

The effect of acceptance and commitment therapy on emotional stability and alexithymia in female students

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Abstract

Background: Mental disorders can cause many problems in students' academic performance and also severely affect their cognitive, emotional, moral and social development. The aim of this study was to evaluate the effectiveness of acceptance and commitment therapy (ACT) on emotional stability and alexithymia in female second-grade high school students.

Methods: The present study was a quasi-experimental with a pretest-posttest design. The statistical population included all girls' second grade students of the second secondary school in District 8 of Tehran. The sample size consisted of 118 students who were selected by stratified random sampling and assigned to two groups of 59 people as experimental and control groups). Data collection tools were emotional adjustment measure (EAM), Toronto alexithymia scale (TAS-20), and the ACT protocol. Data analysis was done using SPSS V.21 and multivariate analysis of covariance, and significance level was considered ≤ 0.05 .

Results: The findings showed that after adjusting the pre-test scores, ACT in the post-test has a significant effect on the Lack of regulation of emotional and physiological arousals, and despair and wishful thinking with values ($F=90.143$, $F=178.324$ respectively, $P<0.001$). Also, after adjusting the pre-test scores, ACT in the post-test showed a significant effect on the difficulty in identifying feelings ($P<0.001$, $F=91.278$), difficulty in describing feelings ($P<0.001$, $F=189.328$), and externally-oriented thinking ($P<0.001$, $F=165.544$).

Conclusion: Based on the results, ACT training had a positive influence on emotional stability and alexithymia of high school students; the implementation of this protocol in schools and counseling centers is recommended.

Keywords: Acceptance and Commitment Therapy; Affective Symptoms; Emotions; Students.

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Introduction

Today, mental disorders cause many problems in the academic performance of students and also disrupt their cognitive, emotional, moral and social development, which not only students has greatly affected but also their

home, school and community (1). Mental health and related disorders in adolescents are a major public health concern; however, schools are ideal residences to embed mental health literacy at the individual and community levels. In fact, it is a place to

prevention and health promotion; because behavioral interventions are easily done in school (2, 3). Previous studies exhibited that emotional regulation is an important agent in determining health and having a successful performance in education, and its deficiency is associated with endocrine and exogenous disorders (4). In the face of stressful situations, people use a variety of emotion regulation strategies such as rumination, self-blame, others blame, catastrophizing and positive refocusing, positive reassessment, acceptance, and planning (5, 6). Therefore, it can be said that emotion stability is a determining factor in mental well-being and effective functioning and can play a key role in coping with stressful life events. An emotionally unstable person is more likely to have irrational beliefs, have less power to control impulses, and show a weaker degree of adaptation to others and the environment (7, 8). Of course, there are situations in everyone's life that experience such negative emotions, but if these states become mental disorders; their type, number, severity, and duration reach a level that can injury to the normal life and mental health of person. In contrast, people with low scores on the nervousness or psychotropic index are emotionally considered stable. These people are usually calm, have a unchanging and comfortable habitude, and can easily face difficult situations without agitation and behavioral problems (9, 10). It seems that emotional stability is considered as an indicator of mental health. Emotional stability model is one of the most important models of emotion that is done with the help of cognitive strategies and processes. In fact, cognitive processes help people to regulate their emotions (11).

Another problem for students is alexithymia, which causes many difficulties in emotional processing. Alexithymia is a type of mood failure that causes inability to cognitively process of emotional information and regulate emotions, and these people have difficulty

in correctly recognizing emotions from others faces and their capacity to empathize with other people's emotional states is limited (12). It has two aspects: cognitive phase i.e. inability to recognize, understand and interpret emotions, and emotional phase i.e. inability to respond and express emotions (13), which these characteristics indicate defects in cognitive processing and regulation of emotions (14). In addition, people with emotional dysfunction exaggerate abnormal bodily stimuli, misinterpret the physical signs of emotional arousal, and demonstrate emotional training through physical complaints. Therefore, the existence of effective educational methods to improve the psychological characteristics of these people is essential. In the meantime, using the acceptance and commitment therapy (ACT) can be fruitful as one of the most common and widely used methods.

