KMAN PUBLISHING INSTITUTE
Journal Website

Article history:
Received 12 February 2024
Revised 17 April 2024
Accepted 29 April 2024
Published online 10 May 2024

Journal of Adolescent and Youth Psychological Studies

Volume 5, Issue 5, pp 41-49

E-ISSN: 2981-2526

Comparison of the Effectiveness of Schema Therapy and Acceptance and Commitment Therapy on Ambiguity Tolerance in Male High School Students

Samad. Moharrami[1*], Davoud. Hoseini Nasab[2], Marzieh. Alivandi Vafa[3]

[1] PhD student in psychology, Department of Psychology, Islamic Azad University, Tabriz branch, Iran
[2] Professor, Department of Psychology, Islamic Azad University, Tabriz branch, Iran
[3] Assistant Professor, Department of Psychology, Islamic Azad University, Tabriz Branch, Iran

*** Corresponding author email address**: samadmoharrami30@gmail.com

A r t i c l e I n f o

Article type:
Original Research

How to cite this article:
Moharrami, S., Hoseini Nasab, D., & Alivandi Vafa, M. (2024). Comparison of the Effectiveness of Schema Therapy and Acceptance and Commitment Therapy on Ambiguity Tolerance in Male High School Students. *Journal of Adolescent and Youth Psychological Studies*, *5*(5), 41-49.
http://doi.org/10.61838/kman.jayps.5.5.6

A B S T R A C T

Objective: Adolescence can profoundly and significantly impact one's entire life. This study aimed to compare the effectiveness of schema therapy and acceptance and commitment therapy (ACT) on ambiguity tolerance.

Methods and Materials: This research is a semi-experimental study with a pre-test-post-test design and a control group. The statistical population included all male high school students in the second year of Bostanabad County in the 2021-2022 academic year. A total of 45 participants were selected through purposive sampling and randomly assigned to two experimental groups and one control group. The research instrument was the second version of the Multiple Stimulus Types Ambiguity Tolerance Scale (MSTAT-II) by McLain (1993). The research hypothesis was analyzed using multivariate analysis of covariance (MANCOVA).

Findings: The results of the covariance analysis test showed that the significance level in all comparisons was less than 0.05, indicating a significant difference in the effectiveness of schema therapy and ACT on ambiguity tolerance ($p < 0.05$). The effect size analysis showed a difference with a coefficient of 0.138.

Conclusion: According to the results of this study, schema therapy has a greater impact on ambiguity tolerance than ACT. Therefore, it is suggested that schema therapy be taught to school counselors as an effective strategy so that they can apply these strategies in their interventions.

Keywords: *Schema Therapy, Acceptance and Commitment Therapy, Adolescents*

1. Introduction

Adolescence is a period during which various aspects of an individual's mental health undergo significant changes (Blankenstein et al., 2021). During this period, a part of the individual's personality is formed; in other words, adolescence is considered one of the important stages of human development, accompanied by numerous stressors. This period represents a profound change that separates the

child from adults and brings about various transformations (Fairley & Sanfey, 2020). If difficulties arise during this transition, the adolescent's mental health can be significantly affected (Parsakia et al., 2023; Saadati & Parsakia, 2023).

Most adolescents can cope with the challenges and demands of this period, but some choose inappropriate methods, make mistakes, or take wrong decisions that affect their health and future. Adolescents experience a drive for independence, conflicting emotions about the past and future, sexual awakening, and rapid body growth. In such conditions, adolescents often feel ambiguous, unstable, and confused, which can be very stressful and anxiety-inducing (Zenasni et al., 2008).

Individuals with low ambiguity tolerance often experience anxiety and mental conflict in ambiguous situations and fail to process new evidence. In contrast, those with high ambiguity tolerance seek appropriate and logical solutions to escape ambiguous conditions (Blankenstein et al., 2021; Blankenstein & van Duijvenvoorde, 2019; Bratton et al., 2005). Ambiguity tolerance is defined by how individuals process, interpret, and react to information from stimuli perceived as ambiguous (McLain et al., 2015; Osmont & Cassotti, 2022; Radmehr & Karami, 2019). Ambiguity tolerance can serve as a theoretical framework for examining risk-taking and reactions in various contexts. A person with high ambiguity tolerance does not feel threatened or troubled by adapting to a new environment, as they accept a certain degree of ambiguity as a principle of life and understand that complete information for decision-making is never available. In other words, ambiguity tolerance means that if a person is placed in an uncertain situation and faces a problem, their psychological and emotional balance is not disturbed, and they patiently work to understand the ambiguous situation and find a solution (McLain et al., 2015). Ambiguity tolerance greatly depends on having a research-oriented spirit; a person with this spirit is aware that during the acquisition of knowledge, encountering various questions and having ambiguous perspectives is natural, which strengthens ambiguity tolerance (Zenasni et al., 2008).

Krein and Gottaimer believe that intolerance of ambiguity is a trait that is a key characteristic of psychological disorders in adolescents (Osmont & Cassotti, 2022). Individuals who cannot tolerate ambiguity quickly make decisions when faced with a problem, often resulting in failure. Conversely, those with high ambiguity tolerance successfully deal with unstructured situations or those with unclear outcomes. In this context, ambiguity tolerance can foster a willingness to accept different experiences or uncertain situations (Osmont & Cassotti, 2022). Intolerance of ambiguity refers to the inability to endure aversive responses triggered by the perception of a lack of prominent, key, and important information, believed to be reinforced by the perception of uncertainty. Intolerance of ambiguity is essentially the fear of the unknown (Blankenstein & van Duijvenvoorde, 2019; Fairley & Sanfey, 2020).

