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Effectiveness of mindfulness-based cognitive therapy on rumination, distress tolerance, and negative hyperemotional dimensions among individuals with substance abuse

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Abstract

Introduction: The current study aimed to investigate the effectiveness of Mindfulness-Based Cognitive Therapy (MBCT) on rumination, distress tolerance, and negative hyperemotional dimensions among individuals with substance abuse.

Materials and Methods: The statistical population included all individuals with substance abuse who were referred to addiction treatment centers in Mashhad, Iran, in 2023. Three addiction treatment centers were selected. Using the convenience sampling method and based on the scores of the Repetitive Thinking (Rumination) Questionnaire, Distress Tolerance Scale, and Hyperemotional Dimensions Scale in the pre-test, 40 individuals with substance abuse were selected and were randomly assigned to two groups of 20 each. The experimental group received MBCT, while the control group received no treatment. We analyzed the data using Multivariate Analysis of Variance (MANOVA) with repeated measurements.

Results: The findings indicated that MBCT changed the scores of rumination, distress tolerance, and negative hyperemotional dimensions significantly in the post-test, and 1-month follow-up stages in the experimental group compared to the control group ($P< 0.05$).

Conclusion: Therefore, mindfulness-based cognitive therapy is effective to reduce rumination and negative hyperemotional dimensions, and increase distress tolerance among individuals with substance abuse.

Keywords: Distress tolerance, Emotion, Mindfulness-based cognitive therapy, Rumination, Substance abuse

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Introduction

Substance abuse is a major preventable cause of death worldwide. It is estimated that substance abuse, including substances and alcohol, accounts for about 5% of the global burden of disease and is one of the leading risk

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factors for physical and mental illness (1). In Iran, the rate of substance abuse disorders has doubled approximately every 12 years, with an annual increase of 0.8 in the affected population (2). One of the most significant problems faced by these individuals is substance-related psychological disorders (3). In recent years, numerous studies have examined the impact of individuals' substance abuse tendencies on psychological and emotional factors (4). Among the disorders that appear to be associated with substance abuse are rumination, distress tolerance, and negative hyperemotional dimensions (5). Over the past two decades, rumination has attracted the attention of researchers and psychopathologists. It has been conceptualized as a general cognitive tendency for repetitive thinking about one or more negative topics that are difficult to control (6).

Rumination is automatic, transient, and negative beliefs about oneself that arise in the mind without conscious effort or choice and lead to maladaptive emotional responses (7). In other words, this multidimensional construct encompasses repetitive and excessive thoughts about recent problems, past unpleasant events, and worries about future unpleasant events (8).

Distress tolerance is another disorder associated with substance abuse tendencies (9). It refers to the capacity to experience and withstand distress. From a theoretical perspective, distress tolerance affects and is affected by processes related to self-regulation, including attention and cognitive appraisals of uncomfortable emotional or physical states (10). Negative hyperemotional dimensions are another disorder associated with substance abuse tendencies in individuals (11). Negative hyper-emotions are a set of emotions and feelings that individuals use to describe themselves (12). Hyper-emotions include emotional and motivational aspects and are also considered a trait. Research results show that, more generally, hyperemotional dimensions are associated with addictive behaviors in at least two ways: through the consequences of behavior and the antecedents of behavior (13). In support of the first link, there is evidence of a psychological link between reward/punishment and emotions, such that their neural substrates overlap to some extent (14).

Mindfulness-Based Cognitive Therapy (MBCT) is an effective treatment for the psychological challenges associated with substance abuse disorders (15). This therapeutic approach draws upon cognitive and behavioral principles to effectively address addiction-related thoughts, behaviors, and patterns (16). Extensive research has confirmed the effectiveness of MBCT in addressing addiction. The effectiveness of this approach is that the therapist helps clients identify the thoughts that motivate a positive attitude toward substance abuse and change irrational thoughts and false beliefs (17). Mindfulness is characterized by a receptive and non-judgmental awareness of the present moment. Its roots can be traced back to ancient Buddhist texts, and it serves as a central tenet of contemplative traditions, particularly Buddhism (18). The primary goal of MBCT is to guide individuals toward self-awareness of the impacts of re-activated habitual thinking patterns. This is achieved through a combination of self-monitoring: Cultivating a heightened awareness of one's thoughts, emotions, and sensations in the present moment (19). Establishing mindful presence: Developing and maintaining mindful awareness, allowing thoughts and emotions to arise and pass without judgment or attachment (20). It is worth noting that various studies have confirmed the effectiveness of mindfulness-based cognitive therapy in increasing distress tolerance (21), emotional cognitive regulation (22), and rumination (23).