ACT was developed by Steven Hayes in 1986 and is based on a research program on language and cognition, which called the framework of mental relationships (15). It is an experience-based psychological intervention that has been proven to be effective in solving many difficulties of individuals (16). The fundamental structure and concept in ACT is that suffering and psychological reflection are created by avoiding experiences, intertwined cognitions, failing to meet behavioral needs, and not conforming to basic values (17). This educational model has six processes such as acceptance, communication with the present, failure, self-observer, values and commitment, which Pistorello et al, recently summarized them into three groups of openness, awareness and engagement (18). ACT as an important field of emerging psychoeducation that research shows its effective role on stress, anxiety disorders, depression, frustration and other clinical conditions; it has also been effective in increasing emotional stability and reducing students' alexithymia (19). Moreover, The ACT approach tries to experience the

emotions in people as they really are, so that individual can achieve to better emotional management (13).

Studies show that acceptance and commitment therapy is effective in increasing to increase psychological resilience and reduce alexithymia (20). Kiani, Ghasemi and Pourabbas in a comparative study have proven the effectiveness of commitment and acceptance therapy on cognitive regulation of emotions and showed that this treatment has an effective role in emotions and their regulation (13). Darvish Baseri and DashtBozorgi also proved the effective role of ACT therapy in cognitive emotion regulation and alexithymia of patients with type 2 diabetes (21).

Although previous studies have shown that ACT therapy is an effective treatment for emotion regulation, emotional stability and alexithymia are variables that have been less addressed in relation to ACT therapy, and of course most studies have been performed in different populations of the study population.

It seems that ACT has complex and multidimensional considerations that research in this area need to be further enriched. On the other hand, it is possible to organize educational styles that lead to higher emotional stability in children, using related concepts and teachings. Also, the importance of emotional instability including anxiety, anger, depression, self-awareness, impulsivity and stress vulnerability as a personality factor in the transition from adolescence to youth has added to the need for this research. In addition to the effectiveness of emotion regulation, ACT can also be promising to help students. Since less attention has been paid to the issue of emotional stability and alexithymia problems of students. Furthermore, due to the high number of students, there is a need to improve the psychological characteristics of them with appropriate group teaching methods. Therefore, the present study was performed

with the aim of the effectiveness of ACT on emotional stability and alexithymia in female high school students.

Methods

The present research was a quasi-experimental study with pre-test and post-test design. In this study, the statistical population included all girls' second grade high school students in district 8 of Tehran. In this region, 170 second-year students were studying in 4 chapters of girls' secondary schools in the academic year 2020-2021. In order to research, 118 students were selected according to the Cochran formula and then the participants were randomly assigned to two groups of 59 as control and experimental groups. In this study, each school was considered as a category and the sample members were selected using stratified random sampling in proportion to the share of each school. After determining and assigning the sample to each school, data was collected through questionnaires that emotional adjustment measure (EAM) and Toronto alexithymia scale (TAS-20) were used. In order to control the variable of social class, it was tried to select students whose parents were selected from the middle income, and the parents' education was from diploma to bachelor's degree. In order to observe ethics, all fields of study were selected equally. Group therapy was used to reduce cost and time. Also use covariance analysis to analyze the data.

Inclusion criteria were 2nd grade female high school students, and satisfaction and commitment to participate in the study. Exclusion criteria included: not participating in other training programs at the same time and not receiving individual counseling or medication, lack of willingness and informed consent to participate in the study.

Emotional adjustment measure (EAM): Rubio et al., (2007) developed the EAM to measure individuals' emotional stability or balance (22). EAM includes 28 items and

two subscales called the lack of regulation of emotional and physiological arousals, and despair and wishful thinking. Participants respond to each item on a 6-point Likert Scales from 1 (strongly agree) to 6 (strongly disagree). In this tool, items 21, 25, and 28 are scored in reverse. In the study of Rubio et al., The internal consistency coefficient of the whole scale was 0.89. In the study of Shokri et al., The psychometric properties of the EAM among Iranian students were investigated. The results of factor analysis showed that its 2-dimensional structure has a good fit and the values of total internal consistency coefficients and its subscales using Cronbach's alpha coefficient were obtained between 0.86 to 0.91 (23).

Toronto alexithymia scale (TAS-20): This scale was developed by Taylor (1986) and revised by Bagby et al., in 1994 (24). In this 20-item scale, the structure of alexithymia is assessed in three subscales including difficulty in identifying feelings (DIF), difficulty in describing feelings (DDF), and externally-oriented thinking (EOT). The DIF subscale consists of 7-item that assess the subject's ability to identify emotions and distinguish between emotions and bodily sensations. The DDF subscale has 5-item and measures the person's ability to express emotions and whether person is able to express his or her feelings in words. The 8-item EOT subscale also examines the extent to which a person is introspective and deep in their own inner feelings and those of others. Its scoring method is 5-point Likert "completely disagree" 1 to "completely agree" 5. A more score on this scale indicates higher alexithymia. The psychometric properties of the TAS-20 have been reviewed and validated in numerous studies (24, 25). In the study of Besharat on the students of Tehran University, the Cronbach's alpha coefficient for the entire TAS-20 was 0.85 and for the three subscales DIF, DDF, and EOT were 0.82, 0.75, and 0.72 respectively,

which is a sign of internal consistency above this scale (26). In another study, the reliability of the TAS-20 retest for total alexithymia and its subscales was also reported from 80 to 87 (27).

