Original Article

Comparison Of The Effectiveness Of Acceptance And Commitment Therapy, Mindfulness And Motivational Interviewing On Psychological Flexibility In Men With Substance Abuse Disorder Undergoing Maintenance Therapy

[1]Mahsa Kashefizadeh, [2*]Mahboobe Taher, [3]Abbas Ali Hosseinkhanzadeh, [4]Narges Haj Aboutalebi

[1]Ph.D. Student of Psychology, Department of Psychology, Shahrood Branch, Islamic Azad University, Shahrood, Iran.
[2*]Assistant Professor, Department of Psychology, Shahrood Branch, Islamic Azad University, Shahrood, Iran (Corresponding Author Email: Mahboobe.Taher@yahoo.com)
[3]Associate Professor, Department of Psychology, Faculty of Literature and Humanities, University of Giulan, Rasht, Iran
[3]Assistant Professor, Department of Mathematics, Shahrood Branch, Islamic Azad University, Shahrood, Iran
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Abstract

Aim: The aim of this study was to compare the effectiveness of Acceptance and Commitment therapy, mindfulness and motivational interviewing on psychological flexibility in men with substance abuse disorders under maintenance treatment. Method: The research design was a quasi-experimental pretest-posttest with a control group. The statistical population included all men with Robat Karim opioid abuse disorder who referred to substance abuse treatment centers in this city from March 2017 to June 2014. Among them, a sample of 72 people was selected using cluster random sampling method and randomly placed in three experimental groups and one control group. Bond et al the Acceptance and Action Questionnaire (2011) questionnaire was used to collect data. The experimental groups underwent ten sessions of 50 minutes under the group of Acceptance and Commitment therapy, motivational interview and mindfulness. But the control group did not receive any intervention. **Results:** The results of one-way analysis of covariance showed that there is a significant difference between all three approaches of treatment based on acceptance and commitment, mindfulness and motivational interview and the control group in the degree of psychological flexibility of men with substance abuse disorder. Also, there is no significant difference between acceptance, commitment and mindfulness groups. But the mean of acceptance and commitment group is higher than the mean of motivational interview group ($p < 0.001$). Also, the mean of mindfulness group is higher than the mean of motivational interview group ($p < 0.001$). **Conclusion:** Based on the findings, it can be concluded that therapies based on acceptance, commitment and mindfulness are effective on the psychological flexibility of men with substance abuse disorders due to their effect on getting rid of the content of internal experiences and staying in touch with the present.

Keywords: Acceptance and Commitment Therapy, Mindfulness, Motivational Interview, psychological flexibility, Men with Substance Abuse Disorder, Maintenance Therapy

INTRODUCTION

Addiction, as a chronic and recurrent disorder, in addition to profound social, psychological, physical and economic effects on the consumer, imposes a lot of psychological pressure on family members and society (Qolizadeh, Qamari and Sadri, 2018). Addiction causes extensive brain changes, including in the prefrontal cortex, reward neural circuit, parts related to motivation, memory, impulse control and judgment. This can lead to a dramatic increase in the desire to consume a substance, as well as the inability to successfully control this strong desire, despite knowing and experiencing many of the consequences associated with the addictive substance (American Psychological Association, 2020). In Iran, substance abuse is the most important and fundamental concern and the most important preventable health risk (Jaludari, Sodagar and Bahrami, 2018).

When a person abuses drugs, they cannot control how they use it and become dependent on it to perform daily life tasks.

