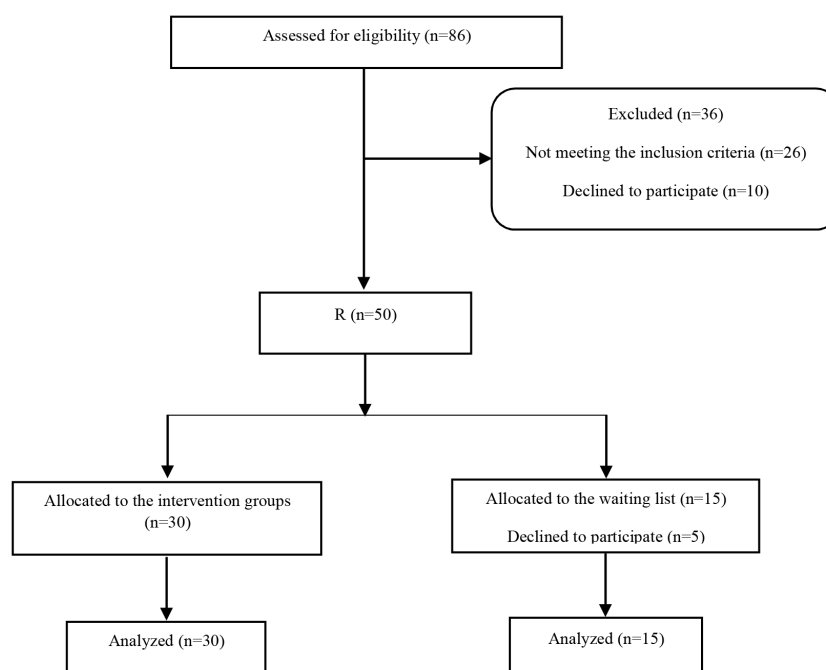
Figure 1: Participant's flowchart.

validity (27). Cronbach's alpha in all the areas except for social relations with 0.55 alpha was over 70%, which in general, shows appropriate and acceptable validity and reliability for Iranians (37).

Ahvaz Alexithymia Scale (AAS-26): The method was designed on the basis of the exploratory factor analysis (38) and a single factor method with 26 factors, 0.40-factor loading, and the Cronbach's alpha of 0.89. The one-month test-retest reliability was 0.87. The study was formulated in four components (form the most often to never). The validity of the test was 0.81 based on the Toronto Alexithymia Scale (TAS-20) and 0.82, 0.75, and 0.72 based on the Toronto test's triple subscales. According to the score, "never" is represented with 1 and "most often" receives a score of 4. In the present analysis, the alpha coefficient for the questionnaire was 0.90 for Cronbach.

3. Result

Based on the results depicted in Table 2, in the ACT matrix group, the single subjects were about 86.7% while the married ones accounted for 13.3% of the samples. In the BATD group, the single subjects were about 73.3% whereas the married ones accounted for 26.7% of the samples. In the control group, the single and married subjects accounted for 86.7% and 13.3% of the samples, respectively. However, no significant variations were observed among the three groups ($\chi2=1.216$, P=0.504).

According to Table 2, in the ACT matrix group, the most frequent age groups (40%) were 18-20 and 21–25 years. The majority of the subjects in the BATD group aged 31 to 35 years old (33.3%) and there was a significant difference among the three groups in terms of the most frequent age groups ($\chi2=15.271$, P=0.018).

According to Table 3, a significant difference was observed between the three groups in terms of quality of life pre-test scores (F=6.324, P=0.004), and ACT group pre-test scores were higher than those of Behavioral Activation based on tukey comparison. Furthermore,

Table 2: Frequency of the participants in the three research groups						
Variables	**Group**	**ACT**	**BATD**	**Control**	**χ2**	**P**
Marriage status	Married	13	11	13	1.216	0.504
	Single	2	4	2		
Age Group	18-20	6	4	4	15.271	0.018
	21-25	6	3	11		
	26-30	2	3	0		
	31-35	1	5	0		

ACT: Acceptance and Commitment Therapy; BATD: Brief Behavioural Activation Treatment for Depression

Table 3: Descriptive statistics and between and within group comparisons using repeated measurement, ANOVA, ANCOVA

