International Journal of Applied Behavioral Sciences **2024; Vol. 11, No.4:25-33**
DOI: 10.22037/ijabs.v11i4.46369 **Online ISSN: 2423-5253**

Original Article

Evaluating the Efficacy of Schema Therapy for Subclinical Depression in Adolescent Girls: A Focus on Cognitive Emotion Regulation and Avoidance

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Received: 22 Oct 2024; Revised: 03 Nov 2024; Accepted: 10 Nov 2024

Abstract

Background and Aim: Depression is a common disorder among adolescents with far-reaching consequences. The issues and problems that teenagers face during adolescence make them prone to depression, and having components such as emotional failure, cognitive regulation of emotion, and cognitive avoidance increases their vulnerability. The present study aimed to investigate the efficacy of schema therapy on cognitive emotion regulation and cognitive avoidance in subclinical depressed adolescent girls in Tonekabon City.

Materials and Methods: It is an experimental study with a pre-test-post-test and a control group design. The population consisted of all female adolescent students in the eleventh and twelfth grades of high school with subclinical depression in the academic year 2023-2024. The sampling method was random. Then, 30 individuals were randomly assigned to an experimental and a control group. For eight weeks, the experimental group received one 90-minute schema therapy session per week, while the control group received no treatment. Both groups were subsequently given a post-test. Data was analyzed using descriptive statistics, multivariate analysis of covariance (MANCOVA), and univariate ANCOVA using SPSS version 25.

Results: The findings indicated a significant difference between the experimental and control groups in terms of the average variables of cognitive regulation of emotion and cognitive avoidance ($\eta^2 = 0.735$, $p< 0.01$, $F (2, 21) = 64.75$). This difference was in favor of the treatment groups based on the adjusted means.

Conclusion: According to the results of this study, this treatment can increase cognitive regulation of positive emotion and decrease negative cognitive regulation and cognitive avoidance of adolescent girls. In explaining the research findings, we can say that the schema is the highest generalized level of cognition, which is resistant to change and has a profound and powerful effect on a person's cognitions and emotions. Negative spontaneous thoughts and their underlying intersubjective assumptions are influenced by schemas and this influence is particularly powerful when schemas are activated.

Keywords: Schema therapy, Cognitive emotion regulation, Cognitive avoidance, Depression

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Please cite this article as:
Aghel Masjedi, M., Soleyman Sasani, S., Heidari, S., Sadegh Moghadasi, M. Evaluating the Efficacy of Schema Therapy for Subclinical Depression in Adolescent Girls: A Focus on Cognitive Emotion Regulation and Avoidance. Int. J. Appl. Behav. Sci. 2024;11(4):25-33.

Introduction

Depression is the most common mood disorder during adolescence, drawing the attention of psychiatrists, psychologists, and clinical specialists (1). This disorder is one of the emotional phenomena of the current century. According to a 2012 estimate by the World Health Organization, after cardiovascular diseases, it is the second most threatening disease to human health and life, the second most-costly disorder in the world, and the second leading cause of disability by 2025 (2).

Depression includes sadness and self-reflective emotions such as shame and is defined by considering five categories of features: sadness and blunted affect, negative self-concept including self-blame and a tendency to avoid others, decreased sleep and appetite with weight loss, decreased libido, changes in activity level accompanied by lethargy and agitation (3). Depression is often referred to as the common cold of mental health (4).

Adolescence is one of the most sensitive periods of human growth, accompanied by many challenges due to physical, emotional, and cognitive changes. Apart from infancy, no other period of life experiences as many changes as adolescence. During this period, adolescents experience puberty, which affects physical, physiological, and psychological growth. Significant changes occur in self-concept, adolescents experience an identity crisis, and their emotional problems and issues increase (5).

An adolescent's future is influenced by the behavioral patterns formed at this age (6). If depression is not treated during this age, it can lead to many risk factors such as substance abuse, suicidal and parasuicidal behaviors, running away from home, and risky sexual relationships. Some studies show that high school girls experience significantly higher rates of depressive disorders than boys (7). Cognitive emotion regulation is a process through which individuals can influence what emotions they have and when and how they experience and express emotions. When faced with stressful events, people use different emotion regulation strategies to regulate their emotions (8). One of the most common ways of managing emotions is cognitive emotion regulation. Cognitive emotion regulation strategies are related to mental health, and the use of maladaptive strategies can play a significant role in the development and persistence of mental disorders (9). Research evidence shows that emotion regulation is effective in reducing the symptoms of depression by changing individuals' emotional and cognitive processes (10).

