

A Narrative Review of Third-Wave Cognitive-Behavioral Therapies in Addiction

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Review Article

Abstract

Substance use disorder (SUD) is a prevalent health issue with serious social and personal consequences. SUDs are linked to numerous physical health problems. In the Diagnostic and Statistical Manual of Mental Disorders-5th Edition (DSM-V), the essential characteristic of a SUD is a collection of cognitive, behavioral, and psychological manifestations indicative of the subject's unbaiting substance use despite experiencing significant problems due to continued use. Several alternative interventions have been indicated. Among them, mindfulness-based therapies are receiving growing attention. This article reviews evidence for the use of third-wave cognitive-behavioral therapies (CBTs) in addiction treatment. We have reviewed the literature published from 1990 to 2019. Further research is required to better understand the types of mindfulness-based interventions that work best for specific types of addiction, patients, and situations. Current findings increasingly support third-wave CBTs as a promising complementary therapy for the treatment and prevention of addiction.

Keywords: Addiction; Meditation; Mindfulness; Substance-related disorders; Cognitive-behavioral therapy

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Introduction

Substance use disorder (SUD) is a widespread health concern with serious personal and social consequences. SUDs are often linked to several health problems,¹⁻³ or comorbidity with psychiatric disorders,^{4,5} and significant social and economic repercussions.⁶⁻⁸ In the Diagnostic and Statistical Manual of Mental Disorders-5th Edition (DSM-V), the essential characteristic of a SUD is a collection of cognitive, behavioral, and psychological manifestations indicative of the subject's unabating substance use despite experiencing significant problems due to continued use.⁹ Craving is the central motivational drive in SUD¹⁰ and is an integral component of dependence syndromes.¹¹ Functional imaging has provided further clarification of the link between craving and the neurological changes of SUD.¹² Neuroimaging studies of cue-induced craving have shown increases in activity within some areas of the brain (e.g., ventromedial prefrontal cortex and orbitofrontal cortex, anterior cingulate cortex, ventral striatum, control areas within the basal ganglia, precuneus and cuneus, and supplementary motor areas).¹³ Preliminary evidence in both non-addiction and addiction contexts suggests that mindfulness-based approaches can influence the hypothalamic-pituitary-adrenal axis and cause structural changes (a decrease in gray matter density within the amygdala and a rise in gray matter levels within the hippocampus).¹² Mindfulness-based interventions are increasingly utilized to address behavioral health issues like SUDs.¹⁴⁻¹⁷

Mindfulness is defined as intentional acceptance, and nonjudgmental focus of one's attention on one's thoughts, sensations, and emotions at the present moment.^{18,19} Purposeful control of attention can be learned through techniques such as meditation.²⁰ The "accept and observe" approach, characteristic of meditation, refers to being fully present and attentive to the ongoing experience without being preoccupied by it. Meditation is a mental state enabling the person to separate a given experience from its linked emotion.²¹ Through mindfulness practices, the content of the thought becomes less important than the extent of one's awareness of the thought itself and the reactions to it.²² Meditation is often contrasted with every day, habitual mental functioning or being on "autopilot." As such,

meditation might be a valuable technique for a SUD-affected person, whose condition is often linked to unwanted thoughts, emotions, and sensations such as craving.²³ In part, mindfulness-based interventions for SUD are designed to help individuals to understand the passing or transient nature of the urge or craving they experience, and to help them develop strategies that support the attenuation of craving, compulsivity and impulsivity, stress reactivity, and negative mood.^{24,25} Additionally, mindfulness reduces response to craving cues (Figure 1).¹³ Mindfulness-based skills might improve emotional regulation in areas of self-control and response to stress due to craving and withdrawal symptoms.²⁶ Recently, contextual cognitive-behavioral therapies (CBTs), e.g., dialectical behavior therapy (DBT),²⁷ acceptance and commitment therapy (ACT),²⁸ and mindfulness-based relapse prevention (MBRP),²⁹ have been used to treat SUD. A key difference between traditional CBT and contextual CBTs is the emphasis on mindfulness and acceptance strategies to reduce the impact of internal triggers on substance use behavior.³⁰ The aim of this paper was to review and indicate the existing evidence on the effects of mindfulness or mindfulness meditation-based therapies on addictive disorders.