Research procedure

After agreeing in principle to perform the research and select the participants, initially both groups of experimental and control responded to the items of the scales of EAM and TAS-20 Simultaneously and on equal terms. Then, the experimental group endured ACT in 8 sessions for 90 minutes on a weekly basis; however the control group did not receive any interposition. At the end of the sessions, both groups responded again to the items of the EAM and TAS-20 Scales. The protocol of the sessions was made from the training books based on acceptance and commitment (28, 29) and its validity was approved by the supervisor of this research. The content of each session is summarized in Table 1.

The ethical considerations observed in the research were as follows: Participants had the freedom not to participate in the research and were assured about the principles of confidentiality and confidentiality of their identities. All participants in the study were asked to observe fidelity to the training programs offered. Because the subjects in the control group were not exposed to the intervention, they were told that after completing the research, they would be offered ACT training.

Quantitative variables were expressed as Mean \pm standard deviation (SD). The normality of the research variables was assumed by Kolmogorov-Smirnov test and Multivariate analysis of covariance (MANCOVA) was used to analyze the data to control the effect of the pre-test auxiliary variable on post-test. Data analysis was done using SPSS V.21 and significance level was considered less than 0.05.

Table 1. Content of ACT training sessions for the intervention group

Session	Content	Homework
1	Group rules, familiarity and general description of the ACT approach, introduction of research variables (emotional stability, alexithymia, their causes, etc.), benefits of ACT, and pre-test	Performing the pre-test and participants write down their goals for attending the sessions
2	Exploring the inside and outside world in ACT training; Creating insights in students about the problems and challenging control, Creating a tendency to abandon the dysfunctional program of change and understanding that control is the problem, not the solution. Introducing an alternative to control, i.e. desire, expressing normal and problematic emotions, emotional self-awareness, reducing or avoiding internal events and anxiety, and measuring their effectiveness (creative helplessness)	Identifying and labeling the feelings and emotions they experience in everyday relationships
3	Identifying the values of individuals; Specifying values, goals; Actions and obstacles; Pathogenic emotions and the need for treatment; Causes and symptoms of emotional disorder and cognitive errors; Accepting painful personal events without conflict with them using allegory; Getting feedback and providing homework. Cognitive, physiological, and behavioral consequences of emotional and relationship reactions of the three. Introducing the physical, behavioral and cognitive symptoms, Introducing the psychological therapy (cognitive-behavioral), Introducing two common cognitive errors, introducing emotion and avoidance as indicators of emotional disorder	Writing and recording major negative emotions and recognizing alexithymia
4	Creating acceptance and mindfulness by letting go of control, discussing the acceptance of experiential desire, being aware of the relationship between emotions and behavior, emotion and thought, recognizing and examining automatic thoughts, interpretations and behaviors, flexibility in interpretation and considering a range of probabilities, change and modify interpretations	How to change our interpretations
5	Understanding fusion and faulting and practicing for faulting, emotion-induced behaviors, introducing a three-dimensional behavioral model to express the common relationship between behavior / emotions, psychological functions, and observable behavior, and discussing attempts to change behavior based on it, performing practical exercises of some allegories, receiving feedback and giving homework.	Awareness of the consequences of emotional avoidance and the experience of emotion or emotion suppression
6	Understanding self-conceptualization and teaching how to break from it, confrontation from within, confrontation with emotion, explaining the concepts of role and context, seeing oneself as a platform and making contact with oneself using allegory, awareness of different sensory perceptions, and separation from the senses that are part of the mental content. Relaxation exercises, receiving feedback and presentation, excitement focusing on physical emotions, performing exposure and paying close attention to all obstacles or avoidance behaviors, reinterpreting, re-evaluating	Identifying some of the main emotions of everyday life
7	Beliefs, principles and core hypotheses, explaining the concept of values, motivating change and empowering clients for a better life, practicing concentration, receiving feedback and giving homework. Mindfulness and emphasis on being in the present. Introducing beliefs related to rejection, introducing beliefs related to helplessness, identifying core beliefs	Identifying some of the core beliefs
8	Examining the story of committed life and action, changing core beliefs, final evaluation and completion of the commitment to action training program, identifying behavioral plans in accordance with values and creating a commitment to act on them, summarizing sessions, presenting a pamphlet and showing allegorical videos. Breaking the core beliefs of the problematic and replacing the new beliefs, summarizing and concluding the topics discussed in the meetings and conducting the post-test.	Summarizing and completing the questionnaire (post-test)