Cognitive avoidance is the automatic processing of frightening or threatening thoughts and reducing or avoiding physiological arousal. Cognitive avoidance is an attempt by an individual to suppress disturbing and unwanted thoughts. Cognitive avoidance of mental images reduces psychological activity (11). Cognitive avoidance may prevent exposure and, consequently, habituation to intrusive thoughts, pleasant and unpleasant, and also the re-evaluation of intrusive thoughts (12). One of the cognitive strategies that individuals with psychological trauma use is to process information in challenging situations through which they try to change their thoughts and mental images to free themselves from environmental concerns (13).

Cognitive avoidance is a wide range of avoidance forms and deliberate attempts to avoid thoughts. In cognitive avoidance, an attempt is made to distinguish emotional qualities from objective experiences (14). Also, excessive efforts to suppress thoughts lead to paradoxical production, and the more an individual attempt to suppress thoughts, the more a vicious cycle is formed (15).

The concept of a schema has its roots in cognitive psychology. Schemas are ingrained convictions about people, things, and ourselves developed during childhood (16). Schemas reflect the early environment and how a person sees themselves and their relationships with others (17).

Schema therapy delves into the deepest level of cognition and assists individuals using cognitive, emotional, behavioral, and interpersonal strategies. Schema therapy is an innovative, integrated, and experiential approach initially developed as an extension of cognitive-behavioral therapies (18). In schema therapy, clients are taught to identify and

change maladaptive schemas, coping styles, and blocked mindsets and use more adaptive tools to meet their basic needs. Schema therapy helps patients better understand the underlying beliefs their cognitive schema may promote.

These beliefs often stem from one's early developmental years and remain in one's adult life which consequently influence our problems. The therapist will work with patients to identify patterns as they reflect on earlier experiences and how they connect or inform their current thoughts and feelings. In schema therapy, schemas are detrimental tendencies that hinder individuals from resolving life challenges and realizing their potential (19).

Schemas ensure self-preservation, as individuals seek out situations and people who confirm their schemas (19). Numerous techniques and methods have been used to treat depression in students. However, reviews show that each of these therapeutic methods has a specific effect on the disorder and is only partially effective in treating it. In recent decades, an approach that has emerged in the field of mood disorders is schema therapy, which has been able to significantly mitigate and eliminate the primary maladaptive schemas of students with symptoms of depression (20).

So far, several techniques and methods have been used to treat students' depression disorder. However, research shows that each of these treatment methods has a special effect on their disorder and is only partially effective in treating this disorder. In the last few decades, the approach that has shown itself in the field of mood disorders is the therapeutic schema approach, which has been able to modify and resolve the initial maladaptive schemas of students with depression symptoms to a large extent (20).

According to the given points, this study was designed to determine the impact of schema therapy on cognitive emotion regulation and cognitive avoidance in subclinical depressed adolescent girls.

Methods

This research utilized a pre-test, post-test control group methodology. Participants were chosen at random. Both the experimental and control groups had a pre-test. The experimental intervention was administered to the experimental group for the treatment duration of two months. A workshop was conducted for the control group post-study to comply with research ethics. Post-tests were conducted for both groups following the conclusion of the experimental interventions.

The study population comprised adolescent female students in grades 10, 11, and 12 exhibiting subclinical depression throughout the academic year 2023. Random sampling was employed to select the sample. The population comprised 300 individuals, of whom 146 satisfied the inclusion criteria. Inclusion criteria in this research were the person's age between 16 and 18 years old, willingness and informed consent to participate in the research project, absence of psychotic disorders, and not taking any psychiatric medication. Exclusion criteria included failure to attend more than two intervention sessions and lack of personal consent of the person or parents to participate in the meetings. The data from this investigation were analyzed utilizing SPSS version 25. Descriptive statistics, including the mean and standard deviation, were employed to characterize the data. Inferential statistics, namely covariance analysis, were used to evaluate the hypotheses.