A person who has not yet reached the stage of dependence may also face the side effects of substance abuse and will continue to abuse despite the harmful effects. Abuse of alcohol, tobacco, and opioid drugs costs the United States more than $740 billion annually (in treatment costs, lost jobs, and resulting crimes) (Felman, 2018). It can be said that substance abuse is a psycho-physiological phenomenon and various variables affect its occurrence, continuation and treatment. A person is not able to control it alone due to the conflict between mental and physical aspects (Kane, Riper-Reynolds, Williams and Wolff, 2016) because substance abuse has a negative effect on health and behavior, and repeated use of drugs usually leads to tolerance, in which a larger dose of the drug is needed to maintain the response to it (Kaplan and Sadok, 2010; translation by Pourafkari, 2013). One of the ways to treat people suffering from substance abuse is maintenance treatment, which is one of the most important and key measures in line with the goals of harm reduction and greatly reduces the possibility of using illegal injecting substances (Wing, Jeroff and Cheri, 2020). In general, the goal of treating substance abuse patients is their physical and mental treatment; in such a way that they do not return to drug use (Orki, Makri, and Kiaei Ziabri, 2012). Some therapists consider reducing consumption or using less risky methods of consumption as treatment, and others consider treatment as complete cessation of opioid consumption. Of course, with this targeting, two types of targets are created again. The first goal is to create complete purity, in which case the patient must be detoxified. The second goal is to reduce the harm in which the patient goes on maintenance treatment with opioid medication for a long time. But besides the mentioned goals, the most important goal will be to change the person's life pattern towards becoming healthy. For example, his career and family problems have been resolved and he can start working (Nadari, Binazadeh, Sefatian, Takhadi, 2019). If only physical treatment is limited and no attention is paid to eliminating psychological dependencies, patients will turn to drug use again. In eliminating mental addictions, it is possible to ensure that the affected person is healthy if he undergoes psychological treatment at the same time as physical treatment (Shakerami, 2012).

Evidence shows that providing psychotherapy increases the effectiveness of methadone maintenance treatment. According to the studies of McDelan et al. (2016), patients can undergo three types of treatment programs: methadone without counseling, methadone with counseling, and methadone with counseling and other psychological treatments. Patients who receive the most comprehensive type of treatment program show the highest rate of improvement after 24 weeks (Kirimi Talabari, Nouri Khajovi and Rafiei, 2013). One of the variables whose role has been observed in the tendency of people to abuse substances is escape from psychological flexibility. In recent years, psychological flexibility has been increasingly identified as an important construct in creating a wide range of clinical forms of cognitive dysfunctions, including anxiety, depression, emotional distress, substance abuse, and other disorders (Bond and Bass, 2013). Psychological flexibility includes the ability to be aware of present experience, to engage in a specific activity without internal distractions, and to have an open and non-judgmental attitude. Mindfulness, a conscious mental state, openness and concentration are key components in psychological flexibility (Taghizadeh and Farmani, 2012). In a study, Martin, Oren, and Boon (2013) showed that people who are cognitively inflexible turn to rumination when they are upset and focus their cognitive power on rumination, which brings a repetitive and unhelpful response to the individual.

Continuous use of substances and its dependence are usually associated with reactivity to stimuli related to substances, and psychological flexibility can adapt a person's thinking and behavior in response to changes in environmental conditions (Naqvi, Asadpour, and Kesai, 2018). Psychological flexibility is one of the factors that causes people to adapt more and more to the needs and threats of life and is closely related to mental health (Jacks and Zelazo, 2015). Today, psychological flexibility has found a special place in the fields of developmental psychology, family psychology and mental health. Psychologists have defined psychological flexibility as a process, ability, or outcome of successful adaptation to threatening conditions, positive adaptation in response to adverse conditions (Moqtadai and Khosh-e-Kahlaq, 2014) or as the competence of people in facing disastrous events (Gal and Akil, 2021). Also, psychological flexibility as the ability to free oneself from the content of internal experiences (thoughts, emotions, memories, bodily sensations), accept the internal experience as it is, stay in touch with the present, have a sense of self, perform actions in accordance with one's values and create Committed action patterns have been defined in line with those goals (Ezdi and Abedi, 2014). Nazari and Taghipour, (2022) studied The Role of Emotion Regulation Strategies and Self-Compassion in Predicting Test

Anxiety (Including Case Study).