Therefore, to address the research gap, the need for a study to examine the effectiveness of MBCT on rumination, distress tolerance, and negative hyperemotional dimensions among individuals with substance abuse has become even more apparent.

Materials and Methods

The statistical population included all men with substance abuse who visited addiction treatment centers in Mashhad in 2023. Three addiction treatment centers were selected: Dr. Zeyn-ol-Abedin, Rouhbakhsh, and Ebadi. The sample size was calculated using Cochran's formula, considering that the type of intervention was group therapy, with 20 participants per group. From the statistical population, 40 men with substance abuse who met the inclusion and exclusion criteria were selected as the sample using the convenience sampling method. These 40 participants were randomly assigned to two groups of 20.

The experimental group received mindfulness-based cognitive therapy, and the control group was placed on a waiting list and

received no treatment. Inclusion criteria included men 25 to 55 years old, methamphetamine use for more than 12 months, negative urine test at the start of treatment, lack of concurrent severe psychiatric diagnoses such as psychotic and bipolar disorders, having high school diploma, willingness and informed consent to participate in research, not participating in other treatment programs at the same time, and receiving individual counseling, and not suffering from psychological disorders. Exclusion criteria included absence of more than two meetings, withdrawal from the research, concomitant use of psychiatric medications, and positive urine test

Research instruments

A) Repetitive Thoughts Questionnaire: This is a 10-item tool developed by McEvoy in 2010 to assess rumination, self-blame, and repetitive thoughts. In this test, participants are asked to rate their agreement or disagreement with each statement on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The concurrent validity of this scale was obtained using the Oxford Happiness Questionnaire One and Two, which were statistically significant. Examination of the 10-item version of the Repetitive Thoughts Questionnaire in both non-clinical and clinical populations showed that the tool had high internal reliability (Cronbach's alpha greater than 0.81) and correlated highly with the 26-item version of the original Repetitive Thoughts Questionnaire (5). The convergent validity of this tool was reported with a range of negative emotions (anxiety, depression, shame, anger, and general distress) (24).

B) Hyperemotional Dimensions Questionnaire: This questionnaire was developed by Mitmansgruber et al. It consists of 28 items that respondents rate on a 6-point Likert scale. The researchers reported that the scale includes six components: anger, shame, violence control and suppression (negative emotions), and compassion and love (positive hyper-emotions) (25). Rezaei et al. reported the Cronbach's alpha coefficient of this questionnaire in Iran to be 0.78. The factor analysis results confirmed the two main positive and negative hyper-emotion dimensions (26).

C) Distress Tolerance Scale (DTS): The Distress Tolerance Scale (DTS), developed by Simmons and Gaher in 2005, assesses emotional distress tolerance from various dimensions: tolerance, absorption, appraisal, and regulation. The scale consists of 15 items and four subscales (26). The internal consistency coefficients (Cronbach's alpha) for this scale are reported as 0.72, 0.70, and 0.82 for the respective subscales, with an overall reliability of 0.82 (27). Its internal consistency in Iran was reported as moderate reliability (28).Table 1 presents the content of the mindfulness therapy sessions (16).

Table 1. The content of mindfulness-based cognitive therapy sessions

Session	Descriptions
First	Presenting session topics, introducing mindfulness-based cognitive therapy, reviewing stressors, practicing the raisin meditation exercise with discussion and feedback, practicing body scan meditation with discussion and feedback, summarizing the session and assigning homework.
Second	Session topic definition (coping with obstacles), body scan meditation practice, thoughts and feelings meditation practice, pleasant event recording, teaching 10-15 minute seated meditation, session summary assigning homework.
Third	Defining mindfulness of breathing, practicing seeing and hearing, mindfulness meditation practice, breath space meditation practice, mindful walking and review, creating a list of unpleasant events, and assigning homework.
Fourth	Cultivating present-moment awareness: Seeing and hearing practice; mindfulness meditation of breath, body, sounds, and thoughts; exploring unpleasant experiences and negative thoughts; and assigning homework.
Fifth	Exploring acceptance and allowing: Embracing thoughts without judgment or alteration; assigning homework.
Sixth	Revisiting the concept of "thoughts are not facts" and strategies for reframing perceptions; assigning homework.
Seventh	Revisiting self-care practices for optimal well-being: Cultivating a new relationship with experience, understanding and implementing acceptance; assigning homework.
Eighth	Reviewing life learnings, summarizing previous sessions, providing strategies for maintaining program gains, and concluding sessions.