Various studies have shown that intolerance of ambiguity is a common and transdiagnostic factor playing a role in various behavioral disorders. An individual with low ambiguity tolerance feels uncomfortable when encountering complex and difficult situations and, due to a defective cognitive cycle, cannot find an appropriate solution and eventually withdraws from the task (Osmont et al., 2021; Osmont & Cassotti, 2022). Adolescents with low ambiguity tolerance often experience anxiety and mental conflict in ambiguous situations and fail to process new evidence. In contrast, those with high ambiguity tolerance seek appropriate and logical solutions to escape ambiguous conditions (Radmehr & Karami, 2019; Zenasni et al., 2008).

Given the aforementioned points and the sensitivity of adolescence, along with the accompanying ambiguity and adverse outcomes in the absence of appropriate strategies to increase ambiguity tolerance, the researcher aims to investigate intervention strategies to enhance ambiguity tolerance. Among various therapeutic approaches such as pharmacotherapy, psychoanalysis, behavior therapy, and others, considering the following: most parents oppose the use of pharmacotherapy (Bratton et al., 2005), the lack of psychoanalytic solutions to solve all these issues, the time-consuming nature of psychoanalytic methods, and the results of studies showing a relationship between early childhood experiences and the formation of maladaptive schemas, with these schemas being a major factor in behavioral problems (Hosseini et al., 2016; Karantzas et al., 2023).

Schema therapy, as a psychological treatment method, emphasizes replacing maladaptive schemas with healthy ones and has been shown to be effective in increasing ambiguity tolerance (Renner et al., 2016). Schema therapy was initially developed for individual therapy by Young and colleagues (2003) by integrating cognitive, experiential (emotion-focused), and behavioral pattern-breaking interventions. Later, a group schema therapy version was developed (Farrell et al., 2012; Farrell et al., 2009). The emergence of group therapy protocols was a significant development in the growth of schema therapy. It is believed that group therapy offers important elements such as the

JAYPS Adolescent and Youth Psychological Studies E-ISSN: 2981-2526

correct emotional learning experience, a unique opportunity to practice new behaviors in a transparent environment, and a chance for vicarious learning (Farrell et al., 2012).

In group schema therapy, schemas are triggered and revealed within the group (especially in interactional settings and forming close bonds with others), allowing members to confront their schemas or have the opportunity to talk with each other, which does not occur in individual schema therapy. Thus, members benefit from linking their early experiences within the group support context (Simpson et al., 2010). Group schema therapy is an innovative and integrative treatment aimed at improving maladaptive early schemas and helping develop healthy schemas (de Klerk et al., 2017; Farrell et al., 2012; Nikan et al., 2023). Researchers have confirmed the effectiveness of schema therapy in reducing students' perceived academic stress over time (Younesi et al., 2021), emotional control (Pourshahbadi & Einipour, 2020), reducing the severity of histrionic personality disorder symptoms and increasing self-concept (Arntz et al., 2022; Saffarinia & Azizi, 2019), improving emotional schemas and reducing emotional regulation problems (Nikan et al., 2023; Simpson et al., 2010), and demonstrating greater effectiveness of schema therapy compared to group cognitive therapy in reducing depression, anxiety, and perceived stress in female clients with high-risk sexual behaviors (Farrell et al., 2009; Simpson et al., 2010), and the relationship between maladaptive schemas and substance use severity (Peeters et al., 2022). Additionally, a meta-analysis by Peeters et al. (2022), which reviewed 41 studies on the effectiveness of schema therapy, indicated significant and desirable effectiveness of schema therapy (Peeters et al., 2022). These researchers stated that schema therapy is a promising treatment for anxiety, OCD, and PTSD. However, despite the growing clinical interest and application, there is a systematic problem in research quality. Therefore, they provided recommendations for future research to establish a solid evidence base for schema therapy in chronic anxiety, OCD, and PTSD.

Another important intervention for adolescent psychological problems, particularly ambiguity tolerance, is acceptance and commitment therapy (ACT). ACT is used to address interpersonal problems and a wide range of psychological issues, aiming to enhance psychological flexibility and adaptive interpersonal functioning within the context of supportive therapeutic relationships (Ruiz, 2010). ACT is one of the most frequently provided third-wave behavioral therapies and has demonstrated considerable effectiveness based on empirical evidence (Öst, 2014). Various studies have confirmed the effectiveness of ACT in reducing depression symptoms (Ghorbanikhah et al., 2023; Öst, 2014), reducing anxiety symptoms (Öst, 2014; Ostadian Khani et al., 2021), improving quality of life and its dimensions, including physical health, psychological health, and social health (Öst, 2014; Rostami et al., 2019), enhancing psychological health and increasing hope for life (Mogadam et al., 2018; Nikrouy et al., 2022), reducing procrastination and improving academic performance (Golestanibakht et al., 2022; Jalili & Mahmoodi, 2021; Ofem, 2023), enhancing attachment quality and altruism in children with externalizing behavior problems (Azimifar et al., 2018; Ofem, 2023), reducing interpersonal problems and experiential avoidance (Baruch et al., 2009; Farahzadi et al., 2018; McKay, 2012; Norozi et al., 2017), and increasing self-compassion among self-harming students both in post-test and follow-up stages (Ghorbanikhah et al., 2023; Gillanders et al., 2015), and enhancing cognitive emotion regulation and increasing ambiguity tolerance in students with obsessive-compulsive disorder (Asli Azad et al., 2020).