Tools

This study utilized a demographic and three questionnaires to evaluate the dependent variables.

1-The demographic questionnaire encompassed personal information, including age, grade level, and other pertinent data aligned with the research requirements.

2- The Beck Depression Inventory (BDI) is a self-administered assessment that requires 5 to 10 minutes to complete. The scale comprises 21 items associated with diverse symptoms of depression, which participants evaluate on a four-point scale from 0 to 3. These categories include melancholy, pessimism, perceptions of failure and inadequacy, guilt, sleep difficulties, appetite loss, self-revulsion, and more concerns. The highest attainable score on this inventory is 63, while the lowest is 14. A score ranging from 14 to 19 signifies mild depression, 20 to 28 denotes moderate depression, and 29 to 63 reflects severe depression. This study reported a Cronbach's alpha of 0.74 for the Beck Depression Inventory.

3- The Cognitive Emotion Regulation Questionnaire (CERQ) was created by Garnefski and associates in 2001. The questionnaire comprises 36 items, each evaluated on a Likert scale from "never" (1) to "always" (5). Each subscale includes four items, with nine subscales, each assessing a distinct cognitive emotion control approach. The subscales comprise self-blame, acceptance, rumination, positive reappraisal, planning, positive refocusing, catastrophizing, and blaming others. The questionnaire requests participants to evaluate their responses to recent dangerous encounters or stressful life events using items that measure tactics for emotional control and regulation. The scores for each subscale vary from 4 to 20, while the overall score spans from 36 to 180. This study reported a Cronbach's alpha of 0.87 for the positive cognitive emotion regulation subscale and 0.81 for the negative cognitive emotion regulation subscale.

4-The Cognitive Avoidance Questionnaire (CAQ) was created by Sexton and Duease in 2008. This questionnaire comprises 25 items and five subscales: suppression of worrying thoughts, substitution of positive thoughts for worrying thoughts, utilization of distraction to interrupt the worry process, avoidance of situations and activities that trigger worrying thoughts, and transformation of mental images into verbal thoughts. Every subscale comprises five questions. Participants answer the questions using a Likert scale from 1 (never) to 5 (always). The scoring range for this questionnaire is 25 to 125. Elevated scores signify increased cognitive avoidance. This questionnaire is appropriate for individuals aged 15 and above. The Cognitive Avoidance Questionnaire exhibited a Cronbach's alpha of 0.84 in this study.

Schema therapy intervention based on the book Schema Therapy Vol. 1 and Vol. 2 Schema Therapy: Guide Clinical Experts (Yang, Glosco, Vishar, translated by Hamidpour, Endoz (2011) was conducted.

Table 1. Content structure of Schema Therapy

First Session	**Title: Initiating Contact and Preliminary Evaluation** Initiating communication, presenting the researcher, and introducing the group members. Defining group regulations, objectives, and presenting the program. Evaluating appropriateness for schema therapy and concentrating on personal history. Between now and the subsequent session, each of you should scrutinize your relationships and ascertain your existing issues. Document these issues explicitly, and adjacent to each difficulty, articulate your objective for this therapy.
Second Session	**Title: Understanding Schemas and Developing Effective Coping Strategies** Instruction on early maladaptive schemas, including their classifications and attributes. Elucidation of coping mechanisms. Administration and interpretation of the Young Schema Questionnaire. Linking contemporary life issues to schemas. **Task**: Reflect on many difficult circumstances you have encountered in your life. Determine the schema activated in each scenario and document the coping techniques employed to address that schema.
Third Session	**Title: Cognitive Strategies** Articulating the justification for cognitive methodologies Evaluating members' assignments Employing the therapeutic approach of sympathetic confrontation Reconceptualizing evidence that substantiates paradigms **Task**: For the upcoming session, examine multiple examples of schema-driven behaviors. Determine the foundational schema, corroborative evidence, and contradictory evidence for each instance. Propose a revised definition of supporting evidence.
Forth Session	**Title: Cognitive Techniques** Assessing the advantages and disadvantages of coping mechanisms and reactions. Facilitating a discourse between the schematic dimension and the healthful dimension. Employing role-playing. Instructing on the conception and creation of educational cards. **Task**: At home, participants will have a dialogue between their schema element and their healthy component utilizing the empty chair technique.
Fifth Session	**Title: Empirical Methods** Articulating the justification and objectives of experiential methodologies.