Variables	Group	Pre test	Post test	Follow up	Time effect P-value	Group effect P value	Time * group effect P value
Quality of life	Acceptance and Commitment Therapy (ACT)	78.67±10.50	86.87±8.62	86.67±8.93	0.001	0.001	0.001
	Behavioral activation	66.33±9.29	77.53±9.77	79.60±9.81	0.001		
	Control	72±8.62	71.60±10.30	71.47±8.86	0.922		
	Between group comparison P value	0.004	0.001	0.001			
Alexithymia	Acceptance and Commitment Therapy (ACT)	28.73±10.25	20.60±11.32	18.47±10.04	0.001	0.089	0.001
	Behavioral activation	34.73±12.78	29.07±14.67	23.80±11.27	0.004		
	Control	27.53±10.37	32.80±12.36	31.33±11.11	0.086		
	Between group comparison P value	0.181	0.001	0.001			

ACT: Acceptance and Commitment Therapy; BATD: Brief Behavioural Activation Treatment for Depression

according to Table 1, it could be seen that there were no significant differences between the three groups in terms of Alexithymia pre-test scores (F=1.780, P=0.181).

As could be seen in Table 3, after controlling the pre-test scores, there was a significant difference between the post-test scores of quality of life among the three groups (F=21.682, P=0.001), and the participants in the ACT and BATD groups obtained higher scores in the post-test compared to the subjects in the control group. According to Table 3, after controlling the pre-test scores, a significant difference was observed between the follow-up scores of quality of life among the three groups (F=19.281, P=0.001), and the participants in the ACT and BATD groups obtained higher scores in the follow-up than those in the control group.

Table 3 represents that after controlling the pre-test scores, there was a significant difference between the post-test scores of Alexithymia among the three groups (F=7.808, P=0.001), and the subjects in the ACT and BATD groups obtained lower scores in the post-test than the control group. Moreover, it could be seen that after controlling the pre-test scores, there was a significant difference between the follow-up scores of Alexithymia among the three groups (F=10.176, P=0.001), and those in the ACT and BATD groups obtained lower scores in the follow-up compared to those the control group.

According to Table 3, in terms of quality of life variable, the changes within the group from pre-test to post-test and follow-up were significant in the ACT and BATD groups, but not significant in the control group.

Table 3 also exhibits that in terms of Alexithymia variable, the changes within the group from pre-test

to post-test and follow-up were significant in the ACT and BATD groups whereas no significant changes were observed in the control group.

Furthermore, this table shows that the effect of time on the variables of quality of life (F=44.173, P=0.001, η^2=513) and Alexithymia (F=8.330, P=0.001) were significant, and the mean scores changed from pre-test to post-test and follow-up. The results of Bonferroni post hoc test concerning the quality of life showed a significant difference between pre-test and post-test scores (d=-6.333, P=0.001) as well as pre-test and follow-up scores (d=-6.913, P=0.001). The results of Bonferroni post hoc test regarding Alexithymia indicated a significant difference between pre-test and follow-up (d=5.800, P=0.001).

According to Table 3, the main effect on the variables of quality of life (F=8.072, P=0.001) were significant, and the mean scores were different between the three groups. The results of Bonferroni post hoc test about quality of life demonstrated a significant difference between ACT and BATD scores (d=9.578, P=0.015) as well as between ACT and control scores (d=12.378, P=0.001).

Based on Table 3, the interaction effect of time*group on the variables of quality of life (F=14.425, P=0.001), and Alexithymia (F=6.834, P=0.001) were significant, and the trend of the changes in the scores from pre-test to post-test and follow-up was different in the three research groups.

Table 4 represents the results of Bonferroni post hoc test about quality of life in ACT group. It could be seen that there is a significant difference between the pre-

Table 4: Bonferroni post hoc test concerning the interaction effect on quality of life and Alexithymia

Measure	Group	(I) time	(J) time	Mean Difference (I-J)	Std. Error	P
Quality of life	ACT	Pre-test	Post-test	-8.200	1.305	0.001
			Follow-up	-8.000	1.598	0.001
		Post-test	Follow-up	0.200	1.317	0.99<P
	BATD	Pre-test	Post-test	-11.200	1.305	0.001
			Follow-up	-13.267	1.598	0.001
		Post-test	Follow-up	-2.067	1.317	0.372
	Control	Pre-test	Post-test	0.400	1.305	P<0.99
			Follow-up	0.533	1.598	P<0.99
		Post-test	Follow-up	0.133	1.317	P<0.99
Alexithymia	ACT	Pre-test	Post-test	8.133	2.456	0.006
			Follow-up	10.267	2.565	0.001
		Post-test	Follow-up	2.133	2.359	P<0.99
	BATD	Pre-test	Post-test	5.667	2.456	0.078
			Follow-up	10.933	2.565	0.001
		Post-test	Follow-up	5.267	2.359	0.093
	control	Pre-test	Post-test	-5.267	2.456	0.113
			Follow-up	-3.800	2.565	0.438
		Post-test	Follow-up	1.467	2.359	P<0.99

