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Original Article

Comparing the effectiveness of group schema therapy and group-based acceptance and commitment therapy on the emotion regulation strategies in substance abusers

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Abstract

Introduction: The present study aimed to compare the effectiveness of group schema therapy and group-based acceptance and commitment therapy on emotion regulation strategies in substance abusers.

Materials and Methods: The statistical population of this study was all men with substance abuse in Mashhad city in 2018. The samples included 60 substance abusers who were selected purposefully and assigned into 3 groups including schema therapy, acceptance and commitment therapy and control. The both experimental groups received 10 ninety interventional sessions. All participants completed emotion regulation questionnaire (Gratz and Roemer, 2004) in pretest, posttest and 3-months follow up. Data analyzed through descriptive statistics, Kolmogrov-Smirnov test, covariance analysis, and SPSS software.

Results: The results showed that both experimental groups had a significant reduction in maladaptive strategies of emotional regulation and increase in adaptive strategies compared to the control group. The difference between the three groups was significant in the post-test phase (F= 8.119; *P*<0.001) and 3-month follow-up (F= 0.907; *P*<0.002).

Conclusion: It seems that schema therapy is more effective than acceptance and commitment therapy to reduce maladaptive strategies of emotional regulation in substance abusers. This effectiveness was maintained at the follow-up stage.

Keywords: Acceptance and commitment therapy, Emotion regulation, Schema therapy, Substance abuse.

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Introduction

Today, the problem of substance abuse has been developed and cited as one of the four major crises of the present time, along with the nuclear threat, environmental pollution, and poverty. According to evidences, the rate of substance abuse in Iranian population is raised (1). Addiction is defined as a condition caused by the repetition of the abuse of natural or artificial substances.

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In this case, the person becomes physically and mentally dependent on the substance, and after a while, it becomes difficult to stop substance abuse (2). Because regular substance abusers report that substance abuse positively affects relieving negative emotional states, substance abuse may act as an emotional regulation strategy to reduce distressing emotional states (3).

Emotional adjustment refers to actions that are used to change or modify an emotional state. The general concept of cognitive emotion regulation refers to the cognitive methods of manipulating the entry of emotion-calling information (4).

Emotion regulation strategies include nine different cognitive coping strategies, namely self-management, acceptance, rumination, positive critical focus, re-focusing, positive reassessment, facilitation of disaster, catastrophic, and blame (5).

Overall, difficulty adjusting to emotions is one of the problems in individuals with substance abuse, leading to failure in managing their emotional states (6).

Doran, McCharque, and Cohen indicated that people who cannot control their excitement are more likely to depend on substance abuse permanently (7).

One of the prominent interventions in addiction and relapse prevention in recent years is psychological modeling, including schema therapy and acceptance and commitment-based therapy that help the patient acquire the necessary skills to focus on managing risky situations and treating associated psychological disorders (8). Schema therapy is an innovative and integrated method that affects psychological aspects. It is founded by Young (9) and generally defined as a structure, template, or framework. In cognitive development, a schema is viewed as a template shaped by reality or experience to help individuals explain their experiences (10).

Nuclear schemas shape the self-concept and influence how people interact with their surroundings, so different schemas can make people vulnerable to everyday problems.

More or less convincing research has confirmed the effectiveness of schema therapy at the level of individual intervention and when there are detectable psychiatric disorders, including substance abuse (10-13).

The results of Fatahi and Dehghani's research showed that schema therapy affects the emotional regulation of men in the Anonymous Addicts Association (14).

In addition, one can refer to acceptance and commitment-based therapy (ACT). This type of therapy seeks to increase one's psychological connection to one's thoughts and feelings rather than changing cognitions. This therapy aims to help clients achieve a more meaningful and satisfying life by enhancing psychological flexibility rather than focusing solely on cognitive reconstruction.