Results

The mean and standard deviation age of students participating in the present study was 16.50 ± 0.910 years. According to Mann-Whitney results, the two experimental and control groups were age-matched ($P = 0.257$). In this study, the normality of data distribution was first

investigated using the Kolmogorov-Smirnov test (Table 2). The results showed that the Z values obtained in the experimental and control groups are greater than the critical value ($\alpha = 0.05$), so all variables the null hypothesis of a normal distribution is confirmed and it can be said that the distribution of variables is normal.

Table 2: Results of Kolmogorov-Smirnov test to check the normal distribution of scores

Variable	Experimental group		Control group	
	Z value	P-value	Z value	P-value
Lack of regulation of emotional and physiological arousals	0.935	0.816	0.600	0.865
Despair and wishful thinking	0.606	0.865	1.357	0.060
difficulty in identifying feelings	0.618	0.848	0.869	0.734
difficulty in describing feelings	0.650	0.779	0.693	0.720
externally-oriented thinking	0.717	0.694	0.596	0.866
Emotional stability	0.809	0.538	0.468	0.988
alexithymia	0.614	0.697	0.864	0.439

Also, the Box's M test were examined, due to the lack of significance, the condition of homogeneity of variance-covariance matrices is established ($P = 0.07$).

The equality test of error variance was also checked by the Levene's test. As can be seen in Table 3, the significance level of the variables is more than the alpha level of 0.05, and therefore the same assumption of error variance is observed for all study variables.

The mean of emotional stability and alexithymia components of the participants are given in Table 4. The mean and standard deviation of the overall score of emotional stability of students in the experimental group in pre-test and post-test states were 63.06 ± 6.02 and 35.01 ± 6.27 , respectively. Also, the mean and standard deviation of

the total score of emotional stability of students in the control group in pre-test and post-test states were 63.20 ± 7.78 and 64.24 ± 4.19 , respectively.

The mean and standard deviation of the general score of alexithymia in the pre-test in the experimental group students was 63.10 ± 6.06 and the total score of their alexithymia in post-test 36.05 ± 6.32 ; while the mean and standard deviation of the total score of alexithymia in the control group in pre-test and post-test were obtained 63.25 ± 7.81 and 64.30 ± 4.24 , respectively.

The results of multivariate test on the mean of the studied variables in the post-test state are shown in Table 5. The results of Wilks Lambda test revealed that the effect of the group on the composition of emotional stability components is significant

Table 3: Equality test for variance error using the Levene's test

Variable	F ratio	df1	df2	P-value
Lack of regulation of emotional and physiological arousals	7.23	1	28	0.16
Despair and wishful thinking	0.027	1	28	0.89
difficulty in identifying feelings	4.79	1	28	0.11
difficulty in describing feelings	14.04	1	28	0.09
externally-oriented thinking	14.07	1	28	0.07
Emotional stability	2.16	1	28	0.14
alexithymia	1.929	1	28	0.18

Table 4: Mean and standard deviation of emotional stability and alexithymia components in pre-test and post-test

Dependent variable	Components	Experimental, (Mean + SD)		Control, (Mean + SD)	
		pre-test	post-test	pre-test	post-test
Emotional stability	Lack of regulation of emotional and physiological arousals	26.55 ± 3.80	16 ± 4.05	28.70 ± 3.50	28.15 ± 2.41
	Despair and wishful thinking	21.20 ± 2.60	11.40 ± 1.61	20.40 ± 3.25	21.05 ± 2.24
	Total	63.06 ± 6.02	35.01 ± 6.27	63.20 ± 7.78	64.24 ± 4.19
alexithymia	difficulty in identifying feelings	27.55 ± 3.88	17 ± 4.02	28.75 ± 3.55	28.20 ± 2.44
	difficulty in describing feelings	21.25 ± 2.65	11.45 ± 1.66	20.45 ± 3.30	21.10 ± 2.29
	externally-oriented thinking	14.30 ± 2.63	7.60 ± 1.90	14.05 ± 2.48	15 ± 1.29
	Total	63.10 ± 6.06	36.05 ± 6.32	63.25 ± 7.81	64.30 ± 4.24