The purpose of psychological flexibility is that it gives a person the opportunity to face his current situation and evaluate it, and through such activities, make sure that he acts effectively in that situation (Hayes, 2019). In recent years, psychological flexibility has been increasingly identified as an important construct in creating a wide range of clinical forms of cognitive dysfunctions, including anxiety, depression, emotional distress, substance abuse, and other disorders (Ahman and Gross, 2019). In a research, it was shown that psychological flexibility indirectly reduces catastrophizing. According to Hayes, psychological flexibility means the ability to be fully in touch with the present moment as a conscious human being, as well as to change or continue behavior when doing so serves valuable goals (Hayes, Strossall, Bunting, Twohig, and Wilson , 2010). According to Usjee, Ojemba and Ahmed (2020), psychological flexibility includes three aspects:

1) Willingness to understand difficult situations in a controllable way

2) The ability to understand multiple explanations for other people's life events and behavior

and 3) the ability to generate and consider multiple and diverse solutions for difficult life situations and situations.

The first aspect refers to a person's ability to manage difficult situations. The second aspect helps a person to understand the needs, justifications and interests of others. The third aspect of psychological flexibility helps a person to identify and weigh different solutions. In fact, the third dimension helps a person to find more alternatives and more creative solutions for problems and challenges in his life (Nila, Holt and Dietzen, 2016). One of the prominent psychological intervention models in the treatment of substance abuse in recent years is mindfulness, which focuses on helping the patient to acquire the necessary coping skills to manage dangerous situations and treat accompanying psychological disorders (Tang, Tang and Posner, 2016). Mindfulness is defined as a mental preparation that focuses on experiences in the present without judgment (Segal and Teasdale, 2018). Mindfulness method due to paying attention to concepts such as acceptance, non-judgmental observation, confrontation and release can lead to the reduction of psychosomatic symptoms in drug users (Han, 2019). Mindfulness-based therapies have received attention in the field of substance abuse treatment in recent years (Bashrepour, Mohammadi, and Asadi, 2017). Considering the effectiveness of mindfulness in physical and psychological disorders, it seems to be effective in treating some symptoms of opioid addiction relapse (Sadaqtzadeh, Imani, and Shokri, 2017). Taghipour et al. (2022), studied iuithe effect of personal factors on increasing the productivity of low-level employees in the general welfare department of tehran municipality. One of the approaches that can play an effective role in mental fluidity mentioned above and improving individual conflicts is acceptance and commitment therapy (Tabibi, Mohammadkhani, Akbari and Abedi, 2016). The goal of acceptance and commitment therapy is to reduce experiential avoidance along with increasing psychological flexibility (Rosen, Curtis, & Potter, 2020). A person who has psychological flexibility does not avoid unwanted events and does not try to change and control them. Therefore, instead of confronting or avoiding unwanted events, he spends his energy on values and quality of life (Zare Bidaki and Jahangiri, 2017). Khodakhah Jeddi et al. (2016), studied The Analysis of Effect Colour Psychology on Environmental Graphic in Childeren Ward at Medical Centers.

Treatment based on acceptance and commitment has been useful in reducing the risky behaviors of drug users (Gonzalez-Menendez, Fernandez, Rodríguez, & Villagra, 2019). In addition to the mentioned treatment methods that lead to mental changes in people suffering from substance abuse (Imani, Karimi, Behbahani, and Omidi, 2016; Hamidi and Khairan, 2016; Hayes, Luman, and Bond 2016), maintaining the motivation for these changes is also The goals of psychological treatment are substance abuse (Mohammed Jaafari, 2016). Clients who accept their addiction as a disease often seem more motivated to participate in their treatment. Nezamivand et al.(2020), studied Compare Effectiveness of Teaching Rational Emotive Therapy on Flexability and Mental Health Women with Sexual High risk and Substance Abuse Behaviours(Including Case-Study).