Acceptance and commitment therapy has six central processes that lead to psychological flexibility. These six processes are acceptance, cognitive dissonance, communication with the present, self as context, values, and committed practice (15). At first, this treatment attempts to increase mental acceptance of mental experiences (thoughts, feelings, etc.) and to reduce ineffective control of the interaction. In the second stage, one's psychological consciousness is increased in the present moment.

In the third stage, one is taught to separate him/herself from these mental experiences (cognitive isolation) to act independently. Fourth, trying to reduce the excessive focus on the self-image or personal story (such as being a victim) that the person has made up for him/herself. Fifth, helping the individual to identify core personal values and turn them into specific behavioral goals (clarifying values). Ultimately, the motivation for committed action is the pursuit of specified goals and values and the acceptance of subjective experiences.

These mental experiences can be depressing, obsessive thoughts, trauma, fears or social anxiety, etc.

Experimental evidence on the impact of this treatment on various disorders is increasing, for example, the efficacy of this treatment for disorders such as depression, psychosis (16), burnout (17), chronic pain (18), substance abuse, and substance dependence (19,20) have been identified. Recently two studies in Iran compared schema therapy and acceptance-based therapy on substance abusers, but there was no significant difference between these two treatments (21).

Given the theoretical foundations of the research and the role of schema therapy and psychotherapy based on acceptance and commitment as critical factors to prevent and treat substance abuse, also research gaps in this

field, this study aimed to evaluate the effectiveness of schema therapy and acceptance and commitment-based therapy on emotion regulation strategies in substance abusers.

Materials and Methods

The present study is an experimental study, and its design is in three groups (two experimental groups and one control group) with three stages of pre-test, post-test, and follow-up.

The statistical population included substance abusers in Mashhad city in 2017-2018. Among them, 60 cases were selected using the purposive sampling method. Inclusion criteria included men abusers who aged 18-35 years, at least having intermediate education, a history of relapse of 2 to 5 times, absence of concurrent clinical disorder in the first, second, and third axes, and not having medical disorder in the third axis.

Exclusion criteria included severe clinical disorder or problems in the first, second, and third axes (based on individual psychiatric records) and lack of willingness to continue the research process.

To emphasize the ethical considerations, the plan was explained to the volunteers. All subjects were assured that all information would remain confidential to the researcher. Following the follow-up phase for control group participants who wished for treatment sessions, admission and commitment-based schema therapy and therapy sessions were held.

The cases were divided into three groups of twenty individuals (two experimental groups and one control group).

The sample was matched for demographic characteristics such as age, sex, education, and socioeconomic classification (based on income) that could influence the research results. The experimental groups received schema therapy (10 ninety-minute sessions) or acceptance and commitment-based therapies (10 ninety-minute sessions).

In post-test phase (approximately three months after pre-test), the study variables were measured again.

At the beginning of each session, the assignments of the previous session were reviewed, and then the training sessions were given.

At the end of the sessions, questions and answers and bug fixes of the participants were provided. In order to adhere to the research ethics, the control group was put on a waiting list for treatment sessions after the end of the study.

Research instrument

A) Difficulty in Emotion Regulation Scale (DERS): The initial scale was a 41-item self-report tool which scored from 1 to 5 on a Likert scale. One means rarely (0-10%), two means sometimes (11 to 35%), three means half (36 to 65%), four means most (66 to 90%), and five means almost always (91 to 100%). One item was omitted due to its low correlation with the whole scale, and four items due to low or dual-factor loadings on the two factors.

Thus, from the first 41 items of the scale, 36 items remained. The questionnaire is scored as follows: one means rarely (0-10%), two means sometimes (11-35%), three means half (36-65%), four means most often (66-90%), and five means almost always (91-100%).

This scale measures different aspects of the difficulties in emotional regulation. The higher scores mean more difficulty in emotion regulation.

Factor analysis revealed six factors of rejecting emotional responses, difficulty in purposeful behavior, difficulty in controlling momentum, lack of emotional awareness, limited access to emotion regulation strategies, lack of emotional clarity (22).