Table 5: The results of multivariate test on the mean of the studied variables in the post-test state

Variable	Test	Value	F	df Hypothesis	df error	P-value	Eta
Emotional stability	Pillais Trace	0.895	90.679	3	33	P<0.001	0.870
	Wilks Lambda	0.111	90.679	3	33	P<0.001	0.870
	Hotelling's Trace	8.253	90.679	3	33	P<0.001	0.870
	Roy's Largest Root	8.253	90.679	3	33	P<0.001	0.870
alexithymia	Pillais Trace	0.892	90.774	3	33	P<0.001	0.892
	Wilks Lambda	0.108	90.774	3	33	P<0.001	0.892
	Hotelling's Trace	8.252	90.774	3	33	P<0.001	0.892
	Roy's Largest Root	8.252	90.774	3	33	P<0.001	0.892

($P<0.001$, $F= 90.679$). As shown in Table 5, the significance levels of all tests indicate that there is a significant difference between emotional stability in the compared two groups at least in one of its components. Also, Eta squared shows that the difference between the two groups is significant with respect to the dependent variables generally and the amount of this difference based on Wilks Lambda test is approximately 0.87, it means that 87% of the variance related to the difference between the two groups due to the interaction of dependent groups.

According to Table 5, the results of Wilks Lambda test indicated that the effect of the group on the composition of alexithymia components is significant ($P<0.001$, $F= 90.774$). The significance levels of all tests showed that there is a significant difference between alexithymia in the compared two groups at least in one of its components. Also, Eta squared displays that the difference between the two groups is significant regarding to the dependent variables generally and the amount of this

difference based on Wilks Lambda test is nearly 0.89, In other words, 89% of the variance related to the difference between the two groups is due to the interaction of dependent groups. Then, to determine the effect of ACT on emotional stability and alexithymia, multivariate analysis of covariance (MANCOVA) was used to control the effect of pre-test.

The results of analysis of covariance to examine the differences of emotion stability and alexithymia components are shown in Table 6. With respect to the results, after adjusting the pre-test scores, ACT had a significant effect on lack of regulation of emotional and physiological arousals, and also despair and wishful thinking in the post-test ($F=90.143$ and $F=178.324$, respectively, $P<0.001$); therefore, it can be said that ACT has reduced the components of emotional stability in the students of experimental group compared to the control group in the post-test.

Also, after adjusting in the pre-test scores, ACT had a significant effect on difficulty in

Table 6. The results of covariance analysis of emotion stability and alexithymia components in pre-test and post-test

Dependent variable	Components	Sources of changes	SS	df	MS	F	P-value
Emotional stability	Lack of regulation of emotional and physiological arousals	The effect of	6.280	1	6.280	0.549	0.465
		group pretest	1053.011	1	1053.011	90.143	0.001
	Despair and wishful thinking	The effect of	0.0160	1	0.0160	0.036	0.845
		group pretest	782.410	1	782.410	178.324	0.001
Alexithymia	difficulty in identifying feelings	The effect of	6.286	1	6.286	0.545	0.465
		group pretest	1053.017	1	1053.017	91.278	0.001
	difficulty in describing feelings	The effect of	0.0161	1	0.0161	0.039	0.845
		group pretest	782.411	1	782.411	189.328	0.001
externally-oriented thinking	The effect of	0.84	1	0.84	0.031	0.861	
	group pretest	451.216	1	165.544	165.544	0.001	

identifying feelings ($F=91.278$, $P<0.001$), difficulty in describing feelings ($P<0.001$, $F=189.278$), and externally-oriented thinking ($P<0.001$, $F=165.544$); which shows that ACT in the post-test has reduced the alexithymia of the students on experimental group in comparison with the control group.

Discussion

The aim of this study was to investigate the effectiveness of ACT on emotional stability and alexithymia in the students of female high school. The results showed that ACT is effective in improving emotional stability and alexithymia of the students.

Based on the results of the present study, ACT improved the emotional stability of the students. This finding confirmed in some ways with the results of the studies of Narimani et al., (30), Mohammadi et al., (31), Kiani et al., (32), Blackledge and Hayes (33), and Hosseini et al., (34). They in separate studies reported that the implementation of ACT training improved emotion regulation.