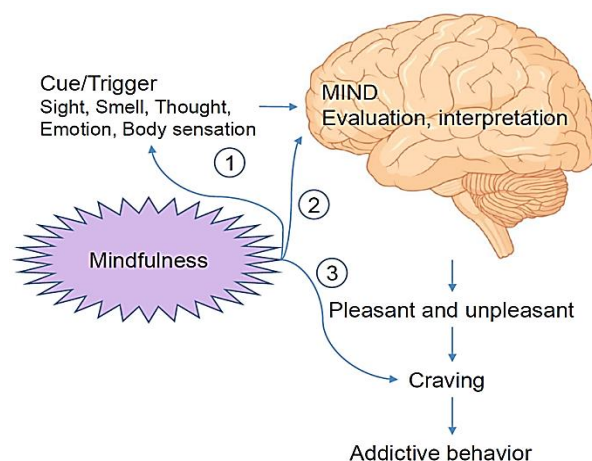


Figure 1. Mindfulness-based approaches are involved in the treatment of addiction with several possible mechanisms. 1) Mindfulness training has been associated with reduced reactivity to craving cues. 2) During mindful attention, the functional relationship between the brain's regions associated with craving is significantly reduced. 3) During mindfulness training, the individual realizes that craving is a physical sensation and has a transient nature.

We looked up the terms "mindfulness-based

relapse prevention", "acceptance and commitment therapy", "dialectical behavior therapy", "mindfulness-based cognitive therapy", and "mindfulness-based stress reduction" in all bibliographical databases such as Google Scholar, PubMed, and Scopus. This review includes all relevant articles published between 1980 and 2019. These studies are summarized in table 1.

MBRP for SUD

MBRP is a mindfulness intervention recently developed specifically for substance use, which combines traditional psychotherapeutic relapse prevention techniques^{54,55} with mindfulness-based meditation practices.⁵⁶ The addition of these mindfulness-based meditation practices to traditional relapse prevention techniques decreases the risk of relapse by helping patients to face psychological distress, which often accelerates relapse. Neurologically, mindfulness decreases the activity in circuitry linked to craving.⁵⁷ MBRP is an 8-week, group-based, psycho-educational intervention.⁵⁸ Through meditation training, MBRP providers facilitate patient's awareness of challenging cognitive, emotional, and physical states experienced following withdrawal from a substance or due to craving a substance. This, in turn, helps the patient to respond more suitably to these challenges.^{56,59} Identifying high-risk situations is important for treatment. Participants learn to identify early warning symptoms of relapse, enhance awareness of internal (i.e., cognitive and emotional) and external (i.e., situational) cues previously associated with substance use, improve self-efficacy, and develop effective coping skills. Mindfulness practices included in MBRP are aimed at increasing awareness of triggers, controlling internal reactions, and developing more skilled behaviors. These practices focus on increasing acceptance and tolerance of negative and positive physical, cognitive, and emotional states, such as craving, thereby reducing the need to soothe discomfort by engaging in substance use.³¹ Several studies have been conducted in this area. In a randomized controlled trial (RCT), Bowen et al. evaluated initial efficacy and feasibility of an 8-week outpatient MBRP program as compared to treatment as usual (TAU).³¹ Participants were 168 adults with SUD. Over the 4-month post-intervention period, significantly lower rates of substance use were

observed in the MBRP group compared to the TAU group. Additionally, in the MBRP group compared to the TAU group, acceptance and acting with awareness was higher and craving was much lower.³¹ In another study, Witkiewitz et al. demonstrated that self-reported levels of craving immediately following MBRP had a significant correlation with a latent factor representing awareness, acceptance, and being non-judgmental.²⁵ In another RCT, Bowen et al. compared MBRP with cognitive-behavioral relapse prevention (CBRP) and TAU (comprised of a 12-step program and psychoeducation) during a 12-month follow-up period.³² Patients were randomly assigned to 8 weekly group therapy sessions of CBRP, MBRP, or TAU. Patients in the MBRP and CBRP groups illustrated significantly lower risk of relapse and heavy drinking and those who used substances illustrated significantly fewer days of substance use and heavy drinking at the 6-month follow-up compared to those in the TAU group. CBRP displayed an advantage over MBRP in time to first drug use. At the 12-month follow-up, subjects in the MBRP group indicated significantly fewer days of substance use and significantly decreased heavy drinking compared with those in the CBRP and TAU groups.³²

Glasner-Edwards et al. conducted a pilot randomized, clinical, trial in which they appraised the effects of MBRP relative to health education (HE) control condition among stimulant dependent adults receiving emergency management.³³ The effect size of the MBRP condition was medium for overall psychiatric severity outcomes and negative affect. At the follow-up, participants in the MBRP intervention group showed greater decreases in psychiatric and depression severity compared to the control group. Among those with anxiety and depressive disorders, MBRP was associated with lower odds of stimulant use compared to the control group.³³ Lee et al. compared a 10 session group MBRP intervention with a TAU control condition in incarcerated substance users.³⁴ Data analysis demonstrated that subjects randomized to MBRP had significantly higher negative expectancies of use compared with TAU.