Considering the discussed points, this study aims to answer the question of whether there is a differential effectiveness between schema therapy and acceptance and commitment therapy (ACT) on ambiguity tolerance in male high school students in Bostanabad County.

2. Methods and Materials

2.1. Study Design and Participants

This study is applied research in terms of its goal, quantitative in nature regarding the data, and semi-experimental in execution with a pre-test-post-test design and a control group. The statistical population comprised all male high school students in Bostanabad County during the 2021-2022 academic year. For the sample selection, 15 participants per group were purposively selected and randomly assigned to two experimental groups and one control group (45 participants in total). It is worth mentioning that the proposed sample size is based on the recommendations of statistical experts and is the final number. In this research, the following instrument was used for data collection:

Initially, a pre-test of the Ambiguity Tolerance Questionnaire was administered to all participants. Inclusion criteria included consent to participate in the study, being male, aged 15 to 18, not participating in psychological interventions in the past six months, and having psychiatric health. Exclusion criteria included participation in

JAYPS Adolescent and Youth Psychological Studies E-ISSN: 2981-2526

simultaneous intervention sessions with this study's intervention and lack of consent to continue in the study. The experimental groups underwent 15 sessions of 45 minutes of intervention: the schema therapy group received group schema therapy, and the ACT group received group acceptance and commitment therapy (ACT). The control group received no treatment. After the sessions, a post-test of the Ambiguity Tolerance Questionnaire was administered to participants in all three groups.

2.2. Measures

2.2.1. Ambiguity Tolerance

The second version of the Multiple Stimulus Types Ambiguity Tolerance Scale (MSTAT-II) is a 13-item questionnaire developed by McLain in 1993 to assess ambiguity tolerance. The responses are based on a 5-point Likert scale ranging from strongly disagree (0) to strongly agree (5). However, items 1, 2, 3, 4, 5, 6, 9, 11, and 12 are reverse scored, from strongly disagree (5) to strongly agree (0). Scores between 15 and 30 indicate low ambiguity tolerance, 30 to 45 indicate moderate ambiguity tolerance, and scores above 45 indicate high ambiguity tolerance. McLain (1993) reported an adequate internal reliability of 0.82 for this test and confirmed its validity. He examined the correlation of this questionnaire with other convergent questionnaires (0.60 with Budner's 16-item scale, 0.71 with Stoy and Aldag's 8-item scale, and 0.58 with McDonald's 20-item scale). Additionally, he reported an internal reliability of 0.82 for the 13-item questionnaire. Faizi, Mahboubi, Zare, and Mostafaei (2012) found a content validity of 0.48 and a reliability of 0.85 for this questionnaire using Cronbach's alpha. In the study by Babaei, Maktabi, Behroozi, and Atashafrooz (2016), the reliability of the questionnaire was 0.818 using Cronbach's alpha and 0.782 using the split-half method. The validity of the questionnaire was also confirmed through confirmatory factor analysis (Radmehr & Karami, 2019).

2.3. Interventions

2.3.1. Schema Therapy

The following protocol, adapted by Farrell, Reiss, and Shaw in 2014, modifies Young's individual schema therapy method for group therapy implementation (Farrell et al., 2012; Farrell et al., 2009).

Session 1: Group welcome and acceptance, introduction to schema therapy, and identification of maladaptive coping modes.

Session 2: Schema therapy education: vulnerable child mode and angry child mode.

Session 3: Schema therapy education: punitive/critical parent mode, healthy adult mode, and happy child mode.

Session 4: Twelve sessions of experiential work on modes (maladaptive coping modes: experiential exercises).

Session 5: Twelve sessions of experiential work on modes (maladaptive coping modes: mode role-playing).

Session 6: Twelve sessions of experiential work on modes (maladaptive coping modes: safe place imagery).

Session 7: Twelve sessions of experiential work on modes (dysfunctional parent mode: punishment and reinforcement).

Session 8: Twelve sessions of experiential work on modes (dysfunctional parent mode: combating punitive parent modes).

Session 9: Twelve sessions of experiential work on modes (dysfunctional parent mode: group role-plays for mode dialogue).

Session 10: Twelve sessions of experiential work on modes (dysfunctional parent mode: combating punitive parent modes).

Session 11: Twelve sessions of experiential work on modes (vulnerable child mode: childhood experience reconstruction and imagery).

Session 12: Twelve sessions of experiential work on modes (angry child mode: anger exercises, imagery, and mode role-playing).

Session 13: Twelve sessions of experiential work on modes (happy child mode: experiential exercises, fun activities for happy child mode, imagery).

Session 14: Twelve sessions of experiential work on modes (healthy adult mode: developing the healthy adult mode, short body awareness exercises).

Session 15: Twelve sessions of experiential work on modes (healthy adult mode: mode role-playing, marble exchange).