For some clients, the concept of illness apparently means that they no longer need to feel guilty and ashamed, and as a result, a psychological barrier is removed from their way of quitting addiction. In other words, it can be said that disease theory is suitable for those who think they are genetically vulnerable to disease, or it is a justification

for those who have major bio-medical problems (Najafi, Omrani, and Jedi, 2019).Ghaed Amini Harouni et al. (2020), studied Effectiveness of Self-control and Aggression Reduction Skill Training of Male Juvenile Delinquents Correction and Rehabilitation Center (Including Case-Study).

Motivational interviewing is the method that has had the greatest effect in creating motivation to treat or change the behavior of people with opioid abuse (Prochaska, De Clement and Norcross, 1992). In fact, the main goal of this therapeutic approach is to remove the hesitation of clients and encourage them to express their concerns and personal reasons for changing addictive behavior (Beck, Wright, Newman, and Liss, 2010; translated by Gooderzi, 2011). Tarverdizadeh et al.(2021), studied Predicting students' academic achievement based on emotional intelligence, personality and demographic characteristics, attitudes toward education and career prospects through the mediation of academic resilience.

Considering the importance of the role of substance abuse in different emotional and psychological fields, on the one hand, and on the other hand, the increasing trend towards addictive substances and their diversity, this research examines the effect of three treatment approaches based on acceptance and commitment, mindfulness, and motivational interviewing on Volitional self-regulation in male substance abusers. Also, investigating which of these three approaches has a more effective role? Therefore, this research seeks to answer the question of whether the treatment approach based on acceptance and commitment, mindfulness, and motivational interviewing has an effect on the voluntary self-regulation of men with substance abuse under maintenance treatment.

Research method

This study was a semi-experimental type with a pre-test-post-test design with a control group. The statistical population of this study consisted of all men with opioid abuse disorder in Rabat Karim, from March 2019 to June 2014. The inclusion criteria were not having a psychotic disorder, not receiving psychotherapy at the same time, and the age range was 20 to 45 years. To select the sample group, the multi-stage cluster random sampling method was used in this way that first the city was divided into five geographic regions, north, south, center, east and west, and then four regions were randomly selected and from each region An addiction treatment clinic was selected by accident and then 30 people (more than the desired sample size in each group) were selected from each center and a total of 120 people were selected by simple random method.

And they were randomly placed in three treatment groups based on acceptance and commitment, mindfulness, motivational interviewing and a control group, and answered the Acceptance and Action Questionnaire - Second Edition by Bund et al. (2011). In the research implementation phase, before the intervention, all three groups were subjected to a pre-test and they were asked to complete the desired questionnaire. The duration of treatment sessions in each of the methods was 50 minutes, which was performed in a group and twice a week, in one of the substance abuse treatment centers from 12/4/2019 to 3/30/2014 for 10 sessions. The criteria for subjects to withdraw from the research is to receive treatment based on acceptance and commitment, mindfulness and motivational interviewing, at least two years before the research, non-continuous participation in intervention sessions (absence of more than 3 sessions), withdrawal from further treatment, and participation in the research. After completing the interventions, a post-test was taken from the three treated groups and the control group, and the obtained data were analyzed by multivariate and univariate analysis of covariance using SPSS software.

Research tool

Acceptance and Action Questionnaire - Second Edition: This questionnaire was created by Bund et al. in 2011. The original version was developed by Hayes et al. (2004) and consists of 32 questions that are scored on a 7-point Likert scale. The next versions have 16 questions and 9 questions, respectively, and the last version of this questionnaire has 10 questions that are graded on a 7-point Likert scale and was compiled by Bund et al. (2011). This questionnaire measures acceptance, experiential avoidance, and psychological inflexibility. This questionnaire has been standardized in different countries of the world.

