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Review Article

Adjunct Application of Mindfulness-Based Stress Reduction in Anorexia Nervosa

Abdullah Hafid[1,2] and Nicholas A Kerna[3]

[1]*University of Science, Arts and Technology, BWI*
[2]*University of Health and Humanities, BVI*
[3]*SMC–Medical Research, Thailand*

***Corresponding Author:** Nicholas A Kerna, POB47 Phatphong, Suriwongse Road, Bangkok, Thailand.
Contact: medpublab+drkerna@gmail.com.

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Abstract

Anorexia nervosa (AN) is a psychiatric disorder resulting in pathological weight suppression and or abnormal dietary habits that lead to physical damage and at times, fatal consequences. The precise etiology or mechanism of AN is unknown, although multiple factors have been suggested, such as genetic, physiological, psychological, social, and environmental, or a combination thereof. Pharmacotherapy is one approach to treating AN. However, most medications have side effects, some tolerable and some undesirable. Thus in the treatment of AN, a reduction in the use of drugs with adverse effects is preferred. Other therapeutic options are needed to diminish the symptoms and reduce the long-term risks of AN, which can be fatal. Introduced in the late 1970s, mindfulness-based stress reduction (MBSR) or mindfulness-based intervention (MBI) utilizes nonsectarian practices, including body awareness, seated or walking meditation, yoga, and prayer. The adjunct use of one or more of these methods may be helpful for specific patients in monitoring stressors and triggers in AN and in some cases, reducing the patient's dependency on medicines with adverse effects. Although currently, there is no medically-established protocol for MBSR or MBI in the adjunct treatment of AN, the application of MBSR for specific patients is promising. Considering the adverse effects of drugs typically used to treat AN and the long-risks of the condition, MBSR should be investigated further for its application or adjunct use in treating anorexia nervosa and other eating disorders.

Keywords: *Adjunct Therapy; Adverse Effects; Anorexia; Binge-Eating; Eating Disorders; Meditation; Mindfulness; Prayer; Yoga*

Abbreviations

AN: Anorexia Nervosa; AN-BE/P: Anorexia Nervosa, Binge-Eating/Purging Subtype; AN-R: Anorexia Nervosa, Restricting Subtype; BMI: Body Mass Index; ED: Eating Disorder; DSM-5: Diagnostic and Statistical Manual of Mental Disorders, 5th Edition; FBT: Family-Based Treatment; HPA: Hypothalamic–Pituitary–Adrenal Axis: ICD-10-CM: International Classification of Diseases, 10th Revision, Clinical Modification; MBI: Mindfulness-Based Intervention; MBSR: Mindfulness-Based Stress Reduction; MCBT: Mindfulness-Based Cognitive Behavioral Therapy; PET: Positron Emission Tomography; SPECT: Single-Photon Emission Computed Tomography; SNRI: Selective Norepinephrine Reuptake Inhibitor; SSRI: Selective Serotonin Reuptake Inhibitor.

Preface

According to Hafid and Kerna (2019), in their published review on MBSR in chronic pain: In the management of [specific] disorders, there is a need to reduce the dependency on drugs with adverse effects and discover and apply adjunct therapies and methods for more effective outcomes with medical treatment. Introduced in the late 1970s, mindfulness-based stress reduction (MBSR)—or mindfulness-based

intervention (MBI)—utilizes nonsectarian practices, including body awareness, seated or walking meditation, yoga, and prayer. The adjunct use of one or more of these methods is proving helpful for specific patients in noting and controlling stressors and triggers to their conditions and in some cases, reducing their dependency on medicines with adverse effects and resulting in more effective outcomes to their treatment [1].

Introduction

Mindfulness-based stress reduction (MBSR) or mindfulness-based intervention (MBI) is composed of methods based on historical beliefs, traditions, and practices, including but not limited to Buddhism, Shambhala, Vipassana, and Zen ideologies. A prominent figure in the Western adaptation of Eastern philosophies, beliefs, and practices in MBSR and MBI, Jon Kabat-Zinn describes "mindfulness" as the capacity to maintain mental openness regarding tolerance and a nonjudgmental focus in the present moment [2].

Other scholars have characterized "mindfulness" as a blend of awareness and focus on fostering self-consciousness or self-awareness and emotional "control" (paradoxically by dismissing the control of a state of being). MBSR and MBI emphasize neutral, nonjudgmental attitudes and perceptions. In a pathological sense, harmful perceptions or states of being may promulgate and sustain a negative-feedback cycle reinforcing an adverse state of mind or condition [2], such as in anorexia nervosa (AN) and other eating disorders (EDs) [2,3].