2.3.2. Acceptance and Commitment Therapy

The following protocol, originally designed by Hayes and Strosahl in 1999 and revised in 2019, was conducted in 15 group sessions of 45 minutes each for the experimental group (Ghorbanikhah et al., 2023; Hasannezhad Reskati et al., 2020).

JAYPS Adolescent and Youth Psychological Studies E-ISSN: 2981-2526

Session 1: Introduction and therapy agenda: 1. Providing an opportunity for clients to get to know each other and the therapy goals. 2. Establishing a therapeutic relationship, assessing problem severity, and mindfulness exercise called "focus exercise."

Session 2: Behavioral change: Creating creative helplessness regarding past solutions through metaphor and client questioning.

Session 3: Mindfulness practice - values: 1. Acceptance 2. Values 3. Homework.

Session 4: Clarifying values and examining obstacles.

Session 5: Setting goals and introducing committed action.

Session 6: Mindfulness "body scan."

Session 7: Completing the valued pathways form exercise.

Session 8: Defusion: Reviewing homework, defusion from language threats.

Session 9: Mindfulness, becoming aware of cognitive concepts, homework.

Session 10: Committed action: Reviewing therapy, committed action.

Session 11: Mindfulness, becoming aware of cognitive concepts.

Session 12: Self-observation exercise and homework.

Session 13: Primary and secondary suffering, commitment, and obstacles to forming satisfaction.

Session 14: Mindfulness while walking, homework.

Session 15: Closing sessions and conclusion: Clarifying values, relapse and occurrence – preparation, not prevention, farewell, lifelong homework.

2.4. Data analysis

The research hypothesis was analyzed using multivariate analysis of covariance (MANCOVA) with SPSS-26.

3. Findings and Results

The results of the statistical analysis are presented at two levels: descriptive findings and inferential findings. At the descriptive level, the main variables were described. For the inferential findings and hypothesis testing, multivariate analysis of covariance (MANCOVA) was used, and the assumptions of this test were examined before conducting it. A total of 30 participants in the intervention groups and 15 participants in the control group with mean (standard deviation) ages of 16.24 (1.93) and 17.63 (1.32) respectively, participated in this study.

Table 1

Means and Standard Deviations of Ambiguity Tolerance by Group and Time

Variable	Time	Schema Therapy Group		ACT Group		Control Group	
		Mean	SD	Mean	SD	Mean	SD
Ambiguity Tolerance (Total)	Pre-test	38.80	7.21	34.20	4.11	37.80	6.95
	Post-test	46.93	7.62	40.20	4.49	36.73	5.08

Table 1 shows that the mean total ambiguity tolerance in the schema therapy group increased from 38.80 in the pre-test to 46.93 in the post-test, an increase of 8.13 points. In the ACT group, the mean increased from 34.20 in the pre-test to 40.20 in the post-test, an increase of 6 points. In the control group, the mean decreased from 37.80 in the pre-test to 36.73 in the post-test, a decrease of 1.07 points.

In the inferential findings section, multivariate analysis of covariance (MANCOVA) was used. The MANCOVA test has several assumptions that were addressed before the main analysis. The assumption of no outliers was checked using a box plot, and no outliers were found. Normal distribution was examined using skewness and kurtosis values and the Shapiro-Wilk test. The Shapiro-Wilk test results indicated that the normal distribution of variables could not be rejected ($p > .001$). The significance level for all variables was greater than .001, indicating no severe deviation from the normal distribution. Overall, the results showed that the main variables' distribution did not significantly deviate from normal, allowing the variables to be considered normal or near-normal. The homogeneity of variances was also tested, and the Levene's test results showed that the significance level was greater than .05 ($p > .05$), indicating that the dependent variables' dispersion across groups (intervening variable) was homogeneous and approximately equal. Additionally, the assumption of homogeneity of covariance matrices was met, confirming the homogeneity of variances. The homogeneity of regression slopes was also confirmed, indicating a similar relationship between the covariate and dependent variable for each group. The results showed that the significance level was greater than .05 ($p > .05$) in all cases, indicating that the interaction effect of

JAYPS Adolescent and Youth Psychological Studies
E-ISSN: 2981-2526

variables was rejected and the regression slopes were homogeneous, confirming this assumption. Furthermore, the homogeneity of covariance matrices is a prerequisite for MANCOVA, and if the significance level is greater than .001, this assumption is not violated. The M Box test results showed that the value was greater than the criterion of .001, confirming the homogeneity of variances.

In this section, the effectiveness of schema therapy and acceptance and commitment therapy (ACT) on ambiguity tolerance was tested using MANCOVA. The results are presented in Table 2.

Table 2

Results of MANCOVA for Comparing the Effectiveness of Schema Therapy and ACT on Ambiguity Tolerance

Source	Dependent Variable	Sum of Squares	df	Mean Square	F	p	Effect Size
Group	Ambiguity Tolerance	147.30	1	147.30	4.32	.047	.138

Table 2 shows a significant difference in the effectiveness of the two intervention methods (schema therapy and ACT) on ambiguity tolerance ($p < .05$). The significance level of the MANCOVA test indicates a difference in the effectiveness of the two interventions on ambiguity tolerance.