The results also demonstrated a reduction in depression in the MBRP group. However, the changes in positive expectancies and self-efficacy between the groups did not differ significantly from pre-intervention to post-intervention.³⁴

Table 1. Third wave therapies in addiction treatment

Treatment	Authors	Problem	Sample	Control condition	Results
MBRP	Bowen et al. ³¹	Alcohol and drug use disorders	168	TAU	MBRP: Decreased rates of substance use and craving, and increased acceptance and acting with awareness
	Witkiewitz et al. ²⁵	Alcohol and drug use disorders	168	TAU	MBRP: Mechanisms associated with it that may reduce craving
	Bowen et al. ³²	-	286	CBRP, or TAU	Significantly lower risk of relapse after MBRP and CBRP treatment Follow-up: MBRP more effective than CBRP
	Glasner-Edwards et al. ³³	Stimulant dependence	63	HE	MBRP: Medium effect sizes for negative affect and overall psychiatric severity outcomes Follow-up: greater reductions in depression severity, and psychiatric severity relative to the control
	Lee et al. ³⁴	-	24	TAU	MBRP: Significantly higher negative expectancies of use, decreased depressive mood, and no difference between groups in positive expectancies or self-efficacy
Zgierska et al. ³⁵	Alcohol dependence	19	No control	Decreased severity of depression, anxiety, stress, and craving, documented relapse triggers and increased degree of mindfulness, and high levels of satisfaction	
ACT	Stotts et al. ³⁶	Opioid dependent	56	DC	ACT: More successful methadone stop, and reducing fear of detoxification compared to drug counseling
	Hayes et al. ³⁷	Opioid dependent	138	MM+ ITSF, MM	ACT: Greater decrease in total drug use than MM in 6-month follow-up, and greater decrease in total drug use than the other two treatments: MM+ ITSF, MM (two conditions)
	Gifford et al. ³⁸	Smokers	76	Nicotine Replacement Therapy	1 year follow-up: ACT better than nicotine replacement therapy
	Gonzalez-Menendez et al. ³⁹	Polydrug use	37	CBT	Reduction in anxiety, drug abuse, sensitivity index levels, and avoidance in both ACT and CBT Follow-up: ACT better than CBT in maintaining abstinence
	Lanza et al. ⁴⁰	Mixed (> 50% heroin)	50	CBT	Post treatment: CBT better than ACT in terms of anxiety sensitivity Follow-up: ACT better than CBT in terms of drug use and mental health
	Bricker et al. ⁴¹	Smokers	121	CBT	ACT: more satisfaction, more useful for quitting At 6 months: higher quitting rates
DBT	Beckstead et al. ⁴²	Polysubstance-dependent	229	No control	Recovery or improvement in 96% of adolescents, and large effect size
	Linehan et al. ⁴³	Polysubstance-dependent and BPD	28	TAU	DBT: Greater possibility of treatment adherence, greater reductions in drug abuse, and improvement in global and social adjustment in both groups Follow-up: The improvements persisted after 16 months in the DBT group.

Table 1. Third wave therapies in addiction treatment (continue)