Results

The findings from demographic data showed that the mean age of individuals in the experimental group was 34.33 years, and in the control group was 31.37 years. These individuals have a range of education, from diplomas to postgraduate degrees. Among them, in the experimental group (8 people, equivalent to 18.57%) and the control group (9 people, equivalent to 20%), the bachelor's degree level of education was the most common. Also, 40% of the experimental and 35% of the control groups were married.

The results in Table 2 demonstrated that in the MBCT group, mean scores changed from pre-test to post-test and follow-up. However, there was no significant change in scores from post-test to follow-up within these groups.

Table 2. Descriptive statistics of the variables

		Pre-test	Post-test	Follow-up
Variable	Group	Mean (SD)	Mean (SD)	Mean (SD)
Repetitive thoughts (Rumination)	Mindfulness	41.95 (0.99)	38.50 (1.06)	38.05 (1.10)
	Control	43.95 (0.89)	43.10 (1.17)	43.35 (1.07)
Negative hyperemotional	Mindfulness	75.90 (1.39)	71.35 (1.46)	71.90 (1.36)
	Control	76.40 (1.31)	75.35 (1.09)	75.85 (1.28)
Anger	Mindfulness	19.10 (0.49)	16.80 (0.52)	17.05 (0.54)
	Control	20.00 (0.54)	19.75 (0.42)	19.80 (0.36)
Shame	Mindfulness	23.05 (1.13)	21.80 (0.99)	22.10 (0.95)
	Control	22.40 (0.91)	22.15 (0.91)	22.05 (0.91)
Violence control	Mindfulness	23.80 (0.92)	23.80 (0.95)	23.80 (0.93)
	Control	24.35 (0.97)	24.45 (1.09)	24.40 (1.10)
Suppression	Mindfulness	9.95 (0.31)	8.95 (0.37)	8.95 (0.37)
	Control	9.65 (0.29)	9.50 (0.25)	9.60 (0.24)
Distress tolerance	Mindfulness	29.60 (1.15)	33.90 (1.26)	34.10 (1.23)
	Control	29.25 (1.17)	29.80 (1.13)	30.40 (1.09)
Emotional tolerance	Mindfulness	7.25 (0.51)	8.35 (0.46)	8.45 (0.44)
	Control	7.40 (0.51)	7.30 (0.43)	7.40 (0.37)
Absorption	Mindfulness	6.00 (0.47)	6.70 (0.41)	6.80 (0.43)
	Control	5.65 (0.40)	5.70 (0.42)	5.90 (0.40)
Appraisal	Mindfulness	11.30 (0.52)	12.70 (0.68)	12.60 (0.67)
	Control	10.60 (0.77)	11.20 (0.82)	11.25 (0.78)
Regulation	Mindfulness	5.05 (0.32)	6.05 (0.40)	6.25 (0.39)
	Control	5.60 (0.37)	5.65 (0.36)	5.85 (0.37)

A Multivariate Analysis of Variance (MANOVA) with repeated measurements was used. Prior to that, the assumptions of the variance analysis were examined. The Kolmogorov-Smirnov test for normality indicated that the distribution of all variables was normal for each group (P> 0.05). Levene's test was used to assess the homogeneity of variances, and the assumption of equal error variances was also met (P> 0.05). Box's M test further demonstrated the homogeneity of the variance-covariance matrix (P> 0.05, F= 0.401, Box's M= 2.635). Table 3 demonstrated significant differences between the MBCT and control groups in repetitive thoughts (rumination), negative hyper-emotions, and distress tolerance, as assessed by the main effect of group and the interaction effect of group by time (P< 0.01). Table 4 presents the mean comparisons based on the time factor.