In France, the results of factor analysis showed two factors. Its Cronbach's alpha was 0.82 in the general population and 0.76 in the patient group. Also, the correlation of acceptance and action questionnaire with Beck's depression and state anxiety questionnaire was significant. In Iran, the psychometric adequacy of this

questionnaire has been researched by Abbasi et al. (2013). The results indicated Cronbach's alpha of 0.89 and a significant relationship between the construct of acceptance and action with the level of depression, anxiety, mental health, and difficulty in emotional regulation (Abassi, Fatty, Molodi, and Zarrabi, 2013).

Introducing intervention programs

In the present study, three methods of mindfulness intervention, acceptance and commitment-based therapy and motivational interview were used, and the description of the interventions are as follows:

1- Mindfulness: Mindfulness was introduced in the 1970s by Kabat-Zinn after establishing a stress reduction clinic at the Massachusetts Medical Center (2003). Neurological and clinical researches have shown the effectiveness of mindfulness meditation exercises and their application in various fields as a powerful therapeutic tool (Amali, 2020). In this research, subjects were trained in mindfulness for 10 sessions of 50 minutes.

Table 1: Content of mindfulness training sessions

Session	Content	Technique	Goal
1	Introduction of participants and description of meetings	The technique of eating raisins and after 30 minutes of meditation, scanning the body and talking about the feelings caused by doing this meditation	Being in the moment and expanding the technique of eating raisins to other activities
2	Doing body scan meditation and discussing this experience	1- Discussion about the difference between thoughts and feelings 2- Doing meditation while sitting 3- Body scan	Identifying obstacles to practice and mindfulness program solutions for it
3	Awareness of the here and now	1- Seeing and listening exercise (in this exercise, the participants are asked to look and listen in a non-judgmental way for 2 minutes. 2- Sitting meditation and breathing with attention to the physical senses 3- Discussion about assignments Home of the three-minute breathing space exercise; this meditation has three stages: paying attention to the exercise at the moment of doing it, paying attention to breathing and paying attention to the body 4- Doing one of the exercises of mindfulness movements	Paying attention to the present
4	Body movements of the conscious mind	1- Sitting meditation with attention to breathing, body sounds and thoughts (also called four-dimensional sitting meditation) 2- Discussion about stress responses and a person's reaction to difficult situations, alternative attitudes and behaviors 3- Practicing mindful walking	Awareness of the senses and attention to the present

5	Body movements of the conscious mind	1- Performing sitting meditation 2- Presenting and performing mindful body movements 3- Tasks: Sitting meditation, three minutes of breathing space in an unpleasant event.	Mindfulness is a new daily activity
6	A combination of meditations	1- Three-minute breathing space exercise 2- Discussion about homework in groups of two 3- Presentation of an exercise entitled "Creation, thought, separate views" with the theme: the content of thoughts are mostly not real. 4- Accepting feelings as feelings	Mindfulness is a new daily activity
7	Four dimensional meditation	What is the best way to take care of myself? 1- Providing an exercise in which the participants determine which one of the events in their life is pleasant and which one is unpleasant. In addition to that, how can you make a plan that has enough pleasant events in it 2- Teaching acceptance without judgment	Awareness of what is in the moment comes to consciousness.
8	Mindfulness of psychological events	1- Focusing on thoughts, emotions and mental images 2- Focusing on illogical thoughts, focusing on emotions such as experiencing anxiety and focusing on uncomfortable mental images	Applying mindfulness in times of distress
9	Talking about the positive effects of mindfulness	1- Practicing the three-minute breathing space 2- Discussing ways to cope with obstacles to meditation 3- Asking questions about the whole session, such as did the participants achieve their expectations? Do they feel their personality has grown? Do they feel their coping skills have increased? And do they like to continue meditation practices?	Apply what has been learned so far.
10	Revision and review of the entire contents of the last	Review techniques and exercises	Encouraging one to follow them in daily life

	two months		

2- Treatment based on acceptance and commitment: this treatment approach contains six specific psychological processes:

Acceptance, failure, self as context, connection with the present of values (Hayes, 2004). In this research, the subjects received relevant interventions for ten sessions once a week and each session lasted 50 minutes based on the treatment plan of Harris (2013).