Treatment	Authors	Problem	Sample	Control condition	Results
MBSR	Linehan et al. ⁴³	Polysubstance-dependent and BPD	28	TAU	DBT: Greater possibility of treatment adherence, greater reductions in drug abuse, and improvement in global and social adjustment in both groups Follow-up: The improvements persisted after 16 months in the DBT group.
	Linehan et al. ⁴⁴	Heroin-dependent and BPD	23	CVT+12S	Reductions in opiate abuse in both two treatment: CVT+12S and DBT (two conditions), reductions persistent during the last 4 months of treatment only in DBT, overall reductions in level of psychopathology in both conditions
	Rezaei et al. ⁴⁵	Opioid dependent	50	TAU	DBT: decrease in distress tolerance and increase in emotion regulation after 4 months of intervention and 2 months follow-up
	Axelrod et al. ⁴⁶	Polysubstance-dependent and BPD	27	No control	Decrease in BDI scores from the beginning to the middle of treatment, and decrease in DERS at mid-treatment and again at the end of treatment
	Rizvi et al. ⁴⁷	Nicotine dependence and BPD	22	No control	Decrease in both emotion intensity and urge to use substances within each coaching session, and reduced depression and general distress
	Davis et al. ⁴⁸	Smokers	18	No control	6-week abstinence rate of 56%, positive association between treatment compliance and smoking abstinence, and decrease in stress and affective distress
	Hossein-zadeh Asl and Hosseinalipour ⁴⁹	Opium or heroin dependent	49	TAU	Statistically significant mean differences between groups regarding scales of emotional role, vitality, mental health, social functioning, and bodily pain
	Hosseini ⁵⁰	-	53	TAU	Significant decrease in affective pain, sensory pain, evaluative pain, and perceived reduction of stress in MBSR group
	Kazemian ⁵¹	-	40	TAU	Significant positive effect on general health, somatization, anxiety, social dysfunction, and depression
	Hossein-zadeh and Barahmand ⁵²	Opium or heroin and depression	35	TAU	Follow-up: consistent results at in the MBCT group Significant decrease in the depression symptoms
Xiaoxu and Haixue ⁵³	Mobile phone addiction	60	-	Significantly lower scores of uncontrolled response and withdrawal compared to pretest in experiment group	

MBRP: Mindfulness-based relapse prevention; TAU: Treatment-as-usual; CBRP: Cognitive-behavioral relapse prevention; HE: Health education; ACT: Acceptance and commitment therapy; DC: Drug counseling; MM: Methadone maintenance; ITSF: Intensive 12-step facilitation; CBT: Cognitive-behavioral therapy; DBT: Dialectical behavior therapy; BPD: Borderline personality disorder; CVT+12S: Comprehensive validation therapy + 12-Step; BDI: Beck Depression Inventory; DERS: Difficulties in Emotion Regulation Scale; MBSR: Mindfulness-based stress reduction; MBCT: Mindfulness-based cognitive therapy

Zgierska et al. conducted a feasibility pilot study to analyze the effectiveness of an MBRP intervention for individuals with alcohol dependence.³⁵ For 8 weeks, participants attended a weekly 2-hour group session. At the end of the study, the severity of anxiety, craving, depression, stress, and relapse triggers had decreased and the level of mindfulness had improved. In this study, during the recovery period, meditation intervention was a useful therapeutic tool with high satisfaction.³⁵

The main focus of MBRP is to enhance acceptance and awareness of physical, cognitive, and emotional states. Higher acceptance and increase in acting with awareness may decrease reactive behavior and the need for substance use as a soothing method. Decreased craving may be explained by increased awareness of thoughts, sensations, and emotions associated with craving, as well as acceptance of, and nonreactivity to craving. Over time, frequent exposure to triggering stimuli combined with patient's nonreactivity may decrease the intensity of the initial craving reaction.⁶⁰ In addition, practicing mindfulness meditation has been shown to decrease neural aspects of craving. Westbrook et al. located the areas of the brain typically activated during craving (such as the subgenual anterior cingulate cortex) and demonstrated decreased activity during mindful attention to smoking images, compared to looking at smoking images without mindful attention.¹³

During mindful attention, the functional relationship between the subgenual anterior cingulate cortex and other areas linked to craving, including the ventral striatum and the bilateral insula, is significantly reduced (Figure 1). Nonjudgmental attention to the craving-related experience reduces not only the mental experience of craving, but also its neurological correlation.¹³

Acceptance and commitment therapy for SUD

ACT, a contextual behavioral intervention, uses strategies to change behavior, acceptance, mindfulness, and values in order to increase the breadth and variety of individuals' behavioral responses in the presence of unpleasant private experiences (feelings, physical sensations, and thoughts) and, as a result, decreases reliance on experiential avoidance.⁶¹ During ACT sessions,

instead of trying to change their feelings, emotions, and thoughts forcefully and constantly, the individuals simply change their relationship with those entities. The main purpose of ACT is to help people gain psychological flexibility.⁶² ACT influences the impact of negative feelings and thoughts, and problematic avoidance patterns in a variety of mental health problems,⁶¹ such as SUDs.^{37,38,63} In the past decade, multiple studies have demonstrated the effectiveness of ACT in treating a wide range of SUDs including smoking,⁴¹ polydrug use,^{39,64} and opioid^{36,37} and amphetamine dependence.⁶³