Table 3. Results of Repeated Measures ANOVA for rumination, negative hyper-emotions, and distress tolerance in the groups

Variable	Source of variation	Sum of squares	Degrees of freedom	Mean squares	F	P	Eta squared
Repetitive thoughts (Rumination)	Time	28.107	1	28.107	30.447	0.0001	0.445
	Time*Group	6.017	1	6.017	6.539	0.015	0.147
	Error (Time)	34.967	38	0.920			
Negative hyper-emotions	Time	73.704	1	73.704	26.308	0.0001	0.409
	Time*Group	21.004	1	21.004	7.497	0.009	0.165
	Error (Time)	106.458	38	2.802			
Distress tolerance	Time	27.338	1	27.338	8.553	0.006	0.184
	Time*Group	28.704	1	28.704	8.981	0.005	0.191
	Error (Time)	121.458	38	3.196			

Table 4. Mean comparisons of repetitive thoughts (rumination), negative hyper-emotions, and distress tolerance based on the time

Variable	Pre-test vs. Post-test		Pre-test vs. Follow-up		Post-test vs. Follow-up	
	Mean Difference	P	Mean Difference	P	Mean Difference	P
Repetitive thoughts (Rumination)	2.150	0.0001	2.250	0.0001	100	1.000
Negative hyper-emotions	2.800	0.0001	2.275	0.0001	-0.525	0.282
Distress tolerance	-2.425	0.003	-2.825	0.001	-0.400	0.072

Table 4 demonstrated significant differences in the means of repetitive thoughts (rumination), negative hyper-emotions, and distress tolerance from pre-test to post-test and pre-test to follow-up ($P< 0.01$). However, no significant changes were observed from post-test to follow-up ($P> 0.05$).

Discussion

The results of this study demonstrated that MBCT had a significant effect on repetitive thoughts (rumination), distress tolerance, and negative hyperemotional dimensions in individuals with substance abuse disorders. In other words, MBCT was an effective intervention for reducing repetitive thoughts (rumination), increasing distress tolerance, and decreasing negative hyperemotional dimensions in this population. These findings are consistent with the results of previous research by Ghehi, Moradi, and Bigdeli conducted on overweight female teenagers in the second secondary school in two public schools in the 10th district of Tehran, Iran, in 2020-2021. The results showed a significant difference between the average distress tolerance score and its dimensions in the two groups in the post-test and follow-up phases (29). Kashefinishabouri et al. assessed the effect of mindfulness-based cognitive therapy and emotion-regulation training on rumination and social anxiety in teenagers prone to addiction was consistent with the results of the study in question showed that mindfulness-based cognitive therapy and emotion-regulation emotion-regulation training reduced rumination and social anxiety in adolescents prone to addiction (23).

Also, Hamonniere and Billieux's research was in line with this research, showing that mindfulness-based cognitive therapy significantly improved emotional symptoms in substance users (30). On the other hand, effective metacognitive strategies also play a crucial role in emotional regulation. By enhancing cognitive flexibility, metacognitive awareness enables individuals to adapt their thoughts and behaviors in response to changes in environmental conditions (31).

On the other hand, mindfulness is non-judgmental, purposeful attention to present-moment experiences, which is cultivated through formal and informal practices integrated into daily life. In light of this, several processes can be outlined to explain these findings. Since one of the goals of mindfulness-based cognitive therapy is the non-judgmental acceptance of emotions, this type of acceptance facilitates healthy engagement with emotions. This enables individuals to confront their emotions without getting caught up in or avoiding them and accept them without judgment. Through non-judgmental acceptance, individuals can move beyond habitual emotion regulation patterns, characterized by either entanglement or avoidance, and access more adaptive emotion regulation strategies. This leads to a reduction in maladaptive emotion regulation approaches. Enhanced mindfulness reduces avoidance or excessive engagement with distressing thoughts and emotions, promoting emotional regulation. When conscious attention is directed towards emotion regulation, improvements in emotion regulation may stem from an overall increase in positive emotional experiences and a decrease in negative emotional experiences (27,32).

