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Mindfulness-based interventions (MBI) for addiction control – review

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Abstract

Introduction: Addiction is a complex phenomenon whose development may be related to many factors. Its treatment often includes behavioral therapy, social support, and in the case of substance addictions, may also include drug therapy. A key element of therapy is understanding the causes and mechanisms of addiction and developing the ability to cope with temptations and difficulties. In this particular context the utilization of mindfulness practices demonstrates promising potential in aiding the management of addiction.

Purpose: Provide an overview of the current understanding regarding the efficacy of mindfulness training in addiction therapies.

Description of the state of knowledge: The importance of employing mindfulness techniques in addressing addiction is steadily rising. Consistent practice of mindfulness offers advantages in addressing addictive behaviors by aiding individuals in comprehending and regulating impulses as well as managing intense cravings. Mindfulness facilitates an enhancement in self-awareness and recognition of personal reactions, proving especially beneficial in the process of recovery from addiction.

Summary: Research shows that mindfulness training may be a promising intervention in addiction control because it increases self-control and promotes emotion regulation. However, further research is needed to evaluate the long-term effectiveness of mindfulness for addiction control.

Keywords: mindfulness; addiction; addictive behavior; dependence; substance use disorder.

Introduction

Addiction is a clinically significant condition in which a person loses control over a certain behavior or substance consumption despite its negative consequences. [1,2] An array of various types of addictions exists, encompassing substance addictions (such as alcohol, drugs, nicotine), behavioral addictions (like gambling, compulsive shopping, internet addiction) as well as food addiction. [3,4,5]

The regulation of impulses holds significant relevance within the sphere of addiction. Diminished impulse control represents a pivotal factor contributing to the perpetuation or exacerbation of addictive behaviors. Individuals grappling with addiction frequently encounter challenges in suppressing abrupt and intense cravings associated with the substance or conduct forming the focal point of their addiction. [6,7,8,9] The regulation of impulses within the context of addiction demands an investment of time, effort, and consistent practice. Expanding one's awareness and mastering impulse management skills constitute essential components of the therapeutic process, supporting individuals with addiction in cultivating healthier habits and preventing relapses. [10] An essential aspect of mindfulness is consciously choosing which external and internal stimuli we want to notice. Therefore, its techniques can disrupt the automatic reaction that leads to engaging in addictive behaviors. [11] Through developing an awareness of their substance use patterns, recognizing the automatized nature of their behavior, and acknowledging the tendency to self-medicate negative affect with substances, individuals can harness mindfulness skills to address symptoms of substance use disorder (SUD). Utilizing mindfulness techniques like focused breathing, body scanning and incorporating mindfulness into routine activities aids in disrupting automatic substance use habits. Consequently, this approach fortifies self-regulatory capacities, enabling individuals to exert enhanced self-control over their behavioral responses. [12]

Mindfulness — meaning and techniques

Mindfulness refers to the intentional direction of attention to the current moment, involving an individual's cognizance of their thoughts, emotions, bodily sensations and external environment, approached with an accepting and non-judgmental attitude. [13] The techniques most extensively studied in children and adolescents

include mindfulness-based stress reduction (MBSR), mindfulness-based cognitive therapy (MBCT), yoga meditation, transcendental meditation, body-mind techniques like yoga poses and tai chi movements and mind-body practices such as relaxation or meditation. [14] MBSR is a structured intervention that provides individuals with the opportunity to acquire skills in body scanning techniques, breath-focused meditation and gentle physical exercises inspired by yoga. [15] MBCT is a mindfulness-based therapeutic practice that integrates elements of mindfulness meditation with cognitive-behavioral therapy (CBT) techniques. [16]

There is also another integrative therapy — Mindfulness-Oriented Recovery Enhancement, known as MORE, which is a therapeutic approach that utilizes mindfulness techniques to assist individuals in cultivating fresh positive perspectives, restoring purpose, drive and joy.[17]

Mindfulness structured intervention in clinical trials

In recent years, there has been a notable increase in interest in mindfulness interventions, reflected in the rising number of conducted randomized controlled trials (RCTs). [18]

MBSR

Research carried out by Lenze EJ et al. revealed that MBSR reduce worry severity and improve cognitive functioning in elderly patients with significant anxiety-related distress plus subjective cognitive dysfunction. [19] Wetherell et al. in 2017 reached similar conclusions. Researchers randomized 103 older adults reporting subjective neurocognitive difficulties and diagnosed with an anxiety or depressive disorder either to MBSR or to a health education control condition. The group engaged in MBSR displayed greater improvement in memory tasks and showed significant enhancement in clinical assessments related to worry and depression following the intervention. Moreover, when compared to the control group, those who underwent MBSR exhibited greater improvements in measures of worry, depression and anxiety during the three- and six-month follow-up assessments. [20] In addition, MBSR was found to improve symptoms of chronic insomnia and may reduce chronic low back pain (CLBP) for a short period of time. [21,22]

MBCT

Helmes E. and colleagues in their study drew conclusions that after the intervention, the MBCT group demonstrated noteworthy decreases in geriatric anxiety and anxiety sensitivity measures alongside heightened levels of mindfulness and improved quality of life. [23] Moreover, comprehensive evaluations and randomized controlled trials indicate that MBCT could serve as a beneficial intervention for individuals currently experiencing depression, and also as a preventive measure for relapses in patients who have encountered three or more depressive episodes in the past. [24,25,26,27,28] Zemestani M et Fazeli Nikoo Z revealed that MBCT reduces the depressive and anxiety symptoms in pregnancy, from pre-to posttreatment that continued through follow-up. [29] This is particularly important due to the limited quality of research on the safety of psychopharmacotherapy during pregnancy.