Table 3

Comparison of Adjusted Means of Ambiguity Tolerance in Groups Using LSD Test

Variable	Group	Adjusted Mean	Standard Error	Lower Bound	Upper Bound	Mean Difference	p
Ambiguity Tolerance	Schema Therapy	45.96	1.569	42.74	49.18	4.78	.047
	ACT	41.18	1.569	37.96	44.40		

The examination of adjusted means (Table 3) shows that the adjusted mean ambiguity tolerance in the schema therapy group was 45.96, and in the ACT group, it was 41.18, with the schema therapy group scoring 4.78 points higher than the ACT group. This difference was statistically significant, indicating that schema therapy was more effective than ACT in increasing ambiguity tolerance ($p < .05$).

4. Discussion and Conclusion

In line with the overall objective of comparing the effectiveness of schema therapy and acceptance and commitment therapy (ACT) on ambiguity tolerance, the study's findings showed a significant difference in the effectiveness of the two interventions. Schema therapy was more effective than ACT. There have been no previous studies directly comparing the effectiveness of schema therapy and ACT on ambiguity tolerance, but the effectiveness of each intervention has been studied separately. Overall, the results are consistent with previous research (Arntz et al., 2022; Asli Azad et al., 2020; Azimifar et al., 2018; Baruch et al., 2009; Bratton et al., 2005; de Klerk et al., 2017; Farahzadi et al., 2018; Farrell et al., 2012; Farrell et al., 2009; Ghorbanikhah et al., 2023; Gillanders et al., 2015; Hasannezhad Reskati et al., 2020; McKay, 2012; Mogadam et al., 2018; Nikan et al., 2023; Nikrouy et al., 2022; Norozi et al., 2017; Öst, 2014; Ostadian Khani et al., 2021; Peeters et al., 2022; Renner et al., 2016; Rostami et al., 2019; Ruiz, 2010; Saffarinia & Azizi, 2019; Simpson et al., 2010; Younesi et al., 2021).

According to the Einhorn and Hogarth model (1990) on ambiguity, when individuals face an ambiguous problem, they perform an initial evaluation of the available probabilities, which becomes the anchor for their judgment, leading to mental-psychological adaptation. In essence, the less information individuals have about the environment, the greater their intolerance of ambiguity (Groot et al., 2022). On the other hand, schemas act as mental shortcuts that help us interpret the vast amount of information received from the environment (Norozi et al., 2017). Schemas are formed based on our life experiences and stored in memory. Although these mental shortcuts help us process large amounts of information encountered daily, they can limit our thinking and lead to unhealthy stereotypical ideas and behaviors (Arntz et al., 2022). Thus, unhealthy schemas can lead to negative or dysfunctional emotional patterns, coping styles (individual responses to schemas), and unhealthy thoughts and behaviors, reducing ambiguity tolerance. If these schemas are not addressed, they can persist throughout an individual's life. Schema therapy aims to identify negative schemas (early maladaptive schemas) and the unhealthy

JAYPS Adolescent and Youth Psychological Studies E-ISSN: 2981-2526

behaviors, beliefs, coping styles, and emotions associated with them and then replace them with healthy thought patterns, emotions, and behaviors (de Klerk et al., 2017). Schemas include our feelings and expectations about any subject, helping us predict life. In schema therapy, individuals coordinate their information, feelings, and expectations with the environment by choosing adaptive schemas, leading to better decisions and judgments in ambiguous situations (Farrell & Shaw, 2017), thus increasing ambiguity tolerance.

Since ACT focuses primarily on flexibility and acceptance of mental experiences and emphasizes reducing the intensity of distressing emotions and thoughts (Hasannezhad Reskati et al., 2020; Norozi et al., 2017; Öst, 2014), when individuals become aware of their mental experiences and can act independently, they can control their behaviors, choose values, and act according to them. Moreover, ACT emphasizes increasing behavioral efficiency despite unpleasant thoughts and feelings. In this method, therapists do not attempt to change clients' disturbing thoughts (unlike schema therapy) or reduce unpleasant emotions but focus on accepting existing experiences (Rostami et al., 2019; Ruiz, 2010). Unlike schema therapy, ACT does not provide awareness and information to clients and focuses solely on accepting the current situation. Hence, based on theoretical backgrounds, schema therapy impacts ambiguity tolerance more than ACT. Additionally, schema therapy is an innovative and integrative treatment primarily based on classical cognitive-behavioral therapy methods, emphasizing the developmental roots of psychological problems in childhood and adolescence, using motivating techniques, and explaining coping styles. Schema therapy integrates principles from cognitive-behavioral, attachment, Gestalt, object relations, constructivism, and psychoanalysis schools (Ostadian Khani et al., 2021).

5. Limitations & Suggestions

Finally, this study has limitations. For example, the research focused on high school students in Bostanabad County and cannot be generalized to students without this disorder, other grades, or other cities. Additionally, the primary data collection tool was a questionnaire, inherently limited. The study also lacked long-term follow-up to compare the effectiveness of schema therapy and ACT on ambiguity tolerance. Future studies should include various educational levels and students from different cities, use qualitative tools for more reliable results, examine the sustainability of interventions after several months, and explore the effectiveness of schema therapy and ACT across different age groups and schools. Meta-analyses of these studies would provide high-reliability and validity results to utilize these approaches effectively. Practically, it is recommended that schema therapy and ACT be taught to school counselors as effective strategies to incorporate into their interventions.