	Cognitive visualization. Linking historical mental representations to the contemporary context. Participating in fictitious dialogues with parents. **Task**: Participants are required to compose a letter addressed to their parents or significant individuals in their lives who caused them pain throughout childhood. They are directed not to dispatch these letters but to present them at the subsequent session.
Sixth Session	**Title: Observational learning** Articulating the justification for behavioral methodologies. Articulating the objective of behavioral methodologies. Formulating an exhaustive inventory of particular behaviors to be modified. Offering techniques for generating a list of behaviors. Prioritizing behaviors for modification and determining the most detrimental habit. Enhancing motivation for behavioral modification. **Task**: In the coming days, reflect on several hard circumstances in your life and document your emotions, thoughts, and actions. If you exhibited maladaptive conduct, document a more constructive alternative behavior.
Seventh Session	**Title: Behavioral interventions** Evaluation of the previous session's tasks and collection of feedback. Engaging in healthful activities via visualization and role-playing. Surmounting barriers to behavioral modification. Implementing substantial life transformations. **Task**: Participants must recognize a behavior they have been unable to modify and contemplate, "If I were devoid of this schema, how would I act?" Participants are thereafter instructed to identify an alternative behavior and enumerate the advantages and disadvantages of altering versus maintaining the current habit.
Eighth Session	**Title: Summary of Previous Topics** Evaluating the tasks from the prior session Providing a synopsis of prior sessions Finalizing and concluding with the assistance of members Conducting post-assessments Expressing gratitude to all, bidding farewell, and concluding the sessions.

Results

This study involved 30 female high school students aged 16 to 18 assigned into two groups of 15 (an experimental and a control group). The students were in grades ten, eleven, and twelve.
The findings indicated that the mean and standard deviation of positive emotion regulation in the experimental group rose from 47.38 ± 99.5 in the pre-test to 46.07 ± 7.03 in the post-test, reflecting a mean difference of 6.7 points. The control group exhibited a rise in mean and standard deviation from 39.93 ± 47.5 to 38.47 ± 40.6, resulting in a mean difference of 0.54 points. The experimental group had a reduction in negative emotion regulation from 63.8 ± 97.8 in the pre-test to 56.8 ± 35.8 in the post-test, resulting in a mean difference of 27.6 points. The mean in the control group increased from 63.4 ± 51.8 to 63.8 ± 97.8. The experimental group exhibited a reduction in cognitive avoidance from 81.73 ± 99.1 in the pre-test to 71.73 ± 38.11 in the post-test, resulting in a mean difference of 10 points. The mean in the control group rose from 79.33 ± 93.9 to 79.73 ± 84.8 (Table 2).
Additionally, the study findings indicated that the adjusted mean score for positive emotion regulation was 93.45 in the experimental group and 61.36 in the control group; the adjusted mean score for negative emotion regulation was 87.56 in the experimental group and 72.63 in the control group; and the adjusted mean score for cognitive avoidance was 53.70 in the experimental group and 94.80 in the control group (Table 3).
Table 4 illustrates the effect of schema therapy on the linear aggregation of dependent variables. The group significantly influenced the linear combination of dependent variables, specifically positive and negative emotion regulation, and cognitive avoidance, in adolescent girls with subclinical depression ($\eta^2 = 0.735$; $p < 0.01$; Wilks' Lambda = 0.265; $F(4,21) = 64.75$).

Table 2. Means and Standard Deviations of Study Variables in Pre-test and Post-test for Two Groups

Variable	Group	Pre-test		Post-test	
		Mean	SD	Mean	SD
Positive Emotion Regulation	Schema therapy	38.47	6.00	46.07	7.03
	Control	39.93	5.47	38.47	6.40
Negative Emotion Regulation	Schema therapy	63.07	8.29	56.80	8.35
	Control	63.40	8.51	63.80	8.97
Cognitive Avoidance	Schema therapy	81.73	10.99	71.73	11.38
	Control	79.33	9.93	79.73	8.84

Table 3. Adjusted Means of the Two Groups at Post-Test Following Covariate Control

Variables	Groups		Standard Error
	Experimental	Control	
Positive Emotion Regulation	45.93	38.61	0.790
Negative Emotion Regulation	56.87	63.72	0.512
Cognitive Aviodance	70.53	80.94	0.719

Table 4. Multivariate Analysis of Covariance demonstrating the impact of group affiliation on linear combinations of the research variables.

