



University of Hormozgan

## Comparing the Effectiveness of CBT and Acceptance and Commitment Therapy on the Temptation of Patients Undergoing Addiction Treatment in Khorramshahr

Heibeh Ziaee<sup>1</sup>, Emad Yosefi<sup>2</sup>, Leila Khajehpoor<sup>3</sup>

1. Ma in Clinical Psychology, Qeshm Branch, Islamic Azad University, Qeshm, Iran

2. Assistant Professor, Department of Psychology, Qeshm Branch, Islamic Azad University, Qeshm, Iran,

[dr.emad.yosefi@gmail.com](mailto:dr.emad.yosefi@gmail.com)

3. Assistant Professor, Department of Psychology, Qeshm Branch, Islamic Azad University, Qeshm, Iran

### Article Info

#### Article type:

Research Article

#### Article history:

Received 12 Feb. 2023

Received in revised form 21 Mar.

2023

Accepted 1 Jun. 2023

Published online 01 June 2024

#### Keywords:

Cognitive-behavioral therapy,  
Acceptance commitment  
therapy,  
Substance temptation,  
Addiction

### ABSTRACT

**Objective:** The objective of the current investigation was to conduct a comparative analysis of the efficacy of cognitive behavioral therapy and acceptance and commitment-based therapy in managing the impulses experienced by individuals receiving treatment for addiction in Khorramshahr.

**Methods:** This study utilized a quasi-experimental approach employing a pre-test and post-test design with a control group. The study cohort for this investigation was comprised of 45 individuals undergoing drug cessation, who were chosen randomly from the pool of drug-dependent individuals seeking assistance at addiction treatment facilities in Khorramshahr. Subsequently, they were randomly allocated into three cohorts of 15 individuals each, with one group serving as the control (15 individuals) and two others receiving either acceptance and commitment therapy or cognitive-behavioral therapy. Data gathering was executed through the utilization of a questionnaire designed to assess drug use temptations post-treatment, as outlined by Federdi et al. (2008).

**Results:** The outcomes of the study demonstrated the effectiveness of CBT and ACT in diminishing the temptations experienced by individuals undergoing addiction treatment in Khorramshahr. Furthermore, the findings indicated no significant difference between ACT and CBT in reducing temptations among individuals undergoing addiction treatment in Khorramshahr.

**Conclusions:** In conclusion, it is recommended that both interventions be implemented to mitigate the temptations experienced by individuals undergoing addiction treatment.

**Cite this article:** Ziaee, H., Yosefi, E. & Khajehpoor, K. (2024). Comparing the effectiveness of CBT and ACT on the temptation of patients undergoing addiction treatment in Khorramshahr. *Iranian Evolutionary Educational Psychology Journal*, 6 (2), 107-122.

DOI: <https://doi.org/10.22034/6.2.107>



© The Author(s).

DOI: <https://doi.org/10.22034/6.2.107>

Publisher: University of Hormozgan.

## Introduction

Drug addiction, being a complex phenomenon, stands out as a paramount issue in contemporary society, resulting in adverse effects across various domains of life. The correlation between addiction and mental or psychological issues is intricate, lacking a definitive causal link (Ahadi et al., 2022). Substance abuse has historically engendered numerous societal challenges, encompassing public health crises, heightened mortality rates, familial and social disruptions, diminished educational and occupational prospects, and increased involvement in legal conflicts, establishing a detrimental cycle of substance misuse, perpetuating harm, and fostering intergenerational recurrence. When addiction encroaches upon an individual's life, behaviors beyond one's imagination ensue, leading to unimaginable circumstances (Nateghi & Sohrabi, 2021).

Of greater concern is the contemporary societal entanglement with industrial substances, notably psychoactive agents, presenting more severe withdrawal challenges compared to traditional substances. Therapists and psychologists affirm that drug abuse and dependency manifest as chronic, relapsing conditions characterized by periods of remission and recurrence, with a high likelihood of individuals resuming or relapsing into substance use following cessation, notably within the initial 90 days post-withdrawal. Domestic research has identified relapse rates ranging from 80 to 87 percent, with the highest incidence recorded within the first six months (Cesli et al., 2022).