ACT: Acceptance and Commitment Therapy; BATD: Brief Behavioral Activation Treatment for Depression

test and post-test scores (d=-8.200, P=0.001) as well as pre-test and follow-up scores (d=-8.000, P=0.001). The results of Bonferroni post hoc test regarding quality of life in BATD group revealed a significant difference between the pre-test and post-test scores (d=-11.200, P=0.001) as well as pre-test and follow-up scores (d=-13.267, P=0.001). Meanwhile, in the control groups, Bonferroni post hoc test about quality of life showed no significant differences between the pre-test and post-test scores (d=0.400, P<0.99) as well as pre-test and follow-up scores (d=0.533, P<0.99). Based on these results, it could be stated that both ACT and BATD therapeutic approaches have a positive effect on increasing the quality of life compared to the control group.

According to Table 4, the results of Bonferroni post hoc test about Alexithymia in ACT group showed a significant difference between the pre-test and post-test scores (d=8.133, P=0.006) as well as pre-test and follow-up scores (d=10.267, P=0.001). The results of Bonferroni post hoc test about Alexithymia in BATD group showed that there is a significant difference between pre-test and follow-up (d=10.933, P=0.001). However, in the control groups, Bonferroni post hoc test about Alexithymia implied that there are no significant differences between pre-test and post-test scores (d=-5.267, P=0.113) as well as pre-test and follow-up scores (d=-3.800, P=0.438). Based on these results, it could be concluded that both ACT and BATD therapeutic approaches have a positive effect on decreasing the Alexithymia compared to the control group (Figures 2 and 3).
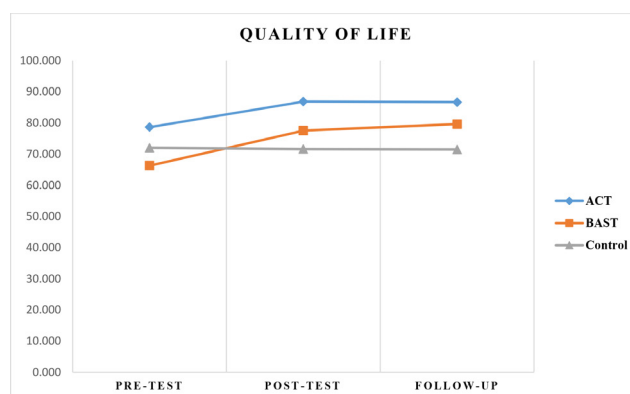

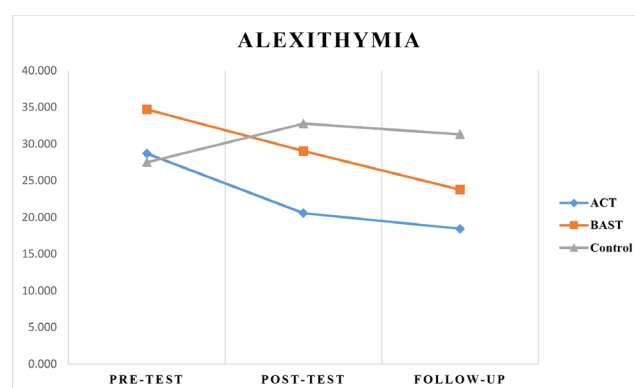**Figure 2:** Chart of the changes in quality of life scores in the research groups.

Figure 3: Chart of the changes in Alexithymia scores in the research groups.

4. Discussion

This study aimed to compare the effectiveness of BATD and ACT matrix on quality of life and Alexithymia of depressed college females. The results

indicated a significant difference between the mean post-test quality of life of the depressed students in the acceptance group and the commitment treatment group with the control group. The findings of this research are in accordance with those of a study by Bai and colleagues. (39) Li and colleagues. (40).