Test	Test Statistic	Degrees of Freedom for Hypothesis	Degrees of Freedom for Error	f-ratio	Significance Level	Effect Size
Wilks' Lambda	0.256	3	21	75.64	0.001	0.735

The results demonstrate that, after accounting for confounders, a statistically significant difference in post-test scores existed between the two groups for at least one dependent variable. Consequently, the primary research hypothesis is corroborated. Furthermore, the eta squared, denoting the proportion of variance attributable to the intervention, reveals that 73.5% of the variance (change in variables) is a result of the group effect.

Discussion

The objective of this study was to assess the effect of schema therapy intervention on emotional regulation and cognitive avoidance in teenagers experiencing subclinical depression. The findings showed that schema therapy intervention significantly influenced the cognitive control of emotions and cognitive avoidance in teenagers with subclinical depression. The group influence on the linear combination of dependent variables, specifically positive and negative emotion regulation, and cognitive avoidance, was statistically significant in adolescent girls exhibiting subclinical depression. Moreover, the findings indicated that after controlling for covariate variables, a statistically significant difference existed between the post-test scores of patients in the two groups, at least for one of the dependent variables. The results of this hypothesis align with the investigations conducted by Manjzi et al. (21), Mesibi et al. (22), Arianakia et al. (23), Lenarz et al. (3), and the meta-analyses by Darous et al. (24). Cognitive avoidance associated with traumatic events may temporarily ameliorate trauma-related stress. But residual symptoms related to the injury appear in the long term. After traumatic events, avoidance strategies may appear, initially focusing on activities and stimuli that remind people of or related to the individual's recognition of the traumatic event (25). Schemas represent the pinnacle of generalized cognition, exhibiting resistance to alteration and exerting a significant influence on an individual's thoughts and feelings. Negative automatic thoughts and intermediate assumptions are significantly shaped by schemas, with this influence being most pronounced when schemas are activated. Schemas are the foundational assumptions or principles that govern an individual's ideas and behaviors, having developed throughout their lifetime. Schemas, consciously or unconsciously, include all facets of an individual's life (26). Schemas establish the significance and framework that an individual assign to the world. Schemas are established during an individual's growth, indicating that as one acquires information from their

surroundings, they assimilate it. Each individual categorizes and arranges information according to their view of it. The schemas are also formed by culture, family, religion, and characteristics associated with gender, age, or personality (27). Schemas are structured not only according to cognitive content but also by emotional, behavioral, and physiological elements. Schemas have significant resistance to alteration owing to various factors.

1. Specific beliefs are profoundly linked to an individual's emotions and historical contexts;
2. Enduring beliefs frequently become essential to a person's identity;
3. Such beliefs may be affirmed or strengthened by influential figures in one's life;
4. The impact of schemas on behavior is determined by the individual's cognitive processes and imagination;
5. Behaviors developed through schema activation produce numerous positive and negative associations over time, leading to their strong resistance to alteration. (28)

Schema therapy is one such trans-diagnostic approach that offers integrated treatment for comorbidity. Schema therapy, an extension of cognitive behavioral therapy, focuses on identifying and restructuring maladaptive schemas and core beliefs (29).

Schema therapy has shown promise in reducing these maladaptive schemas and improving emotional inhibition in OCD patients, although it remains unclear whether these improvements directly alleviate OCD symptoms. Some evidence suggests that lowering emotional deprivation and inhibition schemas can help patients gain better emotional control; however, more research is required to confirm the therapy's overall effectiveness in treating OCD (30).

Individuals in this category were incapable of fulfilling and secure connections with others. The families of these individuals, foundational to the development of this area in childhood, are typically unstable, abusive, emotionally distant, rejecting, and socially isolated. These individuals did not have their fundamental requirements for security, peace of mind, acceptance, support, stability, empathy, and reliable guidance (31). This schema encompasses the comprehension of the volatility and unreality of support and interpersonal interactions. Individuals with this pattern expect important people to fail to keep relationships and expect to be abandoned by others. These individuals contend that significant figures in their lives will be unable to maintain emotional support and a robust enduring connection since they see these folks as unstable and unpredictable, potentially abandoning them for others (32).