Among the factors that may contribute to the relapse process in substance abuse cessation is the powerful allure of drug use. Various religious teachings highlight temptation as a detrimental affliction of the soul, countered by commendable thoughts and morally sound inspirations. The enticement of narcotics is deemed unfavorable, leading individuals in recovery towards negative contemplations and hindering their efforts to abstain from drug use (Sasani et al., 2021). Studies indicate that persistent temptations and uncontrollable cravings post-treatment play a significant role in relapse incidents due to their recurrent nature (Littlefield et al., 2021). It is often enticing to rationalize drug use to others, citing reasons such as a challenging day warranting an improved mood through substance intake, or the inability to attend an event unless drug consumption ceases, or seeking calmness during moments of anxiety through drugs. Expectations of enhanced mental and physical well-being further reinforce these temptations, leading many to indulge in alcohol

and drugs (Rahmati et al., 2021). Generally, alluring convictions surface during the treatment of substance abusers, manifesting as a strong yearning to relive the effects of psychoactive substances post-abstinence. This desire can emerge shortly after treatment initiation and persist for days or even months thereafter. Emotional states, cravings, and temptations are pivotal risk factors for addiction relapse during treatment and post-recovery. Notably, temptation emerges as the primary predictor of relapse, surpassing other factors like comorbid anxiety and depression (Shimumera et al., 2022), emphasizing the necessity for educational interventions to address and mitigate patients' temptation levels within addiction treatment protocols.

It is of significance to acknowledge that to date, a specific remedy for this condition is not available. Nevertheless, there exist diverse non-pharmacological addiction paradigms encompassing individual, group, familial, and self-help interventions. One of the treatments with confirmed efficacy in drug addiction therapy is cognitive-behavioral therapy (Magill et al., 2019). The cognitive-behavioral standpoint highlights the significance of beliefs, cognitions, schemas, and information processing systems in the genesis of psychological disorders. This approach amalgamates cognitive reconstruction from cognitive therapy with behavior modification techniques from behavioral therapy to regulate and rectify the negative emotions experienced by addiction patients grappling with myriad thoughts (David et al., 2018). The cognitive-behavioral interpretation of addiction and its relapse focuses on cognitive deficiencies and distortions in individuals, coupled with inadequate behavioral skills to cope with internal and external pressures and attain a sense of happiness and joy (or escape from negative emotional states). This model comprises a range of cognitive and behavioral interventions to identify and rectify erroneous and ineffective cognitions in an addicted individual (and their social circle), as well as deficiencies in behavioral repertoires and social competencies. It aims to fortify them in a manner that reduces the reliance on substance abuse during perilous or crucial circumstances (Michel et al., 2019). Conversely, the therapies for individuals dependent on substances are the third-wave treatments (commitment and acceptance-based treatments), recognized as postmodern psychotherapies, which advocate for placing cognitions and emotions within a contextual framework. They regard phenomena as a complex of concepts (Hemet et al., 2018). Contrary to corrective approaches like cognitive-behavioral therapy that target dysfunctional cognitions and beliefs to amend emotions and behaviors, these treatments instruct patients to embrace their emotions initially and engage in

the present moment to foster greater adaptability. Consequently, these interventions blend conventional cognitive-behavioral strategies with mindfulness practices (Farmer & Kapman, 2016). The commitment and acceptance-based treatment consist of two cognitive-behavioral components centered on mindfulness, action, and experience in the present moment, educating individuals to accept their feelings and emotions, refrain from experiential avoidance, and confront cravings more effectively in the present instant. Thus, the current study endeavors to compare the efficacy of ACT and CBT in managing cravings among addiction treatment recipients in Khorramshahr city, aiming to discern potential disparities between the two therapeutic modalities in influencing the research variables.

### **Material and Methods**

The present study constitutes an applied research endeavor with a specific purpose. In terms of research methodology, it adopts a quasi-experimental approach, utilizing a pre-test and post-test design with a control group. The statistical population for this study comprises individuals seeking treatment for drug addiction at Khorramshahr's addiction treatment centers in 2022. The study sample includes 45 drug addicts selected from those seeking treatment in Khorramshahr city, randomly assigned to three groups (a control group and two experimental groups). One experimental group received ACT, another group received CBT, while the control group did not undergo any specific intervention.