Previous researches have shown that with the reduction in the symptoms of prevention and interference, ACT could increase the social performance and quality of life through strategies for the acceptance and personalization of personal values. Symptom avoidance seems to be a general problem that leads to disability and poor quality of life in patients (41). Explaining this finding, it could be said that mindfulness is one of the components of treatment based on acceptance and commitment. It is a quality of consciousness, which means paying attention to the present moment; it is purposeful and non-judgmental attention, without judgment and without commenting on what is happening. That is in fact the experience of pure reality without explanation. Therefore, due to attention to certain concepts, such as acceptance, raising consciousness, desensitization, and presence at the moment, observation without judgment, conflict, and release, the approach of mindfulness can reduce anxiety and depression, resulting in improved quality of life (42).

In addition, the findings of the present study showed that behavioral activation group therapy relates to an increase in the quality of life of depressed students. These results are consistent with the results obtained by Eisanezhad Boshehri and colleagues (43), Shareh (44), and Fernández-Rodríguez and colleagues. (45). In Behavioral Activation Therapy, individuals consciously check their incorrect cognitive strategies and problems and coordinate them and preserve their peace in the face of difficulties applying calming techniques (44). This form of therapy is likely to lead patients into having optimistic thoughts and views about themselves about their condition and creating a better picture of themselves and their lifestyle. In view of the fact that members of a group are engaged in reinforcement and input, empathy and sharing of feelings, patients' false expectations about society's ostracism are corrected and further social participation is induced in these patients, which would ultimately have a significant effect on the quality of life of these students (44, 46).

Analysis of the results of the hypotheses in the current research showed that there were no significant differences between the two treatments and both treatments had the same effectiveness on increasing the quality of life of the students. Hence, the results obtained from the findings of Khaledinia and colleagues. (29) were not in agreement with ours. Alijanzadeh Tonekaboni and colleagues. reported that acceptance and commitment intervention is more effective than behavioral activation on increasing psychological well-being. Moreover, the previous results showed differences between Behavioral Activation education and education based on acceptance and commitment increasing students' psychological well-being (47).

In addition, our results revealed that acceptance and commitment training leads to reduced Alexithymia in students with depression. These results are congruent with the findings obtained by Darvish Baseri and DashtBozorgi (26), and Rostami and Dasht Bozorgi (27). These researchers suggested that acceptance and commitment training has a positive impact on controlling cognitive emotions and Alexithymia in patients with type 2 diabetes (26). Additionally, Rostami and Dasht Bozorgi confirmed the efficacy of ACT on resilience and Alexithymia of somatic symptoms (27). To explain this finding, King and colleagues. believed that inhibition of emotion expression is used to clarify the relationship between emotional expression and health. According to Freud, emotional inhibition is an important cause of mental illness, and the therapeutic approach was designed to release "suffocated emotion" or to express a severely diminished emotion. ACT training, on the other hand, helps to control one's self-willed actions by helping to control inappropriate thoughts and behaviors. In fact, since ACT does not involve wanting and tolerating disturbing emotions and experiences alone, it could lead to controlling one's thoughts, behaviors, and emotions voluntarily and consciously(48).

Another finding of this study implied that Behavioral Activation Training reduced Alexithymia in depressed students in the experimental group. This finding is in line with the research of Dimidjian and colleagues. (49), concerning the role of cognitive-behavioral avoidance in creating and maintaining depression. The difficulty of recognizing the emotions experienced by another person also limits empathy and support for others (50). The effectiveness of this approach could be clarified with the simultaneous reduction in cognitive-behavioral avoidance in depressed people; therefore, depressed people use avoidant coping styles among the types of coping styles. Furthermore, the therapeutic interventions based on this theory emphasize the need to educate clients to deal with confusing behavioral

patterns. Behavioral Activation helps therapists to fight avoidance through structured activation and effective problem-solving. In this treatment, therapists learn to identify their avoidance patterns and use alternative coping strategies to engage with the issues (49).

The results indicated that there are no differences between the effect of ACT with the matrix method and Behavioral Activation training in reducing alexithymia. We could not find any researches in line with ours. Venta and colleagues. (2013) found that empirical avoidance is part of the association between Alexithymia and emotional disturbance, which seems to impair an individual's ability to regulate emotions. Therefore, it suggests experiential avoidance and impairment (51). The main goal of the acceptance and commitment approach is to increase flexibility in behavioral patterns with the aim of being open to experience, focus, and engaging in life through attention, acceptance, and commitment to action skills (52). In the acceptance and commitment model, psychological resilience is defined as the contact with the present moment and behavior in the service of one's personal values (52).