Acknowledgments

We would like to express our appreciation and gratitude to all those who cooperated in carrying out this study.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethics Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. This article is derived from the first author's doctoral dissertation at Tabriz Branch, Islamic Azad University, Tabriz, Iran and has ethics code IR.IAU.TABRIZ.REC.1401.017 from the ethics committee of the Islamic Azad University, Tabriz Medical Sciences Branch. We extend our sincere gratitude to all participants in this study.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

Funding

This research was carried out independently with personal funding and without the financial support of any governmental or private institution or organization.

Authors' Contributions

All authors contributed equally.

References

Arntz, A., Jacob, G. A., Lee, C. W., Brand-de Wilde, O. M., Fassbinder, E., Harper, R. P., Lavender, A., Lockwood, G., Malogiannis, I. A., Ruths, F. A., Schweiger, U., Shaw, I. A., Zarbock, G., & Farrell, J. M. (2022). Effectiveness of Predominantly Group Schema Therapy and Combined Individual and Group Schema Therapy for Borderline Personality Disorder: A Randomized Clinical Trial. *JAMA Psychiatry*, *79*(4), 287-299. https://doi.org/10.1001/jamapsychiatry.2022.0010

Asli Azad, M., Manshaee, G. R., & Ghamarani, A. (2020). Effectiveness of Acceptance and Commitment Therapy on Cognitive Emotion Regulation and Intolerance of uncertainty of The Students with Obsessive-Compulsive Disorder. *Psychology of Exceptional Individuals*, *9*(36), 33-53. https://doi.org/10.22054/jpe.2019.44480.2027

Azimifar, S., Jazayeri, R. s., Fatehizade, M. s., & Abedi, A. (2018). The comparing the effects of parent management training and acceptance and commitment based parenting training on mother-child relationship among mothers who have children with externalizing behavior problems. *Family Counseling and Psychotherapy*, *7*(2), 99-122. https://doi.org/10.22034/fcp.2018.57613

Baruch, D. E., Kanter, J. W., Busch, A. M., & Juskiewicz, K. L. (2009). Enhancing the Therapy Relationship in Acceptance and Commitment Therapy for Psychotic Symptoms. *Clinical Case Studies*, *8*(3), 241-257. https://doi.org/10.1177/1534650109334818

Blankenstein, N. E., Huettel, S. A., & Li, R. (2021). Resolving ambiguity: Broadening the consideration of risky decision making over adolescent development. *Developmental Review*, *62*, 100987. https://doi.org/10.1016/j.dr.2021.100987

Blankenstein, N. E., & van Duijvenvoorde, A. C. K. (2019). Neural tracking of subjective value under riskand ambiguity in adolescence. *Cognitive, Affective, & Behavioral Neuroscience*, *19*(6), 1364-1378. https://doi.org/10.3758/s13415-019-00749-5

Bratton, S. C., Ray, D., Rhine, T., & Jones, L. (2005). The Efficacy of Play Therapy With Children: A Meta-Analytic Review of Treatment Outcomes. *Professional psychology: Research and practice*, *36*(4), 376-390. https://doi.org/10.1037/0735-7028.36.4.376

de Klerk, N., Abma, T. A., Bamelis, L. L. M., & Arntz, A. (2017). Schema Therapy for Personality Disorders: a Qualitative Study of Patients' and Therapists' Perspectives. *Behavioural and Cognitive Psychotherapy*, *45*(1), 31-45. https://doi.org/10.1017/S1352465816000357

Fairley, K., & Sanfey, A. G. (2020). The role of demographics on adolescents' preferences for risk, ambiguity, and prudence. *Journal of Economic Behavior & Organization*, *179*, 784-796. https://www.sciencedirect.com/science/article/pii/S0167268120300949

Farahzadi, M., Maddahi, M. E., & Khalatbari, J. (2018). Comparison the Effectiveness of Group Therapy based on Acceptance and Commitment and Cognitive-Behavioral Group Therapy on the Body Image Dissatisfaction and Interpersonal Sensitivity in Women with the Body Image Dissatisfaction. *Research in Clinical Psychology and Counseling*, *7*(2), 69-89. https://doi.org/10.22067/ijap.v7i2.65791

Farrell, J. M., Shaw, I. A., & Shaw, I. (2012). *Group schema therapy for borderline personality disorder: A step-by-step treatment manual with patient workbook*. John Wiley & Sons. https://books.google.com/books?hl=en&lr=lang_en&id=aC4gFXxKvjgC&oi=fnd&pg=PR7&dq=Group+Schema+Therapy+for+Borderline+Personality+Disorder:+A+Step%E2%80%90by%E2%80%90Step+Treatment+Manual+with+Patient+Workbook&ots=rYJf4_uIrL&sig=OvK2aQDvzmgrqPVNbBD1X2xUWg8

Farrell, J. M., Shaw, I. A., & Webber, M. A. (2009). A schema-focused approach to group psychotherapy for outpatients with borderline personality disorder: A randomized controlled trial. *Journal of Behavior Therapy and Experimental Psychiatry*, *40*(2), 317-328. https://www.sciencedirect.com/science/article/pii/S0005791609000020

Ghorbanikhah, E., Mohammadyfar, M. A., Moradi, S., & Delavarpour, M. (2023). The Effectiveness of Acceptance-and-Commitment-Based Parenting Training on Mood and Anxiety in Children and Self-compassion in Parents. *PCP*, *11*(1), 81-92. https://doi.org/10.32598/jpcp.11.1.860.1

