



The Effectiveness of Acceptance and Commitment Therapy on Cognitive Flexibility and Academic Buoyancy in Adolescents with Attention Deficit Problems

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ABSTRACT

Background and Aim: Academic underachievement in adolescents can often be traced to attention deficit disorder, according to research attention problems are linked to poor school performance, the aim of this study was to determine the effectiveness of acceptance and commitment therapy on cognitive flexibility and academic buoyancy in adolescents with attention deficit problems. **Methods:** This study was a quasi-experimental study with a pretest-posttest design with a control group. The statistical population of the study was all female high school students in the second district of education in Tabriz in 2021-2022 to 2864 people. The statistical sample consisted of 40 students who were selected by purposive sampling method and randomly assigned to experimental and control groups. The Aachenbach Adolescent Behavioral Problems Scale (YSR), Cognitive Flexibility (CFI) and Academic buoyancy Questionnaire (AVS) were used to collect data. In this study, the experimental group underwent acceptance and commitment (ACT) for 9 sessions of 90 minutes and the control group was on the waiting list. Data analysis was performed using multivariate analysis of covariance. **Results:** Findings showed that the acceptance and commitment therapy has led to a significant difference between groups in the variables of cognitive flexibility by 47.9% and academic buoyancy by 23%. Therefore, it can be argued **Conclusion:** that the acceptance and commitment therapy is effective on improving cognitive flexibility and academic buoyancy in students with attention deficit problems.



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Introduction

Attention deficit disorder is one of the most common neurobehavioral disorders. It is usually first diagnosed in childhood, and symptoms often persist into adulthood. A person with attention deficit disorder often avoids tasks requiring much mental effort for long periods, is easily distracted, has difficulty maintaining attention on tasks or play activities, and often jumps from one activity (mental or physical) to another. It changes (Hudspeth & Lewis, 2021), while a person without such a disorder can maintain his attention in similar conditions for a more extended period (Baghdadi, Jafari, Sprout, Tohidkhah, and Golpaygani, 2015). Adolescent underachievement can often be traced back to attention deficit disorder, with research linking attention problems with poor school performance (Jangmo et al., 2019). Individuals with ADHD have specific difficulties in cognitive flexibility that are often attributed to attention deficits (Wixted, Mickes, Dunn, Clark, & Wells, 2016). Cognitive flexibility enables people to adapt their cognitive processing strategies to deal with new and unforeseen situations (Roshni, Piri, Malik, Michel, & Vafai, 2020). Cognitive flexibility is one of the components of executive functions that play an important role in everyday life. According to cognitive complexity and control theory, cognitive flexibility is the ability to shift between multiple, incompatible viewpoints or descriptions of an issue or event (Zelzalu & Muller, 2011). Cognitive control theory predicts that children with advanced cognitive flexibility skills and higher planning potential will have better attention and behavior regulation skills (Gabris, Tabari, Anisman, & Matson, 2018). Since attention processes are one of the main factors of cognitive flexibility, it is assumed that adolescents with attention problems have abnormal cognitive flexibility. It has been suggested that the main mechanism of abnormal cognitive flexibility is a lack of attention, which leads to the lack of proper access to information and, subsequently, problems in processing, remembering, and finally recalling (Roshni et al., 2020). Students with attention deficits have more problems in academic processes than their normal counterparts. This experience is likely to undermine their successful growth and adjustment further, making academic performance a frustrating daily challenge