The limitations in the course of this analysis could be attributed to the statistical population herein, which included female students. The generalization of these findings is restricted due to social and intercultural differences. In this analysis, we tried to prevent the interference of variables using certain factors, such as age, gender, and educational level, which themselves restrict the generalization of our findings. Accordingly, it is recommended that this study be conducted on male students and its findings be examined. In future clinical studies, it is suggested that additional groups of drug therapy and placebo be tested alongside the experimental and control groups in order to make further comparisons. This study should also be conducted on clinical and non-student samples in future researches. In order to generalize the obtained findings, it is worth repeating this research in different social, economic, and cultural, populations. It is worth conducting this research in a comparative manner with other methods at the same time and evaluating the findings.

5. Conclusion

In conclusion, group psychotherapy based on acceptance and commitment employing matrix method with group Behavioral Activation Therapy was observed to positively affect the quality of life and reduce the Alexithymia-associated symptoms in depressed females.

References

1. Auerbach RP, Mortier P, Bruffaerts R, Alonso J, Benjet C, Cuijpers P, et al. WHO World Mental Health Surveys International College Student Project: Prevalence and distribution of mental disorders. J Abnorm Psychol. 2018;127(7):623. doi: 10.1037/abn0000362.PubMed PMID: 30211576; PubMed Central PMCID: PMC6193834.

2. January J, Madhombiro M, Chipamaunga S, Ray S, Chingono A, Abas M. Prevalence of depression and anxiety among undergraduate university students in low-and middle-income countries: a systematic review protocol. Syst Rev. 2018;7(1):57. doi: 10.1186/s13643-018-0723-8. PubMed PMID: 29636088; PubMed Central PMCID: PMC5894225.

3. Mayer FB, Santos IS, Silveira PS, Lopes MH, de Souza AR, Campos EP, de Abreu BA, Hoffman II I, Magalhães CR, Lima MC, Almeida R. Factors associated to depression and anxiety in medical students: a multicenter study. BMC Medical Education. 2016;16(1):282. doi: 10.1186/s12909-016-0791-1. PubMed PMID: 27784316; PubMed Central PMCID: PMC5080800.

4. Scott KM, Lim C, Al-Hamzawi A, Alonso J, Bruffaerts R, Caldas-de-Almeida JM, Florescu S, et al. Association of mental disorders with subsequent chronic physical conditions: world mental health surveys from 17 countries. JAMA psychiatry. 2016;73(2):150-8. doi: 10.1001/jamapsychiatry.2015.2688. PubMed PMID: 26719969; PubMed Central PMCID: PMC5333921.

5. Ryff CD. Beyond Ponce de Leon and life satisfaction: New directions in quest of successful ageing.

International journal of behavioral development. 1989;12(1):35-55.doi: 10.1177/016502548901200102.

6. Burns RA. The utility of between-nation subjective wellbeing comparisons amongst nations within the European Social Survey. Journal of Happiness Studies. 2019;20(3):683-705.doi: 10.1007/s10902-018-9964-4.

7. Fonseca X, Lukosch S, Brazier F. Social cohesion revisited: a new definition and how to characterize it. Innovation: The European Journal of Social Science Research. 2019;32(2):231-53.doi: 10.1080/13511610.2018.1497480.

8. Mc Gee SL, Höltge J, Maercker A, Thoma MV. Sense of coherence and stress-related resilience: Investigating the mediating and moderating mechanisms in the development of resilience following stress or adversity. Front Psychiatry. 2018;9:378. doi: 10.3389/fpsyt.2018.00378. PubMed PMID: 30186189; PubMed Central PMCID: PMC6110848.

9. Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, et al. Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. JAMA Netw Open. 2020;3(3):e203976-. doi: 10.1001/jamanetworkopen.2020.3976. PubMed PMID: 32202646; PubMed Central PMCID: PMC7090843.

10. Gigantesco A, Fagnani C, Toccaceli V, Stazi MA, Lucidi F, Violani C, et al. The relationship between satisfaction with life and depression symptoms by gender. Front Psychiatry. 2019;10:419. doi: 10.3389/fpsyt.2019.00419. PubMed PMID: 31258495; PubMed Central PMCID: PMC6588028.