The study faced certain limitations, including the restriction of the sample to individuals with substance abuse disorders seeking treatment at addiction centers in Mashhad, which hinders the generalizability of the findings to other populations and settings. Other limitations include selecting the sample group based on certain psychological variables (such as clients' knowledge and attitudes towards therapeutic interventions, expectations, and psychological mindset) and demographic variables (such as education level and socioeconomic status).

Therefore, further research should be conducted on other populations, such as physically ill patients, couples, and students. Additionally, the long-term effects of follow-up should be investigated. Future research should also examine the effectiveness of the research method on women.

Conclusion

Therefore, mindfulness-based cognitive therapy is significantly effective on repetitive thoughts, distress tolerance, and negative hyperemotional dimensions of people with substance use disorders. So, this treatment is an effective and efficient way to reduce the problems and harms of people involved in substance abuse.

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Conflict of Interests

The authors declare no conflict of interest.

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Ethical Considerations

This research results from a Ph.D. thesis and is approved by the Islamic Azad University of Neishabour branch.

Code of Ethics

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Authors' Contribution

Conceptualization: First author, Data analysis: First author, Drafting the manuscript: First author, Data collection: Second author, Study design: All authors, Final review: All authors.

References

1. Smith SA, Waters NJ. Pharmacokinetic and pharmacodynamic considerations for drugs binding to alpha-1-acid glycoprotein. Pharm Res 2019; 36(2): 30.
2. Amendola S. Burden of mental health and substance use disorders among Italian young people aged 10–24 years: Results from the Global Burden of Disease 2019 Study. Soc Psychiatr Psychiatr Epidemiol 2022; 57(4): 683-94.
3. Naeim M, Rezaeisharif A, Kamran A. The role of impulsivity and cognitive emotion regulation in the tendency toward addiction in male students. Addictive disorders and their treatment 2021; 20(4): 278-87.
4. Nimbi FM, Tripodi F, Rossi R, Simonelli C. Testing a conceptual model for men's sexual desire referring to automatic thoughts, emotions, sexual function, and sexism. J Sex Med 2018; 15(11): 1518-26.
5. McEvoy PM, Mahoney AE, Moulds ML. Are worry, rumination, and post-event processing one and the same?: Development of the Repetitive Thinking Questionnaire. J Anxiety Disord 2010; 24(5): 509-19.
6. Fernández EN, Mairal JB. Behavioral activation versus cognitive restructuring to reduce automatic negative thoughts in anxiety generating situations. Psicothema 2017; 29(2): 172-7.
7. Ayhan MO, Kavak Budak F. The correlation between mindfulness and negative automatic thoughts in depression patients. Perspect Psychiatr Care 2021; 57(4): 1944-9.
8. Laursen TM, Musliner KL, Benros ME, Vestergaard M, Munk-Olsen T. Mortality and life expectancy in persons with severe unipolar depression. J Affect Disord 2016; 193: 203-7.
9. Khan A, Pedrelli P, Shapero B, Fisher L, Nyer M, Farabaugh A, et al. The association between distress tolerance and alcohol related problems: The pathway of drinking to cope. Subst Use Misuse 2018; 53(13): 2199-209.
10. Leyro TM, Zvolensky MJ, Bernstein A. Distress tolerance and psychopathological symptoms and disorders: a review of the empirical literature among adults. Psychol Bull 2010; 136(4): 576.
11. Lobbestael J, Arntz A. Emotional hyperreactivity in response to childhood abuse by primary caregivers in patients with borderline personality disorder. J Behav Ther Experim Psychiatry 2015; 48: 125-32.
12. Nunes F, Mota CP, Ferreira T, Schoon I, Matos PM. Parental meta-emotion, attachment to parents, and personal agency in adolescents. J Fam Psychol 2022; 36(6): 964.
13. He X, Yuan X, Hu M, Zhou L. The association between parental meta-emotion philosophy and adolescent's behavior problem: The moderating role of vagus. Acta psychologica sinica 2020; 52(8): 971.
14. Johnson-Laird PN, Mancini F, Gangemi A. A hyper-emotion theory of psychological illnesses. Psychol Rev 2006; 113(4): 822.
15. Duan W, Wang Z. Dispositional mindfulness promotes public health of the obesity population by reducing perceived discrimination and weight stigma concerns. J Public Health 2019; 27: 195-202.
16. Kabat-Zinn J. Some reflections on the origins of MBSR, skillful means, and the trouble with maps. Mindfulness. Oxfordshire, UK: Routledge; 2013: 281-306.
17. Kashefizadeh M, Taher M, Hosseinkhanzadeh AA, Aboutalebi NH. 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. Journal of pharmaceutical negative results 2022; 13(4): 1998-2010.