(Connor, 2012). Academic vitality may be an important factor in effective coping and helping students with ADHD who struggle academically (Martin, 2014). Academic vitality has been described as one of the factors that help students to cope with academic challenges (Martin & Marsh, 2009). Academic vitality is defined as a positive, constructive, and adaptive response of the student to the various challenges and obstacles experienced in the continuous and ongoing field of education (Putwain, Connors, Symes, and Douglas-Osborn, 2011). When students achieve high academic vitality and do not allow negative academic experiences to control their school life, they cope more effectively with everyday academic challenges (Colmar, Lim, Connor, & Martin, 2019). Various interventions have been used to improve adolescents' cognitive flexibility and academic vitality, which is one of the most recent promising approaches of intervention based on acceptance and commitment. Acceptance and commitment therapy, as part of third-wave cognitive behavioral therapy interventions, focuses on the person's relationship with their inner experience rather than the content of the experience (Gloster, Walder, Levin, Twohig, & Karekla, 2020). This approach assumes that psychological distress results from efforts to change distressing internal experiences (i.e., thoughts and feelings) that lead to maladaptive behavior. This escape from one's inner experience has emerged as a meta-diagnostic risk factor suitable for targeting prevention programs (Trompetter, Fox, & Schreurs, 2015). Although there is considerable empirical evidence and support in Western countries regarding the usefulness of acceptance and commitment interventions for adolescents, it has received less attention in countries with different cultural backgrounds, such as Iran. On the other hand, few experimental studies have been conducted regarding the effect of acceptance and commitment intervention in the adolescent girl population with attention problems compared to the adult population, especially boys. Therefore, the present study will focus on adolescent girls with attention problems to solve this research gap.

Method

This research was a quasi-experimental study with a pre-test-post-test design and a control group. The statistical population included all 2864 secondary school girls of the second education district of Tabriz city in the academic year of 2001-1401. To determine the sample size in experimental and quasi-experimental research, a minimum sample size of 15 people is suggested for each group. Therefore, the statistical sample consisted of 40 people who were selected by considering the criteria of purposive sampling and were randomly selected into two experimental and control groups of 20 people. In this study, the provisions of research ethics, including the confidentiality of the information and full consent, were observed. Also, this study was approved by the Research Ethics Committee of the Islamic Azad University of Tabriz branch with the code IR.IAU.TABRIZ.REC.1401.042. For data analysis, multivariate covariance analysis was used in SPSS version 26.

Tools

1. Achenbach System of Empirically Based Assessment - Youth self-report (ASEBA-YSR): this tool was used to screen adolescents with attention problems. This questionnaire was created by Achenbach in 1991 and was standardized in Iran by Minaei (2006) for adolescent samples. This scale can be answered in 15 minutes for ages 11 to 18 with a minimum education of the fifth grade. This scale includes competencies and syndromes, which will be used in this research for syndromes and the component of attention problems. The syndromes section consists of 112 statements, scoring on a three-point scale: 0= wrong, 1= partially or sometimes correct, 2= completely or mostly correct (Akbari Zardkhaneh et al., 2018). The lowest and highest scores on this scale range from 0 to 18, and scores above eight are considered to indicate a clinical state of attention problems (Bourdin et al., 2013). The adolescent self-assessment scale has satisfactory reliability and validity. The validity of this questionnaire has been examined repeatedly. Burdin et al. (2013) have reported the validity of the scale using the method of factor analysis and the method of principal components and obtained the scale's reliability using Cronbach's alpha for all dimensions in the range of 0.59 and 0.86.

2. Cognitive Flexibility Inventory (CFI): This questionnaire is a 19-question instrument for measuring cognitive flexibility, which was created by Dennis and Vanderwal (2010) and

standardized in Iran by Kohandani and Abol-Maali Al-Husseini (2017). The scoring method of the scale is based on a 7-point Likert scale in a range from one (completely disagree) to seven (completely agree) (Khondani & Abul Maali al-Hosseini, 2017). The questions of the controllability perception component are scored in a reverse way. Higher scores on this scale indicate a higher level of flexibility. Dennis and Vanderwal (2010) showed that this questionnaire has a good factorial structure, convergent validity, and concurrent validity. The concurrent validity of this questionnaire with the Beck Depression Inventory (BDI) is -0.39, and with the Martin Cognitive Flexibility Scale, 0.75.