11. Mohammadzadeh J, Mami S, Omidi K. Mean Scores of Depression, Anxiety and Stress in Iranian University Students Based on DASS-21: A Systematic Review and Meta-analysis. International Journal of Epidemiologic Research. 2019;6(1):42-8. doi:10.15171/ijer.2019.08

12. Hemming L, Haddock G, Shaw J, Pratt D. Alexithymia and its associations with depression, suicidality, and aggression: an overview of the literature. Front Psychiatry. 2019;10:203. doi: 10.3389/fpsyt.2019.00203. PubMed PMID: 31031655; PubMed Central PMCID: PMC6470633.

13. Panasiti MS, Ponsi G, Violani C. Emotions, Alexithymia, and Emotion Regulation in Patients With Psoriasis. Frontiers in Psychology. 2020;11:836. doi: 10.3389/fpsyg.2020.00836. PubMed PMID: 32508706; PubMed Central PMCID: PMC7248221.

14. Zakhour M, Haddad C, Salameh P, Akel M, Fares K, Sacre H, et al. Impact of the interaction between alexithymia and the adult attachment styles in participants with alcohol use disorder. Alcohol. 2020;83:1-8. doi: 10.1016/j.alcohol.2019.08.007. PubMed PMID: 31476366.

15. Alzahrani SH, Coumaravelou S, Mahmoud I, Beshawri J, Algethami M. Prevalence of alexithymia and associated factors among medical students at King Abdulaziz University: a cross-sectional study. Ann Saudi Med. 2020;40(1):55-62. doi: 10.5144/0256-4947.2020.55. PubMed PMID: 32026718; PubMed Central PMCID: PMC7012024.

16. Pinna F, Manchia M, Paribello P, Carpiniello B. The impact of alexithymia on treatment response in psychiatric disorders: a systematic review. Front Psychiatry. 2020;11:311. doi:10.3389/fpsyt.2020.00311. PubMed PMID: 32372987; PubMed Central PMCID: PMC7177022.

17. Serafini G, De Berardis D, Valchera A, Canepa G, Geoffroy PA, Pompili M, et al. Alexithymia as a possible specifier of adverse outcomes: Clinical correlates in euthymic unipolar individuals. J Affect Disord . 2020;263:428-36. doi: 10.1016/j.jad.2019.10.046. PubMed PMID: 31969274.

18. Obeid S, Akel M, Haddad C, Fares K, Sacre H, Salameh P, et al. Factors associated with alcohol use disorder: the role of depression, anxiety, stress, alexithymia and work fatigue-a population study in Lebanon. BMC public health. 2020;20(1):1-1. doi: 10.1186/s12889-020-8345-1. PubMed PMID: 32070314; PubMed Central PMCID: PMC7029557.

19. De Berardis D, Fornaro M, Valchera A, Rapini G, Di Natale S, De Lauretis I, et al. Alexithymia, resilience, somatic sensations and their relationships with suicide ideation in drug naïve patients with first-episode major depression: An exploratory study in the "real world" everyday clinical practice. Early intervention in psychiatry.2020;14(3) 336-342.doi: 10.1111/eip.12863.

20. Chen G, He J, Zhang B, Fan X. Revisiting the relationship between body dissatisfaction and eating disorder symptoms in Chinese adolescents: the mediating roles of regulatory emotional self-efficacy and depression symptoms. Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity. 2020 20:1-9. doi: 10.1007/s40519-020-00848-0. PubMed PMID: 31960348.

21. Testoni I, Bonelli B, Biancalani G, Zuliani L, Nava FA. Psychodrama in attenuated custody prison-based treatment of substance dependence: The promotion of changes in wellbeing, spontaneity, perceived self-efficacy, and alexithymia. The Arts in Psychotherapy. 2020;68.101650.doi: 10.1016/j.aip.2020.101650.

22. Taylor GJ, Bagby RM, Parker JD. What's in the

name 'alexithymia'? A commentary on "Affective agnosia: Expansion of the alexithymia construct and a new opportunity to integrate and extend Freud's legacy." Neurosci Biobehav Rev . 2016;68:1006-20. doi: 10.1016/j.neubiorev.2016.05.025. PubMed PMID: 27235080.