18. Querstret D, Morison L, Dickinson S, Cropley M, John M. Mindfulness-based stress reduction and mindfulness-based cognitive therapy for psychological health and well-being in nonclinical samples: A systematic review and meta-analysis. International journal of stress management 2020; 27(4): 394-411.
19. Goldberg SB, Tucker RP, Greene PA, Davidson RJ, Kearney DJ, Simpson TL. Mindfulness-based cognitive therapy for the treatment of current depressive symptoms: A meta-analysis. Cogn Behav Ther 2019; 48(6): 445-62.
20. Gu J, Strauss C, Bond R, Cavanagh K. How do mindfulness-based cognitive therapy and mindfulness-based stress reduction improve mental health and wellbeing? A systematic review and meta-analysis of mediation studies. Clin Psychol Rev 2015; 37: 1-12.
21. Li Y, Ju R, Hofmann SG, Chiu W, Guan Y, Leng Y, et al. Distress tolerance as a mechanism of mindfulness for depression and anxiety: Cross-sectional and diary evidence. Int J Clin Health Psychol 2023; 23(4): 100392.
22. Ramezani S, Afkhamzadeh AR, Qorbani H, Naimi S, Rahmani S. Effect of mindfulness-based cognitive therapy on substance dependence intensity and cognitive emotion regulation in patients under methadone maintenance treatment. Practice in clinical psychology 2019; 7(3): 225-34.
23. Kashefinishabouri J, Eftekhar Saadi Z, Pasha R, Heidari A, Makvandi B. The effect of mindfulness-based cognitive therapy and emotion-regulation training on rumination and social anxiety in teenagers prone to addiction. Journal of occupational health and epidemiology 2021; 10(1): 1-11.
24. Abdi R, Chalabianloo G, Joorbonyan A. The mediating role of repetitive negative thinking in relationship between negative perfectionism and severity of anxiety symptoms. Iranian journal of psychiatry and behavioral sciences 2016; 10(4): e5308.
25. Mitmansgruber H, Beck TN, Höfer S, Schüßler G. When you don't like what you feel: Experiential avoidance, mindfulness and meta-emotion in emotion regulation. Pers Individ Dif 2009; 46(4): 448-53.
26. Rezaei S, Qorbanpoor Lafmejani A, Faizi Lapvandani A, Jahangirpour M. [Structural relationships of risk-taking and difficulty in emotion regulation with tendency to addiction relapse in patients undergoing methadone maintenance treatment: Mediating role of distress tolerance and cognitive flexibility]. Scientific quarterly research on addiction 2022; 16: 167-98. (Persian)
27. Simons JS, Gaher RM. The Distress Tolerance Scale: Development and validation of a self-report measure. Motiv Emot 2005; 29(2): 83-102.
28. Jamilian H, Malekirad A, Farhadi M, Habibi M, Zamani N. Effectiveness of group dialectical behavior therapy (based on core distress tolerance and emotion regulation components) on expulsive anger and impulsive behaviors. Glob J Health Sci 2014; 6(7): 116-23.
29. Ghehi AT, Moradi H, Bigdeli H. [The effectiveness of mindfulness therapy on rumination and distress tolerance in adolescent girls with high body mass index]. Journal of adolescent and youth psychological studies 2023; 4(3): 55-66. (Persian)
30. Hamonniere T, Billieux J. Individually delivered mindfulness-based cognitive therapy in concomitant problematic substance use and emotional symptoms: A process-based case study. Clin Psychol Psychother 2023; 30(3): 714-27.
31. Johannsen M, Nissen ER, Lundorff M, O'Toole MS. Mediators of acceptance and mindfulness-based therapies for anxiety and depression: A systematic review and meta-analysis. Clin Psychol Rev 2022; 94: 102156.
32. Hofmann SG, Asmundson GJ. Acceptance and mindfulness-based therapy: New wave or old hat? Clin Psychol Rev 2008; 28(1): 1-16.