Although mindfulness-based interventions have recently received attention as efficacious approaches for treatment of addictive disorders, exactly how mindfulness works, for whom, and for how long are not precisely delineated. An improved understanding of these key factors needs to include physiological as well as cognitive and psychological assessments of mechanisms of action to tailor more effective treatments and achieve longer term impacts on addictive behaviors. Mindfulness is defined as a way of paying attention: on purpose, in the present moment, and non-judgmentally [1]. In the context of Mindfulness Based Relapse Prevention (MBRP), the key contribution of mindfulness practices is “…to develop awareness and acceptance of thoughts, feelings, …and to utilize these mindfulness skills as an effective coping strategy in the face of high-risk [drinking] situations” [2]. Although physiological response is not directly specified in this definition, I propose that the physiology of mindfulness may be one of the most salient factors impacting effectiveness.

Recent efforts have investigated the mechanisms of action of MBRP in the prevention of relapse for substance use disorders. Focusing on alcohol and other drug use, Bowen and Kurz [3] showed reduced substance use as well as decreased cravings in an MBRP group compared to a treatment as usual (TAU) group over time. Findings also revealed that participants in the MBRP intervention group showed increased acceptance and a higher likelihood of acting with awareness by the end of treatment than the TAU group. Additional research highlighted the role of between-session practice and therapeutic alliance on changes in levels of mindfulness following an MBRP program [4]. Results revealed a significant positive correlation between time spent in mindfulness meditation between sessions and increased levels of mindfulness post-treatment, with diminishing effects at 2-month and 4-month follow-ups. Not surprisingly, results support the importance of between-session practice and therapeutic bond as significant predictors of increased levels of mindfulness post-treatment. The authors also found that the processes of awareness, acceptance, and non-judgment combined mediated the relation between receiving MBRP and levels of cravings at post-treatment. This finding brings support to the primary objective of MBRP – that is, to develop an ability to respond to internal and external stimuli by increasing awareness and acceptance, while maintaining a non-judgmental stance. The psychological characteristics reviewed above are, however, fairly subjective and susceptible to the influence of suggestion and are also quite similar to the common factors associated with cognitive therapy, relaxation or assessment only interventions. However, it is known that mindful meditation effects central and autonomic nervous system functioning and facilities self-regulation [5].

While research indicates that MBRP is effective in reducing substance use relapse, only preliminary research has examined the influence of MBRP on the physiological mechanisms involved in emotion regulation after exposure to stress [6]. Examining these physiological mechanisms is essential because the central and autonomic nervous systems work together to coordinate the self-regulation of attention, cognition and emotion when stressful cues are encountered, such as when a substance dependent individual is exposed to stressful and/or substance related stimuli [7]. Heart rate variability (HRV) is generally seen as an index of emotion regulation [7]. High frequency HRV reflects parasympathetic activation [8] of the autonomic nervous system and the body’s ability to exert cognitive control over attention and emotional responding [8]. Higher levels of HRV are associated with greater emotional and behavioral flexibility, and tend to be associated with better mental and physical health outcomes [9]. In contrast, lower levels of HRV are associated with a wide range of medical and psychiatric disorders [10] including acute and chronic alcohol ingestion [11], anxiety and depression [12,13]. Among alcohol dependent individuals, mindfulness training has been found to increase HRV and lower subjective levels of psychological distress in response to stressful cues in the short-term [14].

Additional research is required to examine the long-term effects of MBRP on HRV and self-reported psychological/behavioral functioning in order to provide a better understanding of the interplay between the psychological and physical mechanisms involved in relapse and help determine whether MBRP has lasting psychological and physiological benefits. In other words, assessing both the psychological and physiological effects of MBRP will provide a more accurate and comprehensive understanding of how mindfulness aids in promoting self-regulation and relapse prevention.

Little is known about which types of individuals are most likely to benefit from MBRP. I believe that it is necessary to examine individual characteristics including physiological as well as psychological and behavioral (i.e., baseline levels of HRV, trait mindfulness, substance use, anxiety, depression), to determine which characteristics are associated with positive treatment outcomes in both the short and long-term. This knowledge will enable more efficient and effective delivery of the MBRP treatment. Thus future research will need to entail large, longitudinal, well controlled studies that examine the intentions, psychological, behavioral, and physiological characteristics of individuals participating in treatment in order to define mechanisms of action and help further the ability to tailor this treatment for most effective implementation.

References

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