This treatment helps clients to have a clear understanding of their moods, including anger and tension, and not to confuse them with language, and to experience these experiences fully (35) and with the knowledge that study participants gain about their emotions during the sessions, they can maintain their emotional stability in different situations. ACT helps a person to perform voluntary actions by controlling inappropriate thoughts and behaviors. In fact, since ACT does not mean wanting and tolerating annoying emotions and experiences alone, it can lead to people control their thoughts, behaviors, and emotions voluntarily and they can manage their emotions consciously (18).

Also, in acceptance and commitment therapy, instead of intellectual and practical avoidance of thoughts and social situations, people learn by increasing psychological acceptance of inner experiences to improve their life situation (36). Improving the

situation and lifestyle is associated with reducing most of the personality anxiety factors, and this situation brings emotional stability, and it is likely that emotional stability also serves to improve the life situation (37).

Acceptance and commitment are unconditional, balanced sense of awareness that helps to see and accept emotions and physical phenomena clearly as they occur, teaching it to students allows them to accept their own feelings and psychological cues. As a result, it reduces excessive attention and sensitivity to emotional issues and improves their well-being and compatibility. Therefore, educating students in emotional regulation and identifying personal events and accepting what the effort to reduce and change itself leads to psychological damage will help in emotional healing. According to the goals, this type of education i.e. psychological flexibility can help students in accepting the problem and choosing the appropriate option to solve the problem.

Another result of this study confirmed the role and effect of ACT training in reducing students' alexithymia, which was in line with the results of Barzegari Dehaj (38), Tilaki et al, (20), Javadi et al., (39), and White et al, (40). All previous studies emphasized about the effect of ACT on alexithymia, however in the findings of Simpson and Stroh (41), and Raty and Gustafsson (42), there was no consistency regarding the effect of ACT training on alexithymia and especially its dimensions in changes related to the expression of emotion patterns. The results of Rostami and Dasht Bozorgi (43), Baseri and Bozorgi (21), and White et al, (40) also consistent with the present study. The ACT approach tries to experience the emotions in people as they really are; this causes the people to realize the depth of their emotions, to identify them correctly, and to seek to understand their correct and healthy occurrence, so that can achieve to better emotional management and express their

emotions more effectively (13). This treatment helps people to describe their emotions in a more adaptive way and to feel less helpless by being aware of the right emotions and accepting and expressing them correctly in different situations instead of feeling difficult to express them (44). In this regard, it can be stated that alexithymia is a cognitive-emotional trait and people with it are unable to regulate and understand their emotions. When emotional information cannot be perceived and evaluated in the process of cognitive processing, people become emotionally and cognitively disturbed and this inability can disrupt their emotions and cognitions (37). Due to lack of emotional awareness and inability to cognitively process their emotions, these people are usually unable to identify, understand or describe their emotions and have a limited ability to adapt in stressful situations. One of the ways to control stress, especially in the case of negative emotions, is to vent and express the emotion caused by stress. If these emotions are not evacuated and the people is not able to express their negative emotions verbally, the psychological component of emotion expression systems and psychological distress will increase. People who are able to recognize their emotions and express their emotional states effectively are better able to cope with life's problems and are more successful in adapting to the environment and others, as a result, these people will have more mental health (36).

Limitations of the study include the following: Given that other variables such as intelligence and personality traits can possibly affect the results of the present study that have not been controlled. Therefore, the generalizability of the results is reduced and it is possible to achieve other results by controlling these variables. The findings of this study were limited to the research community in the secondary school of District 8 of Tehran. In addition, the lack of follow-up sessions due to time

constraints in implementation is another limitation of this research.

Conclusion

The results of this study showed that ACT training can have a significant effect on improving emotional stability and alexithymia in high school students. Therefore, it is recommended that this issue be considered in the educational program of all high school levels. In this regard, school counselors and psychologists can take positive steps to improve students' emotional stability by using ACT intervention and increase students' hope. Also, this educational intervention can be effective in helping students to reduce alexithymia and not describe their inner states and feelings. Furthermore, Education administrators and administrators in educational, cultural, and psychological services for students can prioritize reducing alexithymia, improving emotion stability, and promoting core positive beliefs.

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Authors' contributions

Ghaznavi S, Pouraziz Abouzar P developed the study concept and design; Ghaznavi S gathered the data; Pouraziz Abouzar P analyzed and interpreted the data; Ghaznavi S wrote the first draft of manuscript; and Pouraziz Abouzar P revised the manuscript.

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Conflicts of interest

There is no potential competing interest for this article.

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