23. Motamedi H, Samavi A, Fallahchai R. Investigating and Comparing the Effectiveness of Cognitive-Behavioral Therapy and Acceptance and Commitment Therapy on Emotional Self-efficacy of Family Headed Women. Iranian Evolutionary and Educational Psychology Journal. 2019;1(2):123-34.doi: 10.29252/IEEPJ.1.2.123.

24. Mirsharifa SM, Mirzaian B, Dousti Y. The Efficacy of Acceptance and Commitment Therapy (ACT) Matrix on Anxiety and Quality Of Life of Patients with Irritable Bowel Syndrome. International Journal of Medical Investigation. 2019;8(1):19-30.

25. Pirani Z, Abbasi M, Kalvani M, Nourbakhsh M. Effectiveness of Acceptance and Commitment Therapy on Sexual Self-Esteem, Emotional Skillfulness and Marital Adjustment in Veterans' Wives. Iranian Journal of War and Public Health.;9(1):25-32.

26. Darvish Baseri L, DashtBozorgi Z. Effectiveness of group therapy based on acceptance and commitment on cognitive emotion regulation and alexithymia of patients with type 2 diabetes. Iranian Journal of Psychiatric Nursing. 2017;5(1):7-14.doi: 10.21859/ijpn-05012.

27. Rostami R, Dasht Bozorgi Z. Effectiveness of Acceptance and Commitment Therapy on Resiliency and Alexithymia of Somatic Symptoms. Practice in Clinical Psychology. 2019;7(2):87-94. doi: 10.32598/jpcp.7.2.87.

28. AghaYousefi A, Javanmard G, Mohammadi R. Brain Behavioral Inhibition and Activation Systems (BIS/BAS) and Hemispheric Dominance in People with and without Alexithymia. Scientific Journal of Clinical Psychology & Personality. 2018;16(1):141-9. doi: 10.22070/cpap.2020.2843.

29. Khaledinia A, Makvandi B, Asgari P, Pasha R. Comparative Effect of Behavioral Activation Treatment for Depression and Acceptance and Commitment Therapy Matrix on the Depression of College Students. Avicenna J Neuro Psycho Physiology. 2018; 5 (2) :63-72.doi: 10.32598/ajnpp.5.2.63.

30. Samur D, Tops M, Schlinkert C, Quirin M, Cuijpers P, Koole SL. Four decades of research on alexithymia: moving toward clinical applications. Front Psychol. 2013;4:861. doi: 10.3389/fpsyg.2013.00861. PubMed PMID: 24312069;

PubMed Central PMCID: PMC3832802.

31. Panayiotou G, Leonidou C, Constantinou E, Hart J, Rinehart KL, Sy JT, et al. Do alexithymic individuals avoid their feelings? Experiential avoidance mediates the association between alexithymia, psychosomatic, and depressive symptoms in a community and a clinical sample. Comprehensive psychiatry. 2015;56:206-16. doi: 10.1016/j.comppsych.2014.09.006. PubMed PMID: 25263517.

32. Waller KG, Shaw RW. Endometriosis, pelvic pain, and psychological functioning. Fertil Steril. 1995;63(4):796–800. doi: 10.1016/s0015-0282(16)57484-6. PubMed PMID: 7890065.

33. Polk KL, Schoendorff B, Webster M, Olaz FO. The essential guide to the ACT Matrix: A step-by-step approach to using the ACT Matrix model in clinical practice. New Harbinger Publications; 2016.

34. Lejuez CW, Hopko DR, Hopko SD. A brief behavioral activation treatment for depression: Treatment manual. Behavior Modification. 2001;25(2):255-86. doi: 10.1177/0145445501252005. PubMed PMID: 11317637.

35. First MB, Spitzer RL, Gibbon M, Williams JB. User's guide for the Structured clinical interview for DSM-IV axis I disorders SCID-I: clinician version. American Psychiatric Pub; 1997.

36. Sharifi V, Asadi SM, Mohammadi MR, Amini H, Kaviani H, Semnani Y, et al. Reliability and feasibility of the Persian version of the structured diagnostic interview for DSM-IV (SCID). Advances in cognitive science. 2004;6(1):10-22.

37. Nejat SA, Montazeri A, Holakouie Naieni K, Mohammad KA, Majdzadeh SR. The World Health Organization quality of Life (WHOQOL-BREF) questionnaire: Translation and validation study of the Iranian version. Journal of school of public health and institute of public health research. 2006;4(4):1-2.