Table 2: The structure of treatment sessions based on acceptance and commitment for substance abusers

Session	Content	Technique	Target
1	Prepare to start	(Metaphors and exercises include aerial train, cleaning mud from a glass and walking in a swamp)	Realizing that until now the control of his problems has led him away from the goal
2	Dealing with the temptation to consume	(metaphors and facial exercises, cleaning mud from a glass and walking in a swamp)	Awareness of the costs that a person incurs due to drug use
3	Facing the system	Creative despair (metaphors of man in the pit, rock climbing, quicksand, etc.)	Instead of running away or controlling the problem, face it.
4	Controlling extreme emotions as the main issue	(Metaphors of man in the pit, lie detector, donut with cream, falling in love, self-esteem sandwich and child in the candy store, etc.)	Instead of running away or controlling the problem, face it.
5	Distinguishing individual from planning	(metaphors and exercises such as two computers, a box with equipment inside and a chess board)	Knowing the goals and plans
6	Barriers to emotional acceptance	(Metaphors and exercises such as the monster on the bus, Petros the Sacrifice, the sign on the mountain, the re-formulation of verbal contracts, the beggar at the door, the moody child, etc.)	Moving from emotional acceptance to behavior change
7	Values and goals	(Metaphors of mapping, the task of measuring values, etc.)	Helping to find values and distinguish them from goals
8	Values & Goals	(metaphors of jumping, match in the gas tank and providing practical training)	Accepting responsibility for change
9	Commitment	(Behavioral commitment and adherence to it, finishing unfinished work, etc.)	Expansion of emotional desire to real life
10	Summary and evaluation of the entire treatment	(climbing metaphor)	Keep your commitment.

3- Motivational interviewing: In this method, Miller and Rollnick (2009) introduced four motivational interviewing processes in the third edition of their book. These sequential processes that overlap with each other are:

Engage, focus, inspire change and plan for change. The interview takes place in two phases (Kazemi, Shojaei, and Soltani-Zadeh, 2016).

Table 3: Summary of motivational interviewing treatment program

Session	Content	Technique	Goal
1	empathy	Understanding what is going on in the patient's head. How does he interpret the world?	He put himself in the place of the reference to see the world from the point of view of the reference. Skilled and reflective listening
2	Bringing contradictions to the surface	The use of questions that show the discrepancy of references.	Showing or making the client aware of the ambivalence states
3	Bringing contradictions to the surface	Determine the important goals of the references	Realize that he prefers one over the other.
4	Slip on resistance)bypass resistance(	When dealing with resistance, don't fight back at all. Use techniques (questioning, confirmation, reflective listening, and summarizing).	What kind of resistance does the client show (discussing, interrupting, denying, ignoring, negating,...)
5	Slip on resistance)bypass resistance(	Reduce resistance to change. The therapist does not deal with client's resistance. Not arguing with references.	Reduce resistance to change. The therapist does not deal with client's resistance. Not arguing with references.
6	Slip on resistance)bypass resistance(	Going past these resistances with the intention that it will be dealt with later and it will be corrected.	Don't get carried away with resistance and its symptoms.
7	Strengthening the sense of self-efficacy	Helping clients to see change from within. The motivational interview system is collaborative. The therapist does not tell the client what to do.	Failure to take control of affairs by the therapist. Not having an authoritarian approach.
8	Strengthening the sense of self-efficacy	The client must understand that he is capable. Helping clients to decide for themselves which path to choose.	Using open questions about clients' sense of empowerment. (What do you think is a good step to start?
9	Strengthening the sense of self-efficacy	Overcoming previous obstacles can save the future. Showing the attributes of the	Reviewing previous successes What similar problems have you already overcome? The most difficult work he has done in the past?

		reference to himself. Talking about positive things leads to an increase in self-efficacy.	
10	Strengthen commitment to change	References are somewhat out of ambivalence. One must do something to keep the person from changing.	Commit yourself to continuous change, and don't get discouraged, don't back down.