Several studies have analyzed the effect of ACT on SUDs. Stotts et al. conducted a pilot RCT on 56 patients with opioid dependence.³⁶ The results showed that at the end of treatment 37% of the participants in the ACT group were successfully detoxed compared to 19% in the drug counseling (DC) group. Moreover, over time, fear of detox decreased in the ACT group compared to the DC group.³⁶ In an RCT, Hayes et al. evaluated treatment for polysubstance abuse in individuals on methadone maintenance therapy (MMT).³⁷ Subjects were divided into intensive 12-step facilitation (TSF), ACT, or MMT alone. At the 6-month follow-up, subjects in the ACT group showed a greater reduction in objectively measured total drug use compared to those in the MMT group. In addition, subjects in the ACT group showed greater reduction in self-reported total drug use compared to those in the intensive TSF and MMT groups.³⁷

Gifford et al. analyzed the efficacy of ACT group sessions on smoking cessation in 7 individuals compared to standard nicotine replacement therapy.³⁸ At the 1-year follow-up, significant differences were observed, favoring ACT condition. According to mediation analysis, further reduction in smoking-specific experiential avoidance was observed in the ACT group.³⁸ In an RCT, Gonzalez-Menendez et al. compared the effectiveness of ACT to cognitive-behavioral therapy (CBT) in drug abuse treatment.³⁹ The interventions included 90-minute group sessions for 16 weeks. The analysis showed that both ACT and CBT significantly decreased drug abuse, avoidance repertoire, and the Anxiety Sensitivity Index (ASI), without any differences between the groups. However, the percentages of mental disorders were decreased only in the ACT

participants. At the 18-month follow-up, ACT was better than CBT in maintaining abstinence.³⁹

In another RCT on incarcerated women, Lanza et al. examined the differential effectiveness of ACT versus CBT in SUB treatment.⁴⁰ In this study, CBT was more effective than ACT in reducing anxiety sensitivity; however, at the follow-up, ACT was more effective than CBT in improving mental health (26.4% vs. 19.4%, respectively) and reducing drug use (43.8% vs. 26.7%, respectively).⁴⁰ Bricker et al. compared the efficacy of telephone-delivered ACT versus CBT in smoking cessation.⁴¹ Data analysis indicated that subjects in ACT group completed more calls compared to those in the CBT group. With regard to satisfaction, 100% of ACT subjects reported that their intervention was useful for quitting smoking (vs. 87% for CBT). On the first outcome of intent-to-treat 30-day point prevalence abstinence at 6 months post randomization, the quit rates were 31% for ACT versus 22% for CBT [odds ratio (OR) = 1.5; 95% confidence interval (CI) = 0.7–3.4]. Among the participants with depression at baseline (n = 47), the quit rates were 33% in ACT versus 13% in CBT (OR = 1.2; 95% CI = 1.0–1.6).⁴¹ These findings show that ACT might be a useful treatment for SUDs. Increasing evidence has highlighted the impact of cognitive and emotional processes on substance use⁶⁵ and the potential utility of acceptance-based interventions for substance related problems. Clinical specialists should consider the negative affect and fear associated with running out of methadone.⁶⁶

Fear and high anxiety of withdrawal often lead to treatment dropout and relapse. As a result, ACT often focuses on fear of detox and mechanisms such as inflexibility and avoidance in order to help the subjects cope with private negative events and prevent drop out or relapse.³⁶ When ACT is used for SUDs, clients learn more mindful and accepting ways of relating to internal experiences rather than engaging in substance use (e.g., in response to cravings or to escape negative affect), while moving forward in building meaningful patterns of activity that are further inconsistent with substance use. Furthermore, because of its transdiagnostic nature, ACT can effectively target key psychological problems commonly comorbid with substance use (e.g., self-stigma, anxiety, and depression).^{67,68} More studies of mediation models are needed to

illuminate ACT treatments for SUDs.