Inclusion criteria for the study encompass complete satisfaction with training participation, minimal literacy, and a decision to quit drug use. Conversely, exclusion criteria involve failure to provide comprehensive answers to questions, unwillingness to participate, or engaging in other interventions during the research. The research employs a questionnaire developed by Federdi et al. (2008) to measure drug use temptation post-rehabilitation. This questionnaire consists of 20 items assessing thoughts, fantasies, and the urge to use drugs after quitting. Scoring is based on a 6-point Likert scale, ranging from 'completely true' to 'not true at all'. Analysis of questionnaire scores involves aggregating individual responses and referring to a predetermined table for interpretation. The total score for each questionnaire indicates the level of drug temptation post-rehabilitation: scores between 20 and 40 denote low temptation, 40 to 60 indicate moderate temptation, while scores exceeding 60 suggest high temptation.

**Reliability and Validity:** The reliability of this questionnaire was established through the calculation of Cronbach's alpha coefficient at the high value of 0.94. To assess the validity of the situational confidence questionnaire, previous studies by Annis and Graham (1988) indicated significant correlations ( $p = 0.001$ ,  $r = 0.53$ ), as well as correlations with psychological craving (Rob et al., 2004) ( $p = 0.001$ ,  $r = 0.48$ ), positive emotions ( $p = 0.001$ ,  $r = -0.32$ ), and negative emotions ( $p = 0.001$ ,  $r = 0.55$ ) according to Watson et al. (1988). The narrator of this questionnaire was identified as Salehi Federdi et al. (2009). In this current investigation, the internal consistency of the scale was determined to be 0.83 using the Cronbach's alpha method.

**Research implementation:** The research methodology involved obtaining official authorization from the university prior to visiting addiction treatment facilities in Khorramshahr city. Following necessary approvals, the researcher defined the target population and selected the statistical sample comprising experimental and control groups. The classroom location within the addiction treatment center was designated, and pre-tests were conducted on both groups using the research questionnaires. Subsequently, the training sessions were initiated, with participants being motivated through verbal encouragement and clear goal setting. A post-test was administered upon completion of the training. In this study, explicit written and verbal consent was obtained from all participants. Upon data collection, statistical analysis was carried out using SPSS-26 software.

### **Treatment Procedures Intervention Approach**

**Cognitive Behavioral Therapy Sessions:** The experimental group underwent a 10-session CBT based on Hazlett-Stevens's (2008) approach, each session lasting for an hour and a half. Conversely, the control group did not receive any form of training. A concise overview of the sessions is presented in table 1.

**Table 1.** Summary of CBT sessions

Session	Aim	Content
1	Getting to know anxiety, correcting misconceptions.	Psychological education, normalization of worry
2	Identify areas of concern	The ability to control thoughts
3	Attention to the correction of thoughts	Paying attention to awareness, identifying areas of concern, anxiety-provoking thoughts and challenges with spontaneous thoughts.
4	Solving communication problems	Teaching courage and communication skills, identifying, challenging spontaneous thoughts, creating alternative interpretations and predictions.
5	Paying attention to and correcting thoughts and cognitive errors and creating new strategies	Reward planning, activity scheduling to monitor the feeling of pleasure, control anxiety and resolve conflicts.
6	Modifying thoughts, discovering the underpinnings of dysfunctional thoughts	Identifying, challenging spontaneous thoughts, creating alternative interpretations and predictions, using acceptance and metacognitive strategies.
7	Discovering everyday problems and how to cope or adapt to them	Examining the sources of stress in the patient's life, generalizing awareness to new situations, identifying basic ineffective assumptions.
8	Reducing anxiety through exposure	Teaching problem solving skills, identifying fundamental inefficient assumptions, distinguishing between probability of occurrence, possibility of occurrence and reasonableness.
9	Discovering the foundation of ineffective thoughts, facing and controlling negative emotions	Facing the avoided situations, identifying and challenging fundamental ineffective assumptions, predicting the worst situation.
10	Paying attention to and correcting the foundation of ineffective thoughts	Identifying fundamental inefficient assumptions, creating a new perspective, explaining the relationship between worry and schemas.