Autonomy is the capacity to detach from familial ties and operate independently in accordance with one's age. Individuals within this schema area struggle to detach from familial and paternal roles, hindering their ability to act autonomously. During childhood, the families of these persons exhibited extreme involvement and support in their lives. These individuals struggle to establish an autonomous identity (33). Deficiencies in internal boundaries, negligence towards others, and an absence of long-term goal orientation are traits of this domain. These issues result in a disdain for the rights of others, a deficiency in cooperation, involvement in unlawful actions, and an absence of pragmatic personal planning. The families of these persons are frequently intrusive and permissive, fostering a sense of superiority in the individual. In such instances, the child may evade punishment for rule violations or may not have sufficient attention, guidance, and direction (34).

Emotional issues in adolescents are prevalent, and with appropriate intervention, the extent of harm can be mitigated. This section provides guidelines for parents of adolescents. Parents should adopt an appropriate approach to love in their relationship with their children. When parents maintain a friendship with their teenager, they can more effectively assist their child in navigating this crisis. By this relationship and closeness, we do not imply transgressing the boundaries of privacy. The adolescent should experience the unwavering support of their parents. If individuals fear or are concerned about parental judgment, they will undoubtedly struggle to trust their parents. The intimacy between parents and teenagers enables parents to impart their experiences and teachings, equipping adolescents to navigate relationships more healthily. Parents ought not to penalize their children for tumultuous and unsuccessful relationships. If parents lack sufficient information and awareness in addressing emotional concerns, they should participate in teenage

counseling sessions. Parents significantly influence the development of their child's self-confidence and self-esteem.

Consequently, the parents need to engage in activities that provide the adolescent with a sense of value and utility. Activities associated with rewards can yield beneficial results in this process. Parents must acknowledge that the transformations of adolescence are inherent and that these alterations influence the adolescent's emotional state. As a result, they should support their child during this time without any judgment or blame. Also, people who are not compatible with their emotions or have no way to express them are more likely to find limited resources to overcome their negative emotions and engage in risky behaviors to alleviate their emotions. Many people resort to risky behaviors to avoid a reality that is unpleasant to them (35). On the other hand, cognitive-behavioral therapy based on emotion regulation restores thoughts and recognizes dysfunctional behaviors in people.

Emotional regulation Cognitive improves the mental health of girls (36).

While psychoanalysis initially rejected cognition and thought processes and thinking about thinking as transcendent, at this stage, the cognitive element returns in another form (neither in its original form in psychoanalysis as secondary processes nor in its negation in the CBT approach, cognition as a mediating factor by introducing schema). Here the cognitive component emerges naturally, as an integral part of psychoanalysis, and fits in with developmental theory, psychopathology, and therapeutic practice. While the new approach highlights thought processes, it continues to reject behavioral interventions and avows its principal interest in the patient's consciousness (its focus, that is, remains on the intrapsychic). So, sublation produces a new knowledge structure (here mentalization) that preserves a dialectic tension in the identity of the approach and its body of knowledge (37).

Conclusion

The current study revealed that schema treatment significantly influenced emotional cognitive regulation and cognitive avoidance in teenagers with subclinical depression. Schema therapy, a third-wave cognitive-behavioral approach, specifically focuses on altering the form, content, or frequency of actions. Schema therapy asserts that the issue lies not in the content of thoughts but in the individual's interaction with those thoughts. Cognitive avoidance is a multifaceted concept utilized to evade distressing thoughts. This construct comprises two main elements: reluctance to confront personal cognitions (including physiological sensations, emotions, ideas, memories, and behavioral contexts) and attempts to evade distressing cognitions or situations that elicit these cognitions. This avoidance manifests as behavioral, emotional, and cognitive evasion, comprising six patterns derived from the amalgamation of behavioral, cognitive, personality-driven, psychodynamic, and third-wave cognitive-behavioral methodologies.

Acknowledgments

The authors are thankful to all the people who participated in this study and helped to facilitate the research process.

Code of Ethics

IR.IAU.TON.REC.1403020

Conflict of Interest

The authors declare no conflict of interest.

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