38. Makvandi B, Haydarei AR, Shehni Yailagh M, Najarian B, Askery P. Construction and validation of a scale for the measurement of alexithymia in university student. Journal of American Science. 2011;7(12):325 29.

39. Bai Z, Luo S, Zhang L, Wu S, Chi I. Acceptance and commitment therapy (ACT) to reduce depression: a systematic review and meta-analysis. Journal of Affective Disorders. 2020;260:728-37. doi: 10.1016/j.jad.2019.09.040. PubMed PMID: 31563072.

40. Li J, Long L, Liu Y, He W, Li M. Effects of a mindfulness-based intervention on fertility quality of life and pregnancy rates among women subjected to first in vitro fertilization treatment.

Behaviour research and therapy. 2016; 77:96-104. doi: 10.1016/j.brat.2015.12.010. PubMed PMID: 26742022.

41. Fernández EN, Mairal JB. Behavioral activation versus cognitive restructuring to reduce automatic negative thoughts in anxiety generating situations. Psicothema. 2017;29(2):172-7. doi: 10.7334/psicothema2016.325. PubMed PMID: 28438238.

42. Broderick PC. Mindfulness and coping with dysphoric mood: Contrasts with rumination and distraction. Cognitive Therapy and Research. 2005;29(5):501-10.doi: 10.1007/s10608-005-3888-0.

43. Eisanezhad Boshehri S, Dasht Bozorgi Z. Effectiveness of Behavioral Activation Treatment in Reduction of Anxiety and Depression of Premenopausal Women. The Neuroscience Journal of Shefaye Khatam. 2018;6(1):19-26.

44. Shareh H. Effectiveness of behavioral activation group therapy on attributional styles, depression, and quality of life in women with breast cancer. Journal of fundamentals of mental health. 2016;18(4):179-88.

45. Fernández-Rodríguez C, Villoria-Fernández E, Fernández-García P, González-Fernández S, Pérez-Álvarez M. Effects of behavioral activation on the quality of life and emotional state of lung cancer and breast cancer patients during chemotherapy treatment. Behavior modification. 2019;43(2):151-80. doi: 10.1177/0145445517746915. PubMed PMID: 29276837.

46. Lejuez CW, Hopko DR, Acierno R, Daughters SB, Pagoto SL. Ten-year revision of the brief behavioral activation treatment for depression: revised treatment manual. Behav Modif . 2011;35(2):111-61. doi: 10.1177/0145445510390929. PubMed PMID: 21324944.

47. Alijanzadeh Tonkaboni M, Bagheri M. Comparative examine of effectiveness of training behavioral activation and education based on acceptance and commitment on increasing psychological well-being among high school boy students of Grade nine in Kerman. Shenakht Journal of Psychology and Psychiatry. 2019; 6 (1): 75-86 .doi: 10.29252/shenakht.6.1.75.

48. King LA, Emmons RA. Conflict over emotional expression: Psychological and physical correlates. Journal of personality and social psychology. 1990;58(5):864. doi: 10.1037//0022-3514.58.5.864. PubMed PMID: 2348373.

49. Dimidjian S, Barrera Jr M, Martell C, Muñoz RF, Lewinsohn PM. The origins and current status of behavioral activation treatments for depression. Annual review of clinical psychology. 2011; 7:1-38. doi: 10.1146/annurev-clinpsy-032210-104535. PubMed PMID: 21275642.

50. McNeely C, Bose K. Adolescent social and emotional development: A developmental science perspective on adolescent human rights. Human rights and adolescence. 2014;102-24.

51. Venta A, Hart J, Sharp C. The relation between experiential avoidance, alexithymia and emotion regulation in inpatient adolescents. Clinical child psychology and psychiatry. 2013;18(3):398-410. doi: 10.1177/1359104512455815. PubMed PMID: 22990482.

52. Hayes SC, Levin ME, Plumb-Vilardaga J, Villatte JL, Pistorello J. Acceptance and commitment therapy and contextual behavioral science: Examining the progress of a distinctive model of behavioral and cognitive therapy. Behavior therapy. 2013;44(2):180-98. doi: 10.1016/j.beth.2009.08.002. PubMed PMID: 23611068; PubMed Central PMCID: PMC3635495.