The results show that this scale has a high internal consistency of 0.93. All six subscales of the DERS have Cronbach's alpha above 0.80. Also, DERS has a significant correlation with NMR scale and the Acceptance and Practice Questionnaire (AAQ) (18).

Based on study by Shams, Azizi, and Mirzaei, Cronbach's alpha for this questionnaire was estimated to be 0.92 (23).

In the present study, Cronbach's alpha was calculated to be 0.81 for adaptive emotion regulation and 0.85 for maladaptive emotion regulation.

The content of the training sessions of the schema-therapy plan is based on the Young schema therapy protocol (24) in 10 ninety-minute sessions.

The content of group therapy sessions based on acceptance and commitment therapy according to Hayes et al. (19) (Table 2).

Table 1. The content of schema-therapy

Training sessions	The content of the session
First	To communicate, understand the patient, and evaluate how the problem is formed and survived
Second	Educate the patient about the nature of addiction, identify patient and therapist expectations of treatment, teach cognitive-behavioral patterns, and establish a therapeutic agreement
Third	Investigating thoughts, predictions and futures, identifying obligations, avoidances, and fundamental beliefs
Fourth	Identifying distorted myths, evaluating the cycle of thoughts and behaviors, training on cognitive distortions, and identifying cognitive distortions
Fifth	Correction of dysfunctional thoughts, change and correction of cognitive distortions
Sixth	Schema-based model training, schema-based modeling training, and patient problem conceptualization in schematic model
Seventh	Identification of early malfunctioning schemas, identification of domains, processes, behaviors, and schema-styles
Eighth	Schema modification, the use of emotional techniques, discussion of past experiences, imaginary conversation with parents, discussion of current events, mental imagery, and emotional drain
Ninth	Modifying Schemas, Using Behavioral techniques, Eliminating Continuous Schema Behaviors, Removing Avoidances, and Increasing Healthy Coping Behaviors
Tenth	Schema correction, use of cognitive techniques for critical evidence-supporting schema evaluation, review and evaluation of conflicting evidence schemes, stance-antagonism techniques, preparation of illustrated educational cards, contradictory schemes, and analysis of advantages and disadvantages of schemas

Table 2. The content of acceptance and commitment therapy

Training sessions	The content of the session
First	Introducing research goals, time, place, and length of group sessions and rules, closing medical contracts, getting to know emotions
Second	Understanding acceptance and commitment therapy, Its role in emotion regulation and how it impacts substance use
Third	Confronting the rules of treatment of the atmosphere of "creative despair" and the use of the analogy of "man in the well" and "farmer and the ass".
Fourth	Control as the main problem: examining ineffective strategies and abandoning them, practicing techniques, presenting the "lie detector" parable
Fifth	Acceptance as an alternative method of experiential avoidance, practicing techniques
Sixth	The self as contexture: Creating a sense of self, practicing techniques, presenting the "chess board" allegory
Seventh	Organizing language rules: I am practicing
Eighth	Cognitive fusion and mindfulness; techniques, milk practice, and leaf practice
Ninth	Clarifying values; creating commitment to valuable practices: Funeral practice and allegory: "eat the whole apple"; practicing techniques
Tenth	Review sessions, relapse prevention exercise

Results

The participants included 60 cases with a mean age of 28.25 years in schema therapy group, 28.55 years in acceptance and commitment therapy group, and 29.05 years in the control group. The three groups experienced the relapse 3 times. The results of Table 3 show that the mean of adaptive emotion regulation strategies of the experimental groups increased in the post-test and follow-up stages compared to the pre-test. Also, the mean of maladaptive strategies of emotional adjustment in the two groups of post-test and follow-up compared to pre-test decreased.