DBT for SUD

DBT, a type of cognitive-behavioral therapy, was originally formulated by Marsha Linnen for treating individuals with chronic suicidal impulses.⁶⁹ Nonetheless, it has also shown efficacy in treating a wider range of disorders caused by dysregulated emotions and behavior, including eating disorders and SUDs.⁷⁰ DBT was designed to flexibly combine cognitive-behavioral strategies and acceptance/mindfulness strategies.⁷¹ The aim of this intervention is to regulate and improve emotions as the main mechanisms of improvement.^{42,72} DBT targets substance use behaviors hierarchically by first addressing behaviors that may be considered as life threatening such as suicidal behavior. Secondly, DBT aims at behaviors that may interfere with treatment. Thirdly, DBT focuses on substance use behaviors that interfere with quality of life (QOL) (suspension, probation, and loss of employment), and finally, it augments behavioral skills. DBT, in addition to basic skills, also introduces specific skills for addiction treatment.⁴² The evidence supports DBT's efficacy in improving a variety of behavioral problems, including suicide attempts and self-injurious behaviors,⁷³ substance abuse,⁴⁴ binge eating,⁷⁴ and depression in the elderly.⁷⁵ Although, most studies have investigated the efficacy of DBT on abuse with a background of borderline personality disorder (BPD), few have explored DBT for treatment of isolated SUD.

In a pilot study, Beckstead et al. showed the effectiveness of DBT in the treatment of SUDs in adolescents.⁴² The results showed that, based on clinically significant change criteria, 96% of participants either "recovered" or "improved". In addition, differences between the pretest and posttest scores of the groups were statistically significant. Finally, the effect size was found to be large.⁴² In an RCT on polysubstance dependent women with BPD, Linehan et al. compared DBT with community based TAU.⁴³ In this study, those who received DBT were significantly more likely to remain in treatment (64% versus 27%), achieved greater reductions in drug abuse during the treatment year, and attended more individual therapy sessions compared with the control group. Although participants in both groups

improved in terms of global and social adjustment during the treatment year, only subjects in the DBT group maintained these achievements at the 16-month follow-up.⁴³ In another RCT, Linehan et al. evaluated the effectiveness of DBT versus comprehensive validation therapy plus 12-Step (CVT+12S) in 23 opiate-dependent individuals with BPD.⁴⁴ In this study, both treatment groups experienced reductions in opiate abuse confirmed by urine dipstick, but only those in the DBT group sustained these improvements during the last 4 months of treatment. Additionally, at both post-treatment and the 16-month follow-up assessment, participants in both treatment conditions indicated significant total reductions in psychopathology compared to pre-treatment.⁴⁴ Rezaei et al., in an RCT, evaluated the efficacy of DBT on emotional regulation strategies and distress tolerance in patients receiving MMT.⁴⁵ The results indicated that distress tolerance scores were significantly reduced after 4 months of treatment and 2 months of follow-up. Moreover, emotion regulation scores were significantly increased after 4 months of intervention and 2 months of follow-up compared to the control group.⁴⁵ In a study without controls, Axelrod et al. evaluated the effectiveness DBT on emotion regulation and substance use frequency in 27 women with SUD and BPD.⁴⁶ Treatment sessions included weekly 1-hour individual plus 90-minute skills group session and as needed telephone skills coaching for 20 weeks. The findings showed that the Beck Depression Inventory (BDI) scores reduced significantly across time, including a significant reduction in scores from the start to the middle of treatment. The total scores of the Difficulties in Emotion Regulation Scale (DERS) also dropped significantly across time, including a reduction at mid-treatment and again at the end of the treatment.⁴⁶ In a pilot study, Rizvi et al. analyzed the potential efficacy of DBT in subjects with BPD and SUDs.⁴⁷ They used a smartphone-based treatment, in which patients used the DBT Coach (the application developed for this purpose) for an average of 15 times. Results showed that, within each coaching session, both emotion intensity and the urge to use substance were significantly induced. In addition, during the trial period, participants reported a reduction in depression and general distress.⁴⁷ Several

potential mechanisms of change may be linked to aspects of DBT that are central and unique to the treatment. Based in the biosocial theory, DBT has a unique approach to targeting behavioral dysfunction that is not typically seen in other CBTs; one key difference is the emphasis placed on emotions and emotion dysregulation. The treatment ultimately is designed to help the patient to reduce emotion dysregulation and build a life worth living. In this framework, improvement in emotion regulation is the mediator or mechanism of action in DBT.⁷⁶