Findings

Table 4 shows the descriptive findings of the research variables in the pre-test and post-test, including the mean and standard deviation.

Table 4. Descriptive indices of the research variables by experimental and control groups (n=71)

Variable	Status	group	Quantity	Average	The standard deviation
Voluntary self-regulation	Pre-exam	Acceptance and commitment	18	13/06	2/20
		Mindfulness	18	13/44	1/97
		Motivational interview	17	12/65	1/99
		Control	18	12/89	2/02
	After-exam	Acceptance and commitment	18	35/06	6/78
		Mindfulness	18	34/28	4/36
		Motivational interview	17	20/82	4/41
		Control	18	13/06	1/92

The normality of data distribution is one of the most important assumptions of all parametric tests such as covariance analysis. The Shapiro-Wilk test was used to check the normality of the distribution of the variables in the pre-test and post-test. The test statistic (0.94) is not significant, the results of this test indicate the normality of the distribution of the variables.

Table 5. Results of one-way covariance analysis of the difference between experimental and control groups in psychological flexibility

Source	sum of squares	Degrees of freedom	Mean of squares	F	level of significance	Size of the effect	Statistical power
pre-exam	918/11	1	918/11	107/46	0/001	0/62	1
Group membership	5671/19	3	1890/39	221/27	0/001	0/91	1

error	563/86	66	8/54

The results of one-way covariance analysis to examine the difference between groups in psychological flexibility show that the F statistic for psychological flexibility is significant ($p<0.01$). This finding shows that there is a significant difference between the experimental and control groups in this variable.

Table 6. Modified averages of groups in psychological flexibility

Group	modified mean	standard error
Acceptance and commitment	34/98	0/68
Mindfulness	33/50	0/69
Motivational interview	21/48	0/71
witness	13/28	0/68

Pairwise comparisons of experimental and control groups showed that there is no significant difference in psychological flexibility between acceptance and commitment and mindfulness groups. The average of the acceptance and commitment group is significantly higher than the average of the motivational interview group. Also, the average of the mindfulness group is significantly higher than the average of the motivational interview group. According to these findings, in response to the second research question, it can be said that the effectiveness of treatment based on acceptance and commitment ($p<0.001$) and mindfulness ($p<0.001$) on the psychological flexibility of men with substance abuse disorder. Under maintenance treatment is more than motivational interviewing. However, there is no difference between the two methods of acceptance and commitment and mindfulness in the extent of their effect on the psychological flexibility of people with substance abuse disorder under maintenance treatment.

Discussion and conclusion

The present study was conducted with the aim of comparing the effect of acceptance and commitment therapy, mindfulness and motivational interviewing on psychological flexibility in men with substance abuse disorder under maintenance treatment. The results obtained from one-way covariance analysis showed that the effect of treatment based on acceptance and commitment on the psychological flexibility of men with substance abuse under maintenance treatment is significant. This finding is consistent with the results of studies such as Qolizadeh et al. (2018), Hayes et al. (2010), Ohman and Gross (2019), Osji et al. Tabibi et al. (1396), Zare Bidaki and Jahangiri (1397) and Mohammadi (1395) are consistent.

In explaining this finding, it can be said that many of the problems, symptoms and manifestations of people with substance abuse, such as avoiding unpleasant thoughts and feelings and the temptation to use drugs, make this treatment useful in this disorder. The core processes of acceptance and commitment therapy teach the individual how to stop inhibiting thoughts and connect with their inner and private experiences. On the other hand, recent studies have found satisfactory results and logical reasons for using treatment based on acceptance and commitment to increase psychological flexibility (Hayes et al., 2018). The goal of psychological flexibility is the ability to free oneself from the content of internal experiences (thoughts, feelings, memories, bodily sensations), accept the internal experience as it is, stay in touch with the present, have a superior sense of self, act in accordance with one's values and create committed action patterns. It is in line with those goals (Yazdi and Abedi, 2014). A goal that is achieved by applying treatment techniques based on acceptance and commitment. Because in this therapeutic approach, the psychological awareness of the individual is added and the individual is taught to separate himself from mental experiences and reorganize them (Molvi et al., 2013). This is exactly what should happen in psychological flexibility. Psychological flexibility is someone who can easily reorganize and apply information in response to diverse situations (Jacks & Zelazo, 2015). People with substance abuse are unable to separate mental experiences from emotions and emotions, especially during the temptation to use (Oreki et al.,