In case of migraine both MBSR and MBCT may reduce pain severity and improve patients' quality of life. [30]

MORE

The MORE program appears to be a helpful tool in the therapy for stress, chronic pain and addiction. [31,32]

Utilization of mindfulness-based interventions in the treatment of addiction

The search of publications in the Pubmed database was carried out via Advanced Search Builder using combination of word mindfulness and following keywords: addiction, addictive behavior, dependence, substance use disorder. The publications included in the review were published in 2009-2023.

Maneesang W and coworkers conducted an investigation about how effective Mindfulness-Based Therapy and Counseling programs (MBTC) are in preventing relapses into methamphetamine dependence at a substance dependency treatment center. The experimental group, at the six-month follow-up, exhibited significantly lower levels of craving, depression and stress compared to the control group. Their mindfulness scores were also statistically significantly higher. Furthermore, the MBTC group experienced significantly fewer instances of methamphetamine relapse than the control group. [33]

Mindfulness-Based Substance Abuse Treatment is an evidence-based, group-focused training program that integrates self-awareness, mindfulness techniques and strategies for treating substance abuse among adolescent users. Alizadehgoradel J and colleagues investigated the application of MBSAT in adolescents with substance use disorders. The experimental group received two 50- to 60-minute sessions each week, totaling 12 sessions. This is the inaugural study of its kind and the results confirm the advantages of mindfulness-based practices in enhancing executive functions among adolescents coping with methamphetamine use-related disorders. [34]

Lorenzetti V et al. published a systematic review indicating that mindfulness-based interventions in substance use disorders result in alterations in the functioning of the brain pathways associated with addiction (e.g., striatum and anterior cingulate cortex). These changes were correlated with increased mindfulness, reduced medication use and diminished substance craving. [35]

Vidrine JI et al. conducted an investigation involving 158 patients who were tobacco cigarette smokers, having smoked at least 5 cigarettes per day for the past year and who were motivated to quit within the next 30 days. Their study provided preliminary evidence that the level of mindfulness among smokers seeking assistance to quit smoking is significantly associated with the level of withdrawal, agency and nicotine dependence – three factors recognized as crucial in predicting susceptibility to relapse. [36]

Moment-by-Moment in Women's Recovery (MMWR) is a mindfulness-based intervention specifically designed to support the retention of substance use disorder treatment and prevent relapses among vulnerable women. These women have intricate social histories and come from various ethnoracial backgrounds. Black DS and Amaro H in randomized controlled trial tested the efficacy of MMWR on residential treatment retention. The participants involved MMWR, in comparison to those in the control group, demonstrated a reduced likelihood of prematurely leaving residential without satisfactory progress following the intervention period. The effect size, ranging from medium to large, indicates significant clinical relevance regarding the impact on retaining individuals in

residential SUD treatment. This factor has previously been identified as predictive of relapse and readmission to SUD treatment. [37]

Additionally, the most recent scientific reports suggest that mindfulness-based interventions yield comparable effectiveness to existing evidence-based treatments for addictive behaviors.[38] Moreover, in the first direct comparison between MORE and CBT regarding coexisting psychiatric disorders and substance use disorders, conducted by Garland EL et al., the results suggest that MORE, compared to CBT, led to a slight but statistically noticeable improvement in post-traumatic stress symptoms, craving, and positive and negative affect before and after treatment. Researchers highlighted the significant indirect effect of MORE on craving and post-traumatic stress through heightened dispositional mindfulness. This indicates that the intervention's therapeutic impact stems from its capacity to augment mindful awareness in daily life. It's important to mention that the recorded clinical results were assessed following a 10-week treatment period. The longevity of these therapeutic advantages remains unknown. [39]

Summary

Mindfulness-based interventions seems to have great potential in the treatment of addiction and relapse prevention. They incorporate practices that enhance self-awareness, emotional regulation and prevent reactions associated with addictive behaviors. Studies have shown that mindfulness techniques can effectively reduce substance cravings, improve impulse control, manage stress and enhance overall psychological well-being. These interventions often complement traditional addiction treatments, providing individuals with valuable tools to cope with triggers and prevent relapse. Further large-scale, meticulously designed studies with extended follow-up periods are necessary to unequivocally establish the worth of mindfulness-based interventions in the treatment of addiction and relapse prevention.

Author's contribution

Conceptualization, Julia Szymonik ; methodology, Julia Szymonik and Justyna Woźniak; software, Sebastian Szopa and Karol Womperski; check, Julia Szymonik, Justyna Woźniak and Sebastian Szopa; formal analysis, Justyna Woźniak and Sebastian Szopa; investigation, Julia Szymonik and Karol Womperski; resources,

Julia Szymonik and Karol Womperski; data curation, Julia Szymonik and Sebastian Szopa; writing - rough preparation, Julia Szymonik; writing - review and editing, Julia Szymonik and Justyna Woźniak; visualization, Sebastian Szopa and Karol Womperski; supervision, Sebastian Szopa and Karol Womperski; project administration, Julia Szymonik; All authors have read and agreed with the published version of the manuscript.

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Conflict of Interest Statement

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