Table 3. The mean scores of emotion regulation strategies

Variable	Group	Pre-test	Post-test	Follow up
Adaptive strategies	Schema Therapy	42.60 ± 6.16	46.80 ± 5.94	45.05 ± 4.97
	ACT	41.60 ± 8.13	44.15 ± 8.19	43.40 ± 7.59
	Control	40.30 ± 6.52	39.90 ± 6.13	39.35 ± 5.84
Maladaptive strategies	Schema Therapy	59.40 ± 7.68	50.70 ± 6.68	51.45 ± 7.27
	ACT	61.20 ± 9.62	57.70 ± 8.60	58.35 ± 8.24
	Control	63.10 ± 9.23	65.15 ± 9.78	65.25 ± 9.80

Kolmogorov-Smirnov test was used to assess the normality of the data distribution data. As can be seen, the results showed that the Levin test was not significant in the research variables, indicating that the variances were homogeneous. Thus the covariance analysis test is applicable.

According to the results, there was a significant difference between the three groups in the post-test ($P< 0.001$, F= 8.189) and follow-up ($P< 0.002$, F= 6.907). It was therefore followed up which groups differed.

Also, there was a significant difference between the three groups in the post-test ($P< 0.001$, F= 13.64) and follow-up ($P< 0.001$, F= 13.00). It was therefore followed up which groups differed. For this purpose, Benferoni post hoc test was used.

Table 4. Benferoni test for pair wise comparisons of emotion regulation strategies in post-test

Variable	Group I	Group J	Differences (J, I)
Adaptive strategies	Schema therapy	ACT	1.81 (P=0.744)
		Control	4.97 (P<0.001**)
	ACT	Schema therapy	-1.81 (P=0.744)
		Control	3.16 (P=0.041*)
	Control	Schema therapy	-4.97 (P<0.001**)
		ACT	-3.16 (P=0.041*)
Maladaptive strategies	Schema therapy	ACT	-6.27 (P=0.040*)
		Control	-12.96 (P<0.001**)
	ACT	Schema therapy	6.27 (P=0.040*)
		Control	-6.68 (P=0.026*)
	Control	Schema therapy	12.96 (P<0.001**)
		ACT	6.86 (P=0.026*)

*P<0.05, **P<0.01

Based on the results, there was significant differences between the control group and schema therapy group, also ACT group in adaptive strategies. However, there was no significant difference between the scores of the experimental groups.

Also, there was a significant difference between the scores of the control group and the two experimental groups in maladaptive strategies. These two treatments significantly reduced maladaptive strategies in post-test. There was a significant difference between schema therapy group and acceptance and commitment therapy.

Schema therapy is more effective treatment than acceptance and commitment therapy to reduce maladaptive emotion regulation strategies in substance abusers.

Table 5. Benferoni test for pair wise comparisons of emotion regulation strategies in follow-up

Variable	Group I	Group J	Differences (J, I)
Adaptive strategies	Schema therapy	ACT	-1.22 (*P*=0.015*)
		Control	-2.53 (*P*<0.001**)
	ACT	Schema therapy	1.22 (*P*=0.015*)
		Control	-1.31 (*P*=0.009**)
	Control	Schema therapy	2.53 (*P*<0.001**)
		ACT	1.31 (*P*=0.009**)
Maladaptive strategies	Schema therapy	ACT	-6.20 (*P*=0.037*)
		Control	-12.38 (*P*<0.001**)
	ACT	Schema therapy	6.27 (*P*=0.037*)
		Control	-6.18 (*P*=0.039*)
	Control	Schema therapy	12.38 (*P*<0.001**)
		ACT	6.17 (*P*=0.039*)

*$P<0.05$, **$P<0.01$

According to the above table, there was a significant difference between the control group and the two experimental groups in adaptive strategies at follow-up. Also, there was a significant difference between schema therapy and ACT group. Also, there was a significant difference between the control group and the two experimental groups in maladaptive strategies at follow-up phase. These two treatments significantly reduced the maladaptive strategies, while schema therapy is more effective treatment than ACT.