**Acceptance and Commitment Treatment:** For the second experimental group, a total of 8 group sessions, each lasting an hour and a half, were conducted following Hayes et al.'s (2006) ACT method. These sessions were held weekly by the researcher overseeing the study. Participants completed relevant questionnaires at the onset of the initial session. Throughout the educational and therapeutic sessions, all members of the experimental group participated without any exclusions. The session summaries are outlined in table 2.

**Table 2.** Summary of ACT sessions

Session	Contents
<b>1</b>	Getting to know the members - raising the issue of confidentiality - talking about the goals and type of treatment - talking about identifying the mind (thoughts, feelings, physical symptoms, desires and memories) - giving homework - performing the pre-test.
<b>2</b>	Review of reaction to previous session Review of assignment - Therapist helped members recognize all the things they do to reduce or avoid internal events and anxiety and measure the effectiveness of these strategies (creative helplessness). A metaphor was used for this. (Falling in a well and the only thing there is a shovel, so people in this situation start digging to save themselves from the well, and this is similar to what people do for their inner event, thoughts, feelings, physical symptoms, etc. , for example, things they do to eliminate anxiety, such as talking to themselves, avoiding situations, etc., but the task of identifying themselves is increasing day by day.
<b>3</b>	Reviewing the reaction to the previous session Reviewing the task - as the members reached creative helplessness, introducing control as an issue in this session, metaphor was also used. It was explained about the outer and inner world and its rules. The metaphor of a child and the metaphor of a polygraph (sensitive device) were also mentioned. These metaphors mean the methods of control that we use for internal events, and this example is a child who fights to get something, and satisfying his need in this way causes him to learn in this way. And louder each time. Assignment Identify all tasks that are used as controls.
<b>4</b>	Reviewing the reaction to the previous session Reviewing the task - Discussing acceptance / experiential desire, pure suffering and impure suffering were explained to the members. Explanation about desire, an alternative to control, by expressing the metaphor of two scales in order to increase the degree of their desire towards them instead of reducing the degree of internal events, i.e. thoughts, emotions, etc. - Giving the desire assignment for the next meeting.
<b>5</b>	Reviewing the reaction to the previous meeting, reviewing the members' assignments. From the exercises and metaphors in this session to show that these are only thoughts, feelings, memories, desires and physical symptoms and should not be considered as reality, the metaphor of a chess board was used, with its fault, it means that the client considers himself as a board. which only has the task of keeping internal events, not fighting with thoughts, feelings, etc.), the metaphor of the bus was also expressed for the same purpose. The concept of selves is expressed, substituting the self as the context or transcendental sense of the self, instead of the conceptualized self, that is, the client can easily experience unpleasant internal events in the present and be able to separate himself from reactions, memories and unpleasant thoughts. ). Expression of behavioral commitment (commitment that 100% clients can keep).
<b>6</b>	Review the contents of the previous session. The assignments were reviewed. To create mindfulness in the present tense, an exercise was done as a self-observer. For more practice to look at thoughts and feelings as well as moving towards values, the metaphor of the train and the metaphor of beggar were used. These metaphors deal with the fact that all the thoughts, feelings and memories that appear and we don't like them are like beggars. They keep entering our party, if we only pay attention to him, it makes us lose our purpose, which is the party, that is, we only seek to bring out our inner event rather than dealing with the values of life. The task of measuring values and specifying values.
<b>7</b>	The ambiguities about the previous meeting have been resolved. The assignment was checked. After identifying the values of the members, the goals and actions that will lead the members in line with these values were determined to lead the members to commit to the tree-planting metaphor. The bubble metaphor was also mentioned. As an assignment, the value description form was given to the clients. And they were asked to write down their short-term and long-term goals and also check the obstacles and they were asked to commit to them.
<b>8</b>	All the materials and metaphors of the previous meetings were reviewed by the clients. The assignments of all members were reviewed. Changing the behavior of members in line with the values of creating, accomplishing several goals by members. End of meetings. At the end of the post-test

## Results

In Table 3, the descriptive statistics related to the mean and standard deviation of the temptation variable scores separately for participants in the control, CBT and ACT groups are shown in two measurement stages (pre-test and post-test).