Gillanders, D. T., Sinclair, A. K., MacLean, M., & Jardine, K. (2015). Illness cognitions, cognitive fusion, avoidance and self-compassion as predictors of distress and quality of life in a heterogeneous sample of adults, after cancer. *Journal of Contextual Behavioral Science*, *4*(4), 300-311. https://doi.org/10.1016/j.jcbs.2015.07.003

Golestanibakht, T., Babaie, E., & Mostaed Hesari, S. (2022). The Effects of Positive Psychology Training on Wisdom, Resilience, and Cognitive Flexibility of Students. *Positive Psychology Research*, *8*(2), 83-100. https://doi.org/10.22108/ppls.2022.131504.2225

Groot, I. Z., Venhuizen, A.-S. S. M., Bachrach, N., Walhout, S., de Moor, B., Nikkels, K., Dalmeijer, S., Maarschalkerweerd, M., van Aalderen, J. R., de Lange, H., Wichers, R., Hollander, A. P., Evers, S. M. A. A., Grasman, R. P. P. P., & Arntz, A. (2022). Design of an RCT on cost-effectiveness of group schema therapy versus individual schema therapy for patients with Cluster-C personality disorder: the QUEST-CLC study protocol. *BMC psychiatry*, *22*(1), 637. https://doi.org/10.1186/s12888-022-04248-9

Hasannezhad Reskati, M., Hosseini, S., Alizadeh-Navaei, R., Khosravi, S., & Mirzaian, B. (2020). Effectiveness of Acceptance and Commitment Therapy Management on Self-Differentiation and Fear of Disease Progression in Patients with Breast Cancer [Interventional]. *Journal of Babol University of Medical Sciences*, *22*(1), 110-118. https://doi.org/10.22088/jbums.22.1.110

Hosseini, S., Rahimi, F., & Nouri, R. (2016). On the effectiveness of the early maladaptive schemas and social support on the level of mental health in female students with romantic relationship. *International Journal of Pharmaceutical Research & Allied Sciences*, 92-103. https://ijpras.com/storage/models/article/Ppzb0r90UizzlPKO9mgtHfDlcZopH9CAokZXkmtzp2gt1u458t9TuNbEA3Rr/on-the-effectiveness-of-the-early-maladaptive-schemas-and-social-support-on-the-level-of-mental-he.pdf

Jalili, F., & Mahmoodi, N. (2021). Predicting the Mental Toughness and Psychological Distress of Fathers of Children With Developmental and Mental Disabilities Based on Cognitive Emotion Regulation Strategies. *Middle Eastern Journal of Disability Studies*---, *11*(1), 219. https://www.magiran.com/paper/2422351

Karantzas, G. C., Younan, R., & Pilkington, P. D. (2023). The associations between early maladaptive schemas and adult attachment styles: A meta-analysis. *Clinical Psychology: Science and Practice*, *30*(1), 1. https://psycnet.apa.org/journals/cps/30/1/1/

McKay, M., Lev, Avigail, Skeen, Michelle. (2012). *Acceptance and commitment therapy for interpersonal problems: Using mindfulness, acceptance, and schema awareness to change*

JAYPS Adolescent and Youth Psychological Studies
E-ISSN: 2981-2526

interpersonal behaviors. New Harbinger Publications. https://scholar.google.com/scholar?hl=fa&as_sdt=0%2C5&q=Acceptance+and+commitment+therapy+for+interpersonal+problems&btnG=#d=gs_cit&t=1714491639681&u=%2Fscholar%3Fq%3Dinfo%3AcOSNNO6UzeEJ%3Ascholar.google.com%2F%26output%3Dcite%26scirp%3D0%26hl%3Dfa

McLain, D. L., Kefallonitis, E., & Armani, K. (2015). Ambiguity tolerance in organizations: definitional clarification and perspectives on future research [Hypothesis and Theory]. *Frontiers in psychology*, *6*. https://doi.org/10.3389/fpsyg.2015.00344

Mogadam, N., Amraae, R., Asadi, F., & Amani, O. (2018). The Efficacy of Acceptance and Commitment Therapy (ACT) on Hope and Psychological Well-being in Women with Breast Cancer under Chemotherapy [Research]. *Journal of nursing education*, *6*(5), 1-8. http://ijpn.ir/article-1-1155-en.html

Nikan, A., Torabi, a., mohseninasab, z., bahadori, a., javanmard, z., & hosinirad, m. (2023). Comparing the effectiveness of schema therapy and cognitive therapy based on mindfulness on stress, resilience, emotion regulation and psychological well-being of cardiovascular patients [مقایسه اثربخشی طرحواره درمانی و شناخت درمانی مبتنی بر ذهن اگاهی بر استرس، تاب آوری، تنظیم هیجان و بهزیستی روان شناختی بیماران قلبی- عروقی]. *rph*, *19*(1), 46-60. http://rph.khu.ac.ir/article-1-4370-en.html

Nikrouy, Z., Hassanzadeh, R., & Heydari, S. (2022). The Effectiveness of Acceptance and Commitment Therapy on Life Expectancy and Following the Doctor's Order in Type 2 Diabetic. *Community Health Journal*, *16*(3), 80-88. https://doi.org/10.22123/chj.2022.301203.1779