Discussion

The present study aimed to assess the effect of schema therapy and ACT in strategies of emotion regulation in patients with substance abuse. The results showed that schema-based therapy and acceptance-based therapy significantly increased adaptive emotion regulation strategies and significantly reduced maladaptive emotion regulation strategies in substance abusers. These findings are consistent with study by Fattahi and Dehghani (14) on the efficacy of schema therapy, and Seyedasiaban, Manshaei, and Askari study (25) on the effect of acceptance and commitment-based therapy to improve emotional adjustment in substance abusers. The results also showed that schema therapy reduces maladaptive emotion regulation strategies significantly. These results support the findings of Fattahi and Dehghani study on the effectiveness of schema therapy on emotional regulation, self-efficacy, and temptation in substance abusers. The cases of this study included 40 men who were members of the Association of Anonymous Addicts in Najafabad city and its suburbs. The results showed a differences between the experimental and control groups in post-test and follow-up phases in emotional regulation, self-efficacy, and temptation (14). Another study conducted by Seyedasiaban, Manshaei, and Asgari (25) which aimed to compare the effectiveness of schema therapy and mindfulness on adaptive strategies of cognitive emotion regulation in substance abusers. The results showed that schema therapy and mindfulness effectively led to increased adaptive strategies for cognitive emotion regulation in the post-test and follow-up phases. Also, the two groups have significant differences, and the schema therapy group had a greater effect than mindfulness (26). Furthermore, the results of this study confirmed the results of emotional regulation in substance abusers. The results also showed that schema therapy had a greater effect on reducing maladaptive emotional adjustment strategies in substance abusers.

In explaining the effectiveness of schema therapy on emotion regulation strategies, it can be said that schema therapy provides a new system of psychotherapy that is appropriate for the emotion regulation of substance abusers because the use of stimulants causes changes in the level of consciousness and tendency that emotionally increases one's falsehood (26). In substance abusers, early maladaptive schemas can be effective in the emergence and continuation of emotion regulation strategies. In schema therapy, patients learn to replace the

efficient coping style. Thus the treatment process is based on cognitive, emotional, and behavioral interventions. It seems to be insufficient to treat chronic and refractory disorders, the content and processes of mental processing, and work at harmful self-efficacy levels and the patient's nuclear beliefs (which are considered in cognitive therapy) and should be adapted to schemas. Patients' emotional cognition, especially early maladaptive cognitive schemas, has received more attention as the most basic cognitive levels (27). Concerning the impact of acceptance and commitment therapy on the emotional regulation of substance abusers, Towhing (28), Kahl, Winter, and Schweiger (29) believe that people with low emotional regulation, who treated with acceptance and commitment therapies, are taught that any action to avoid or control pleasant and unwanted mental experiences is not only ineffective but has the opposite effect and exacerbates its stress.

Thus, it helps people to experience disturbing thoughts merely as a thought and become aware of the nature of their inefficiency and do something important in their lives rather than responding to their values. In this regard, Wetherell et al., believe that understanding the adaptive nature of emotion is one of the essential parts of acceptance and commitment therapy. Moreover, increase emotional awareness through various interventions, including mindfulness. Mindfulness is one of the techniques that predict self-regulation behavior and positive emotional states. On the one hand, this skill leads to the cognitive evaluation of emotions, reduction of negative emotions, increase of positive emotions and adaptive behaviors, and on the other hand, awareness of emotions, acceptance, and expression of emotions, especially positive emotions in the situation-different ways of life lead (30).

Based on the results, we concluded that two approaches of schema therapy and acceptance, and commitment therapy, could trigger the emotional regulation of substance abusers. These two method have significantly increased the adaptive strategies of emotional regulation and significantly reduced the maladaptive strategies in substance abusers.

One of the limitations of this study is that the possibility of bias in the results and using only questionnaires to collect data. Although, the questionnaire provides the most information in a short time, cases may have some bias in response.

Conclusion

Overall, this study showed that schema therapy and acceptance-based commitment therapy affect the temptation, impulsivity, and emotional regulation of substance abusers, so it is best to use these techniques in treatment centers to prevent and treat patients with abuse.

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