**Table 3.** Statistical description of temptation scores in two stages of measurement by group

Variable	Group	Phase	Mean	SD
Temptation	Control	Pretest	55.67	6.997
		Posttest	55.93	6.296
	CBT	Pretest	55.13	7.520
		Posttest	51.67	6.726
	ACT	Pretest	56.40	8.087
		Posttest	52.07	6.943

**Hypothesis 1:** CBT has a significant effect on the temptation of patients undergoing addiction treatment in Khorramshahr city. In order to investigate the effectiveness of CBT on the temptation of patients undergoing addiction treatment in Khorramshahr city, univariate analysis of covariance test was used. The results of this test are presented in table 4.

**Table 4.** The results of covariance analysis to compare temptation in the control group and CBT group

Source	SS	DF	MS	F	P	Effect size
Pretest	1094.256	1	1094.256	314.270	0.001	0.921
Group	108.578	1	108.578	31.184	0.001	0.536
Error	94.011	27	3.482			
Total	1324.800	29				

Table 4 shows the results of analysis of covariance to compare the temptation scores in the control and CBT groups in the post-test phase. The obtained F value is equal to 31.184 and its significance level is less than 0.01 ( $p < 0.01$ ). Also, the effect size shows a favorable value. Therefore, the null hypothesis is rejected and the research hypothesis is confirmed. Based on this and considering the lower average scores of the experimental group in the post-test, it can be concluded that the CBT was effective and reduced the temptation of the patients undergoing addiction treatment in Khorramshahr.

**Hypothesis 2:** ACT has a significant effect on the temptation of patients undergoing addiction treatment in Khorramshahr. In order to investigate the effectiveness of ACT on the temptation of

patients undergoing addiction treatment in Khorramshahr city, univariate analysis of covariance test was used. The results of this test are presented in table 5.

**Table 5.** The results of covariance analysis to compare temptation in the control and ACT groups

Source	SS	DF	MS	F	P	Effect size
Pretest	1142.224	1	1142.224	351.886	0.001	0.929
Group	150.558	1	150.558	46.383	0.001	0.632
Error	87.642	27	3.246			
Total	1342	29				

The results of covariance analysis to compare the temptation scores in the control and CBT groups are shown in the post-test stage. The obtained F value is equal to 46.383 and its significance level is less than 0.01 ( $p < 0.01$ ). Also, the effect size shows a favorable value, so the null hypothesis is rejected and the research hypothesis is confirmed. Based on this and considering the lower average scores of the experimental group in the post-test, it can be concluded that ACT is effective and has reduced the temptation of patients undergoing addiction treatment in Khorramshahr.

**Hypothesis 3:** CBT and ACT have a significant difference in the level of effectiveness on the temptation of patients undergoing addiction treatment in Khorramshahr. In order to compare the effectiveness of cognitive behavioral therapy group and therapy based on acceptance and commitment on reducing the temptation of patients undergoing addiction treatment in Khorramshahr city, univariate analysis of covariance test was used. The assumptions of this statistical test are confirmed and its results are provided in table 6.

**Table 6.** The results of covariance analysis to compare temptation in the ACT and CBT groups

Source	SS	DF	MS	F	P	Effect size
Pretest	1242.120	1	1242.120	507.012	0.001	0.949
Group	3.448	1	3.448	1.407	0.246	0.050
Error	66.147	27	2.450			
Total	1309.467	29				

In Table 6, the results of covariance analysis for comparing temptation scores in ACT and CBT groups are shown in the post-test stage. The obtained F value is equal to 1.407 and its significance level is greater than 0.05 ( $P < 0.05$ ). Considering the non-significance of the obtained statistics, it is concluded that there is no difference between the effectiveness of ACT and CBT groups in reducing the temptation of patients undergoing addiction treatment in Khorramshahr city.

## Discussion

The first hypothesis posits that the cognitive behavioral therapy group exerts a notable impact on the temptation experienced by individuals undergoing addiction treatment in the city of Khorramshahr. The effectiveness of CBT in diminishing the temptation among patients receiving addiction treatment in Khorramshahr is evident from the findings. Studies indicate that this outcome aligns closely with the findings of prior research conducted by Andoz et al. (2021), Annabet (2012), and Furman and Herbert (2021).