Mindfulness-Based Stress Reduction for SUD

Mindfulness-based stress reduction (MBSR) is a stress reduction program developed by Jon Kabat-Zinn.⁷⁷ MBSR is designed to provide basic instructions in mindfulness and start a daily meditation practice for individuals who may have not been exposed to the subject before. MBSR requires individuals to meet up in a group for 2–3 hours, once per week, for 8 weeks, then meet for a 7-hour "day of mindfulness", and continue to practice mindfulness meditation 45 minutes per day, 6 days per week.⁴⁸ MBSR aims to reduce the psychological symptoms of distress and improve QOL, and is increasingly applied in a wide range of both mental and somatic health problems.⁷⁸

The effect of MBSR in individuals suffering from addiction has been investigated in 3 studies. In the first study, an RCT, Davis et al. investigated MBSR intervention in smoking cessation, stress, and affective distress.⁴⁸ The protocol included 8 weekly group sessions. At the 6-week after quitting assessment, 10 out of 18 participants (56%) attained biologically confirmed 7-day point-prevalent abstinence. Compliance with meditation was positively associated with abstinence and decrease in stress and affective distress.⁴⁸ In the second study, Hosseinzadeh Asl and Hosseinalipour showed the effectiveness of MBSR on health-related quality of life (HRQOL) in drug-dependent men.⁴⁹ The intervention group underwent 8 MBSR sessions, each lasting 90 minutes. In this study, the mean differences between groups in terms of the vitality, mental health, emotional role, bodily pain, and social functioning scales were statistically significant.⁴⁹ In the third study, another RCT, Hosseini evaluated MBSR in alleviating pain during

detoxification among substance abusers.⁵⁰ In this study, participants in the MBSR group received a 4-week MBSR therapy program, 3 weekly 50-minute sessions. There was a significant reduction in sensory pain, evaluative pain, and affective pain as well as perceived reduction in stress in the MBSR group compared to the control group.⁵⁰ Controlling for change in mindfulness, mediation analysis indicated that increases in self-compassion were the reason for the effect of MBSR on worry. Controlling for change in self-compassion showed that increases in mindfulness mediated the intervention's effects on difficulties in emotion regulation. Both variables mediated the effects of MBSR on fear of emotion. This information highlights the importance of mindfulness and self-compassion as key processes of change that underlie MBSR outcomes.⁷⁹

Mindfulness-Based Cognitive Therapy for SUD

Mindfulness-based cognitive therapy (MBCT) is group-based skills training program, which includes meditation, yoga, and psycho-education, with the goal of enabling individuals to become more aware of their physical sensations, thoughts, and feelings.¹⁷ Based on Jon Kabat-Zinn's MBSR program, Segal, Teasdale, and Williams planned the MBCT to prevent relapse by increasing metacognitive awareness without any explicit effort to change negative thinking. In this method, ideas for cognitive therapy are combined with meditation methods and attitudes based on cultivating mindfulness.⁵² MBCT was initially developed as a method of preventing recurrence of depression in people at high risk, but has since been adapted to a range of different contexts and populations.⁸⁰ In this method, individuals are trained to observe their feelings and thoughts without judging them. Instead of observing them as part of themselves or as a reflection of reality, individuals view their feelings and thoughts as simple mental events which pass. This kind of attitude prevents the intensification of negative thoughts and intellectual rumination.⁸¹ Presently, few studies have focused on the influence of MBCT on individuals with addiction. Kazemian conducted a trial to determine the effectiveness of an MBCT intervention on the general health of volunteers with SUD.⁵¹ The results of repeated analysis of variance (ANOVA) demonstrated that

MBCT had a significant positive effect on general health, anxiety, somatization, depression, and social dysfunction in volunteer self-healing addicts. In addition, the results showed that the improvement induced by the intervention was sustained until the follow-up.⁵¹ Hosseinzadeh and Barahmand examined the effects of MBCT in decreasing depressive symptoms in men with dual diagnosis (drug dependent with co-morbid depression).⁵² The intervention group received 8 sessions of 2-hour MBCT training. The results showed that MBCT contributed to a significant reduction in depressive symptoms in dually diagnosed individuals.⁵² Xiaoxu and Haixue analyzed the effectiveness of MBCT on college students with mobile phone addiction.⁵³ The experimental group received 4 weeks of therapy including 8 MBCT sessions. In the intervention group, the total scores, and scores for uncontrolled response, withdrawal, and inefficiency concerning mobile phone addiction were significantly lower compared to the corresponding pretest scores. Their total score in the experiment group was higher compared to the pretest one, while there existed no significant difference between the two inefficiency scores of individual mobile phone addiction.⁵³ A process of change following MBCT was characterized, which has the following stages: paying attention to the present moment, becoming aware of the body, emotions, sensations, and thoughts and their inter-relatedness, acceptance of these experiences, identifying ineffectual patterns, and changing these patterns.⁵² Clearly, further studies are required to confirm the efficacy of MBCT for individuals with SUD.