3. Academic Vitality Scale (AVS): Academic Vitality Scale (AVS) is a 9-item tool that was created by Hossein Chari and Dehghanizadeh (2012) based on the academic vitality scale of Martin and Marsh (2008). The scoring of the questionnaire is based on a 5-point Likert scale ranging from strongly agree to strongly disagree. The minimum and maximum scores on this scale are 9 and 45, respectively. High scores indicate high academic vitality, and low scores indicate low academic vitality (Hossein Chari & Dehghanizadeh, 2011). Hossein Chari and Dehghanizadeh's study (2013) showed that Cronbach's alpha coefficient obtained by removing one item was equal to 0.73. Also, the correlation range of the items with the total score was between 0.51 and 0.68. The present results indicated that the items had satisfactory internal consistency and stability.

4. Acceptance and Commitment Therapy (ACT): to implement the intervention based on acceptance and commitment from the therapeutic protocol based on acceptance and commitment by Hayes et al. used. This program is held as a group in 9 sessions of 90 minutes. In this treatment model, 90 minutes in each session are devoted to acceptance and commitment. These concepts are presented using metaphors and experiential exercises during the sessions. These exercises help people with social phobia and pervasive anxiety to move toward a meaningful life instead of controlling or avoiding situations that provoke anxiety and worry by doing valuable activities (Syed Jafari et al., 2017).

Results

The mean and standard deviation of the interviewees was equal to 50.48 (6.68) years; among them, two people had a master's degree, 1 was a doctoral student, and 7 people had a doctoral degree. In this research, the grounded

method, including three stages of coding, was used in the qualitative part. In the first stage, primary codes and concepts were extracted using the key points of the interviews. Then the main and subcategories were extracted.

In order to do the coding, after implementing the text of all the interviews, first, the key points of each interview were extracted. This way, by implementing the important points of 12 interviews, 155 codes were obtained as open codes. In the next step, by specifying the frequency of each of the extracted codes and considering their similarity, 167 concepts were recognized. Then, the concepts of the same family were placed in a more general class, and by doing this, 51 subcategories were formed.

Conclusion

The present study was conducted to investigate the effectiveness of based on acceptance and commitment therapy on cognitive flexibility and academic vitality in teenagers with attention deficit problems. The findings of the research showed that the intervention of acceptance and commitment led to an increase of 47% in cognitive flexibility scores. Therefore, it can be concluded that acceptance and commitment therapy is effective in cognitive flexibility in adolescents with attention problems. Teaching different methods of challenging irrational thoughts and choosing a correct approach to the problem that exists in the teaching of commitment and acceptance, by influencing these aspects, can ultimately affect the flexibility of teenagers. The core processes of commitment and acceptance therapy teach the client: how to release thought inhibition, disengage from intrusive thoughts, strengthen self-observation instead of self-conceptualization, accept internal events instead of controlling them, correct one's values and give them pay. In this way, ACT improves psychological flexibility (Kashdan and Rottenberg, 2010).

Another finding of the research showed that the intervention based on acceptance and commitment caused a significant difference between the groups in academic vitality. Therefore, the acceptance and commitment therapy has led to an increase in the scores of the experimental group subjects in academic vitality compared to the control group.

The present findings support the theoretical perspectives of acceptance and commitment therapy and its assumptions' ability to influence core psychological skills (Dindo et al., 2017) and some coping skills, such as academic vitality. In

other words, the results of the present study suggest that the intervention increases the skills of self-awareness, acceptance, and failure concerning challenging situations in academic life. It will likely strengthen the ability to set personal goals and the courage to take independent action. These, in turn, will increase academic vitality (Clarke, Kingston, Wilson, Bolderston, & Remington, 2012). Also, this method increases the ability to mix, adapt, compromise, cooperate and cope with oneself, the environment, and others. It makes students more able to use their own facilities, actively participate in academic activities, and use more energy sources. As a result, it brings adaptability and acceptance of academic vitality to the individual. In the current research, by encouraging students to determine values and take effective action instead of avoiding problems, they were helped to commit to life values and accept responsibility for their lives. The intervention of acceptance and commitment creates a positive meaning in his mind due to the increase of the individual's efforts, which is focused on personal growth and increases the individual's efforts to obtain informational, tangible, and emotional supports (Dehauer, Barnes-Holmes, and Barnes-Holmes, 2016). Thus, they experience more vitality in life.

Conflict of Interest

According to the authors, this article has no financial sponsor or conflict of interest.

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