In elucidating the substantial influence of CBT on the temptation faced by individuals undergoing addiction treatment in Khorramshahr, it is essential to note that within this therapeutic framework, the therapist initially elucidated the impact of beliefs on behavior for group members. Recognition of the cognitive determinants of behavior and emotions motivated individuals to identify and address thoughts contributing to their drug use tendencies. Through a process of cognitive restructuring guided by the therapist, dysfunctional beliefs were identified, evaluated for their alignment with reality, and replaced with more adaptive thoughts. This gradual transformation of cognitive patterns reduced negative impulses and bolstered positive thinking, thereby enhancing individuals' ability to resist drug cravings and maintain abstinence.

ACT is hypothesized to have a substantial impact on the temptation experienced by individuals receiving addiction treatment in Khorramshahr, according to Hypothesis 2. It has been observed in the findings section that this form of treatment has proven to be efficacious in reducing patients' temptation levels during addiction treatment in the aforementioned city. In relation to the notable influence of acceptance and commitment-based treatment on the temptation of addiction patients in Khorramshahr, research inquiries have indicated a consistency with prior studies. Notably, the outcomes align closely with the findings reported by Mardani (2016); Arjamand Qajur et al., (2019), and Bakshipour (2018) have also corroborated these results.

Elucidating the significant impact of ACT on patients' temptation levels during addiction treatment in Khorramshahr involves emphasizing the acceptance of various life challenges without judgment. This approach, as proposed by Mardani (2015), revolves around accepting unchangeable aspects while striving to change what is within one's control for better outcomes.

Patients are initially introduced to this principle through diverse examples to grasp its underlying philosophy, which is then applied to their struggles with drug temptation. Understanding that post-withdrawal temptation is a natural phase, individuals are encouraged to acknowledge and subsequently overcome these urges. Failure to accept temptation and opting for its complete eradication are deemed futile, as total elimination is unattainable. Such ineffective attempts not only deplete one's energy but also increase the likelihood of relapse. Conversely, those who accept temptation as a normal part of the recovery journey are better equipped to confront and manage it effectively. This mindset fosters a higher likelihood of successfully navigating through moments of temptation.

Hypothesis 3 posits a significant variance in the efficacy levels between CBT and ACT concerning their impact on the temptation experienced by addiction patients undergoing treatment in Khorramshahr. As delineated in the findings segment, the efficacy of treatment rooted in acceptance and commitment vis-à-vis cognitive behavioral therapy group in diminishing patients' temptation during addiction treatment in Khorramshahr exhibited no variance. The insignificance of cognitive-behavioral group therapy and acceptance and commitment-based treatment on patients' temptation during addiction treatment, as indicated by research inquiries, aligns predominantly with the outcomes of Ghorbani et al. (2013) and Kong and Kim (2021).

Elucidating the lack of disparity in the impact of cognitive-behavioral group therapy and acceptance and commitment-based treatment on patients' temptation during addiction treatment, it can be posited that both therapeutic modalities contributed significantly to reducing temptation. Nevertheless, there existed no notable distinction between the two approaches concerning efficacy. The cognitive-behavioral methodology, emphasizing cognitive restructuring and behavioral adjustments, served as the foundation for temptation reduction in individuals undergoing addiction treatment, thereby fostering their perseverance in drug abstinence. Conversely, acceptance and commitment-based treatment, by fortifying the acknowledgment of temptation as an inherent part of the recovery journey, enhanced coping mechanisms among participants. Both strategies augmented members' capacity to manage temptation by altering the cognitive framework, reshaping attitudes towards addictive substances, and modifying group behavior. The rationale behind the absence of a significant variance in temptation reduction between the two

methodologies lies in their shared objective of enhancing cognitive processes and individuals' perspectives on the issue at hand, thereby facilitating effective coping mechanisms.

### **Research Limitations**

1. The confinement of the aforementioned study to Khorramshahr city restricts the extrapolation of findings to diverse settings and cultural contexts.
2. The exclusion of women undergoing addiction treatment, with a focus solely on men in this study, poses a limitation that obscures the influence of gender on treatment efficacy.
3. This research adopted a semi-experimental design, which inherently lacks the ability to regulate all confounding variables, potentially compromising the internal validity of the research outcomes.