Norozi, M., Zargar, F., & Akbari, H. (2017). The Effectiveness of Acceptance and Commitment Therapy on Reduction of Interpersonal Problems and Experiential Avoidance in University Students [Research]. *Journal of Research in Behavioural Sciences*, *15*(2), 168-174. http://rbs.mui.ac.ir/article-1-529-en.html

Ofem, U. J. (2023). Adjustment Tendencies Among Transiting Students: A Mediation Analysis Using Psychological Wellbeing Indices. *International Journal of Education and Cognitive Sciences*, *4*(3), 1-19. https://doi.org/10.61838/kman.ijecs.4.3.1

Osmont, A., Camarda, A., Habib, M., & Cassotti, M. (2021). Peers' Choices Influence Adolescent Risk-taking Especially When Explicit Risk Information is Lacking. *Journal of Research on Adolescence*, *31*(2), 402-416. https://doi.org/10.1111/jora.12611

Osmont, A., & Cassotti, M. (2022). Development of ambiguity aversion from early adolescence to adulthood: New insights from the Ellsberg paradox. *International Journal of Behavioral Development*, *47*(1), 47-58. https://doi.org/10.1177/01650254221104056

Öst, L.-G. (2014). The efficacy of Acceptance and Commitment Therapy: An updated systematic review and meta-analysis. *Behaviour Research and Therapy*, *61*, 105-121. https://www.sciencedirect.com/science/article/pii/S0005796714001211

Ostadian Khani, Z., Hassani, F., sepahmansour, s., & Keshavarziarshad, F. (2021). The comparison of the efficacy of therapy based on acceptance and commitment and schema therapy on body image flexibility of the body and impulsivity among women with Binge eating disorder. *Journal of Applied Family Therapy*, *2*(4), 285-309. https://doi.org/10.22034/aftj.2021.307283.1215

Parsakia, K., Rostami, M., Darbani, S. A., Saadati, N., & Navabinejad, S. (2023). Explanation of the concept of generation disjunction in studying generation z. *Journal of Adolescent and Youth Psychological Studies*, *4*(2), 136-142. http://dx.doi.org/10.52547/jspnay.4.2.174

Peeters, N., van Passel, B., & Krans, J. (2022). The effectiveness of schema therapy for patients with anxiety disorders, OCD, or PTSD: A systematic review and research agenda. *British Journal of Clinical Psychology*, *61*(3), 579-597. https://doi.org/10.1111/bjc.12324

Radmehr, F., & Karami, j. (2019). The examination of the role tolerance of ambiguity and flourishing in predicting academic engagement in students. *Educational Psychology*, *15*(52), 203-216. https://doi.org/10.22054/jep.2019.32890.2275

Renner, F., Arntz, A., Peeters, F. P. M. L., Lobbestael, J., & Huibers, M. J. H. (2016). Schema therapy for chronic depression: Results of a multiple single case series. *Journal of Behavior Therapy and Experimental Psychiatry*, *51*, 66-73. https://www.sciencedirect.com/science/article/pii/S0005791615300458

Rostami, M., Rasouli, M., & Kasaee, A. (2019). Comparison of the effect of group counseling based on spirituality-based therapy and acceptance and commitment therapy (ACT) on improving the quality of life the elderly. *Biannual Journal of Applied Counseling*, *9*(1), 87-110. https://journals.scu.ac.ir/article_14605_185a69fdc6a85ba919a2b044ed310058.pdf

Ruiz, F. J. (2010). A review of Acceptance and Commitment Therapy (ACT) empirical evidence: Correlational, experimental psychopathology, component and outcome studies. *International journal of psychology and psychological therapy*, *10*(1), 125-162. https://www.redalyc.org/pdf/560/56017066008.pdf

Saadati, N., & Parsakia, K. (2023). The Predictive Role of Parents' Marital Relationship Quality on The Adolescents' Psychological Capital. *Journal of Adolescent and Youth Psychological Studies (JAYPS)*, *4*(8), 139-146. https://doi.org/10.61838/kman.jayps.4.8.16

Saffarinia, M., & Azizi, Z. (2019). The Effect of Group Schema Therapy in Promoting Social Well-being and Perception of Social Trust in University Students. *Journal of Psychological Studies*, *15*(1), 147-164. https://doi.org/10.22051/psy.2019.20052.1632

Simpson, S. G., Morrow, E., Vreeswijk, M. v., & Reid, C. (2010). Group Schema Therapy for Eating Disorders: A Pilot Study [Original Research]. *Frontiers in psychology*, *1*. https://doi.org/10.3389/fpsyg.2010.00182

Younesi, S., Hatami, M., & Salahyan, A. (2021). Effectiveness schema therapy based on parenting styles on educational stress perception of female students [اثربخشی طرحواره درمانی مبتنی برشیوه های والدگری بر ادراک استرس تحصیلی دانش آموزان دختر]. *Journal-of-Psychological-Science*, *20*(100), 521-532. http://psychologicalscience.ir/article-1-875-en.html

Zenasni, F., BesanÇOn, M., & Lubart, T. (2008). Creativity and Tolerance of Ambiguity: An Empirical Study. *The Journal of Creative Behavior*, *42*(1), 61-73. https://doi.org/10.1002/j.2162-6057.2008.tb01080.x