2013).

Also, psychological flexibility is derived from therapeutic acceptance and commitment. In other words, psychological flexibility includes two processes of accepting experiences and value-oriented behaviors, which are mutually dependent (Hayes, 2019). However, the final processes of treatment based on acceptance and commitment (values and committed action) include behavior change and commitment and ultimately increase psychological flexibility. Therefore, we can conclude that treatment based on acceptance and commitment, along with other available treatment approaches, can be a suitable option for people with substance abuse. Another finding of the research indicates that the effect of mindfulness on psychological flexibility in men with substance abuse under maintenance treatment is significant. This finding is consistent with the research results of Imani et al. (2016), Nila et al. (2016), Kazemi et al. (2016), Beshrpour et al. In explaining this finding, it can be said that psychological flexibility focuses on the nature of learning in complex and poorly structured environments, and a flexible person is a person who can easily reorganize and apply knowledge in response to different situational demands. With mindfulness training, clients can get out of the framework of their current thoughts and behaviors and experience more options by using the stop technique and one-minute breathing space, and break the vicious circle that they used to get from the results of their behaviors and thoughts. Mindfulness is a positive ability that allows a person to think about alternatives and adapt himself to the new conditions of the surrounding environment, which is flexibility (Kazemi et al., 2016).

In fact, a mindful person uses a metacognitive way of processing and increases flexibility in response to threats. In mindfulness, when a person is faced with an emotional situation (such as the temptation to use drugs) or physical difficulty, by not judging the experiences, he becomes more aware of what he sees and is and what should be. This non-judgmental assessment of the environment and oneself is flexibility (Taghizadeh and Farmani, 2013), the higher the score, the more psychologically flexible a person is. Another finding of this research showed that motivational interviewing is effective in increasing the psychological flexibility of men with substance abuse disorder. This result is implicitly aligned with the results of researches such as Ahman and Gross (2019), Najafi et al. (2019), Saravani (2011). In explaining the effectiveness of motivational interviewing on psychological flexibility, it can be pointed out that in motivational interviewing, the therapist creates an environment by following the general principles that can lead to the client's change.

The therapist not confronting the client's resistance, not arguing with him and avoiding facing the patient during resistance, provides a non-judgmental atmosphere. Non-judgmental and non-prejudiced listening allows the therapist to understand the client's point of view. Psychological flexibility is also the ability to get rid of thoughts, feelings and memories, and accept the inner experience as it is and stay in touch with the present. Motivational interviewing gives a person the opportunity to face his current situation and evaluate it, and through such activities, he can make sure that he is working effectively in that situation. Also, psychological flexibility is a person's ability to inhibit a dominant but ineffective and inappropriate response and the ability to reach alternative responses that are more remote (Zong et al., 2016). In motivational interviewing, clients are helped to choose one of the ineffective answers and behaviors and the possible consequences of those behaviors in order to reach the desired goal further away. Among the limitations of the present study, we can mention the lack of a follow-up period to measure the durability of the treatment methods, the lack of control over the economic and social status of the sample, and the fact that the researcher and the therapist are the same which increases the possibility of bias in the results. Based on this, it is suggested to have a follow-up period in future studies to observe the effects of the treatment methods used in a long period of time. Also, the effect of psychological interventions used on women should be investigated.

Conflict of interest

The authors undertake that this research has no conflict of interest.

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