Few systematic reviews have previously evaluated the effects of CBT on addiction. However, the results of one of these systematic reviews are questionable because of evidence of publication bias and lack of regional diversity, and it showed that CBT could be used as a SUD treatment strategy. Other systematic reviews were more directed towards the effect of third wave and traditional therapies on SUDs co-morbid with depression.^{82,83} McHugh et al.⁸² conducted a study on a type of second-wave therapy, which included third-wave therapies and is fundamentally different from the treatments in our study. These two types of treatments are completely different in terms of underlying logic and technique. For example, CBT challenges

thoughts, but third-wave therapies work on accepting thoughts, emotions, and sensations.⁸⁴ In addition, Vujanovic et al.⁸³ focused on the coexistence of SUD and depression. They also discuss the role of depressive symptoms in SUDs. However, our study has mostly reviewed the effect of third-wave therapies, such as DBT, on the parameters of addiction. Therefore, we have evaluated the effects of the third-wave CBTs as promising complementary therapy for the prevention and treatment of addiction.

Conclusion

While research into third-wave behavioral treatments for SUD is still underway, early evidence is promising. Effective third-wave addiction treatments are MBRP, ACT, and DBT. Although other third-wave therapies, such as MBSR and MBCT, have been significantly effective, few studies have documented their effectiveness in addiction treatment. Further research is required in order to better understand which specific types of mindfulness-based interventions would work best for specific types of addiction, patients, and conditions. Furthermore, high-quality trials with large sample

sizes are needed to better understand who these interventions work for and how they work, in order to select the appropriate intervention and identify the most crucial components and “active ingredients.” Future research should also consider how we can deliver these interventions in a cost-effective way in order to maximize patient access.

Conflict of Interests

The Authors have no conflict of interest.

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Authors' Contribution

Contributed to the conception, design, and drafting of the manuscript: AG and EB; carried out the literature search and data extraction: EB; checked the data extraction and wrote the final report: AG; contributed to drafting of the manuscript: EB; contributed to drafting of the manuscript: AO. All authors approved the final version of the manuscript for submission.

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روایتی مروری از موج سوم درمان‌های شناختی- رفتاری در اعتیاد

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مقاله مروری

چکیده

اختلال سوء مصرف مواد، یک مسأله بهداشتی شایع با پیامدهای جدی اجتماعی و شخصی است. این اختلال اغلب با چندین مشکل بهداشت جسمی ارتباط دارد. در ویرایش پنجم Diagnostic and Statistical Manual of Mental Disorders (DSM-5)، ویژگی اساسی اختلال سوء مصرف مواد، مجموعه‌ای از تظاهرات شناختی، رفتاری و روان‌شناختی را در برمی‌گیرد که نشان دهنده استفاده بی‌نظیر از مواد است. با وجود این که مشکلات قابل توجهی به دلیل ادامه استفاده وجود دارد، چندین مداخله جایگزین مشخص شده است. در این میان، روش‌های درمانی مبتنی بر ذهن‌آگاهی توجه روزافزونی را به خود جلب کرده است. پژوهش حاضر، مروری بر شواهد استفاده از موج سوم درمان‌های شناختی- رفتاری (Cognitive-behavioral therapies یا CBTs) در درمان اعتیاد بود. ادبیات منتشر شده طی سال‌های ۱۹۹۰ تا ۲۰۱۹ بررسی گردید. به منظور درک بهتر انواع مداخلات مبتنی بر ذهن‌آگاهی برای انواع خاصی از اعتیاد، انجام مطالعات بیشتر ضروری است. یافته‌های فعلی به طور فزاینده‌ای از CBTs موج سوم به عنوان یک درمان مکمل امیدوارکننده جهت پیشگیری و درمان اعتیاد حمایت می‌کند.

واژگان کلیدی: اعتیاد؛ مراقبه؛ ذهن‌آگاهی؛ اختلالات مربوط به مصرف مواد؛ درمان شناختی- رفتاری

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