### **Research recommendations**

Future research should prioritize the examination of the following areas:

1. A comparative analysis of the efficacy of group therapy rooted in cognitive-behavioral therapy versus therapy grounded in acceptance and commitment, regarding the susceptibility of individuals receiving addiction treatment to external influences within diverse scenarios and cultural milieus.
2. An evaluation of the effectiveness of group therapy derived from cognitive-behavioral therapy and therapy based on acceptance and commitment, specifically on the susceptibility of female patients undergoing addiction treatment to external pressures.
3. An assessment of the effectiveness of group therapy utilizing cognitive-behavioral therapy and therapy based on acceptance and commitment, particularly on the susceptibility of male and female patients undergoing addiction treatment to external influences, with a subsequent comparison of outcomes based on gender.
4. An investigation into the effectiveness of group therapy employing cognitive-behavioral therapy versus therapy based on acceptance and commitment, focusing on the propensity of drug-dependent patients to discontinue substance use.
5. A comparison of the impact of group therapy utilizing cognitive-behavioral therapy and therapy based on acceptance and commitment on the propensity of drug-dependent patients to cease substance use, as well as the susceptibility of individuals undergoing addiction treatment to external pressures.

In practical terms, it is recommended to establish active counseling facilities within addiction treatment centers that incorporate cognitive-behavioral group therapy and therapy based on acceptance and commitment. This initiative aims to diminish the susceptibility of individuals undergoing addiction treatment to external pressures, thereby enhancing their ability to control their inclination towards drug use. Undoubtedly, the implementation of these integrated approaches, by reducing the inclination for drug relapse, can significantly enhance the psychological well-being of the target population, facilitating their progression towards drug abstinence. Furthermore, it is advised that active counseling centers at the community level leverage group therapy rooted in cognitive-behavioral therapy or therapy based on acceptance and commitment when assisting individuals struggling with drug addiction. The utilization of these methodologies has proven effective in reducing the vulnerability of this demographic to relapse, ensuring their safety and mental well-being as they persist in their journey towards recovery.

#### **Data availability statement**

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

#### **Ethics statement**

The studies involving human participants were reviewed and approved by ethics committee of Islamic Azad University. The patients/participants provided their written informed consent to participate in this study.

#### **Author contributions**

All authors contributed to the study conception and design, material preparation, data collection and analysis. All authors contributed to the article and approved the submitted version.

#### **Funding**

The authors did (not) receive support from any organization for the submitted work.

#### **Conflict of interest**

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

## References

- Ahadi, R., Mohammadi, S. & Toghranegar, H. (2022). Social factors affecting industrial drug addiction (case study: Zanjan city). *Legal Research* 21 (49), 315-349.
- Anabat, A. (2012). The effectiveness of cognitive-behavioral therapy (CBT) in changing the attitude of drug addicts (opiates). Master's thesis of Semnan University, Faculty of Psychology and Educational Sciences.
- Andoz, Z. (2021). Comparison of the efficiency and effectiveness of the method of "confrontation and prevention of response" with the method of "dangerous thought reduction" in the treatment of obsessive-compulsive disorder, master's thesis, unpublished, Faculty of Educational Sciences and Psychology, Ferdowsi University of Mashhad.
- Arjmand Qajur, K., Mahmoud Alilo, M., Khanjani, Z. & Bakshipour, A. (2018). The effectiveness of treatment based on acceptance and commitment on the temptation to use and the possibility of slipping in methamphetamine dependent patients. *Health Psychology*, 8(4 (series 32)), 41-56.
- Ceceli, A. O., Bradberry, C. W., & Goldstein, R. Z. (2022). The neurobiology of drug addiction: cross-species insights into the dysfunction and recovery of the prefrontal cortex. *Neuropsychopharmacology*, 47(1), 276-291.
- David, D., Cristea, I., & Hofmann, S. G. (2018). Why cognitive behavioral therapy is the current gold standard of psychotherapy. *Frontiers in psychiatry*, 4.
- Farmer, R. F., & Chapman, A. L. (2016). *Behavioral interventions in cognitive behavior therapy: Practical guidance for putting theory into action*. American Psychological Association.
- Forman, E. M., & Herbert, J. D. (2021). New directions in cognitive behavior therapy: Acceptance-based therapies. *General principles and empirically supported techniques of cognitive behavior therapy*, 77-101.
- Ghorbani, T., Mohammadkhani, S. & Sarami, G. (2011). Comparison of effectiveness of cognitive-behavioral therapy group based on coping skills and methadone maintenance treatment in improving emotion regulation strategies and relapse prevention. *Addiction Research*, 5(17), 59-74.

- Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: Model, processes and outcomes. *Behaviour research and therapy*, 44(1), 1-25.
- Hazlett-Stevens, H. (2008). Psychological approaches to generalized anxiety disorder: A clinician's guide to assessment and treatment. New York: NY.
- Hemmat, A., Hemmat, J., Pirzeh, R., & Dadashi, M. (2018). The Effectiveness of Group Therapy Based on Acceptance and Commitment to Reduce Obsessive-Compulsive Use of Substance, Anxiety and Depression of Addicts under Methadone Treatment. *Journal of Advances in Medical and Biomedical Research*, 26(117), 109-125.
- Kang, K., & Kim, S. (2021). The Efficacy of Motivational Interviewing with Cognitive Behavioral Treatment on Behavior Changes in Heavy Drinkers. *Sustainability*, 13(3), 1338.
- Kazemini, T. & Abdakhodaei, M. (2012). Studying the effectiveness of group therapy based on life enrichment and enhancement program on improving addiction treatment indicators in substance dependent men. Scientific-Research Journal of the Faculty of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences and Health Services, Volume 23, Number 82, Fall 2013, pp. 63-70.
- Littlefield, A. K., King, K. M., Acuff, S. F., Foster, K. T., Murphy, J. G., & Witkiewitz, K. (2021). Limitations of cross-lagged panel models in addiction research and alternative models: An empirical example using project MATCH. *Psychology of Addictive Behaviors*.
- Magill, M., Ray, L., Kiluk, B., Hoadley, A., Bernstein, M., Tonigan, J. S., & Carroll, K. (2019). A meta-analysis of cognitive-behavioral therapy for alcohol or other drug use disorders: Treatment efficacy by contrast condition. *Journal of consulting and clinical psychology*, 87(12), 1093.
- Mardani Junqani, F. (2016). Investigating the effectiveness of the intervention based on acceptance and commitment on the tolerance of the disturbance of the negative mood experience and the symptoms of nicotine dependence. Master's thesis, clinical psychology, unpublished.
- Mitchell, L. J., Bisdounis, L., Balleisio, A., Omlin, X., & Kyle, S. D. (2019). The impact of cognitive behavioural therapy for insomnia on objective sleep parameters: A meta-analysis and systematic review. *Sleep medicine reviews*, 47, 90-102.

- Mohammadi, L., Salehzadeh Abargoi, M. & Nasiriyani, M. (2014). The effectiveness of acceptance and commitment-based therapy on cognitive regulation of emotion in methadone-treated men. Volume 23, Number 9. Pages 853-861.
- Nateghi, M. & Sohrabi, F. (2021). The effectiveness of cognitive behavioral therapy on the impulsivity of adolescents with drug addiction. *New ideas of psychology quarterly*. 11 (15), 1-8.
- Rahmati, Z., Khodabakhshi Kolayi, A., Jahangiri, M. (2021). Investigating the moderating role of self-compassion in the relationship between stress resilience and substance use temptation in substance-dependent men. *Scientific Quarterly Journal of Addiction Research*. 15 (60), 253-276.
- Salehi Federdi, J., Barerfan, Z. & Amin Yazdi, S. (2010). The effectiveness of attention control training on reducing the distraction of attention to substances and improving the therapeutic indicators of drug addicts undergoing detoxification treatment. *Educational and Psychological Studies*, 11(2), 29-56.
- Sami Fard, M. (2013). Effectiveness of Cognitive Bias Modulation-Interpretation Program (CBM-I) on reducing negative interpretation bias against failure and substance abuse indicators. Master's thesis.
- Sassani, B., Moazzami Gudarzi, S. & Ebrahimi, M. (2021). The effect of transcranial electrical stimulation on the amount of drug abuse temptation in adult men with substance abuse disorder in Safadasht city. *Cognitive Psychology* 24 (8), 59-69.
- Shimomura, K., Kato, A., & Morita, K. (2022). " Rigid reduced successor representation as a potential mechanism for addiction": Erratum.