The theoretical rationale for the application of MBSR (or MBI) is based on attention-discipline or attention-control via various methods, such as body awareness, meditation, yoga, and or prayer. MBSR can be practiced in an organized or casual setting, including instructor-led discussion, attention-centered technique, seated meditation, and yoga [1,2]. Individuals who participate in MBSR find an enhanced ability to cope with stressful situations, especially in terms of responding with adaptive strategies [1,2], which could prove particularly useful in AN and EDs [3].

In the western world, MBSR was developed and promulgated in the late 1970s by Jon Kabat-Zinn at the University of Massachusetts Medical Center [2]. The origins of MBSR include specific cultural practices and religious beliefs. However, MBSR does not adhere to or demand specific cultural practices or religious beliefs from its users or healthcare practitioners who recommend or prescribe MBSR.

Western medicine is gradually revealing a scientific basis for the application of MBSR as adjunctive therapy for specific conditions, which may prove useful in treating AN. Applying MBSR as adjunctive therapy in AN patients may have an advantage of not only ameliorating or eliminating the stressors and prompters in the AN patient but also in reducing or eliminating dependence on any pharmaceutical agents that may have been prescribed and have undesirable side effects [1,2].

Mindfulness is a form of mental conditioning or preparation to improve an individual's core psychological capacities and regulate emotions (and thus physiology). A contemporary description of "mindfulness" underscores sound and stable consciousness and focus regarding the present moment, along with nonjudgmental attention towards thoughts and feelings.

According to a National Health Interview Survey, less than ten percent of the US population practices mindfulness [2]. MBSR is known to decrease stress, anxiety, and benefit specific health conditions [2]. MBSR increases concentration, insight, and awareness of the present moment, promotes relaxation, reduces stress, calms the mind, and helps achieve a state of enhanced consciousness, thereby diminishing the effect of stressors and prompters [2,3] that contribute to AN. In these regards, MBSR may help some patients manage or "escape" their anorexic state, reduce their dependency on medications, and improve physical health, self-esteem, and outlook on life.

Discussion

Etiology of anorexia nervosa (AN)

AN is a condition categorized by abnormal (and often deleterious) dietary habits resulting in excessive loss of body weight when compared to age-related peers. Diagnostic guidelines for AN, as described in the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5), are based on dietary habits, body image, and fear of weight gain, among others. The prevalence of AN is estimated to be .005% in US females aged 12–25 years [4].

The International Classification of Diseases, 10th Revision, Clinical Modification (ICD-10-CM) has separated AN into two categories: anorexia nervosa, restricting subtype (AN-R) and anorexia nervosa binge-eating/purging subtype (AN-BE/P). AN-R involves an individual practicing long-term fasting, denial of hunger, and significant weight loss (absent of purging signs or symptoms over three months). AN-BE/P is characterized by weight reduction with evidence of vomiting, abuse of gastrointestinal medicines (e.g., laxatives), diuretics, or large intake of food followed by self-induced regurgitation [3].

The precise etiology or mechanism of AN is unknown, although multiple factors have been suggested. Social influence, childhood upbringing, and family stress appear to affect body image and weight for those with AN. Long-term anorexia can have a severe, negative impact on specific body organs and systems. Studies have shown that chronic AN results in gastrointestinal deterioration, cardiovascular compromise, endocrinological disruption, and skeletal abnormalities [4].

Researchers have studied genetically-related personality attributes and tendencies, finding more than forty genes with more than one hundred polymorphisms correlated with AN. These genetic factors appear to regulate dietary behavior and motivation mechanisms [4]. However, the expression of these factors may be stifled by addressing stress or stress-related triggers through adjunctive means, such as MBSR.

In AN, positron emission tomography (PET) and single-photon emission computed tomography (SPECT) have revealed atypical dopaminergic and serotoninergic transmissions along portions of the anterior ventral striatum. Noted explicitly in these imaging techniques regarding AN: enhanced binding of dopamine (D2/D3) and serotonin (5-HT1A) receptors, yet decreased binding of serotonin 5-HT2A [4].

Pros and cons of current AN treatment

Considering the genetic and binding abnormalities mentioned in the previous section, pharmacotherapy may be helpful in specific cases of AN; however, limited benefit from such has been demonstrated in large-scale studies. Antidepressants, such as selective serotonin reuptake inhibitors (SSRIs), selective norepinephrine reuptake inhibitors (SNRIs), and atypical antipsychotics (i.e., olanzapine) are used. Therapy-based treatments, in particular, family-based treatment (FBT), have shown some benefit in AN and other EDs that are dependent on parental, guardian, or caretaker assistance. The objectives of psychotherapy are aimed at decreasing negative body image and abnormal eating behavior [3]. However, when addressing AN, patient age, legal framework, mental capacity, and social and cultural variances may alter therapeutic choice and intervention [5].

In AN, a lack of treatment adherence is common among patients, which has been reported on in medical out-patient and in-patient facilities, globally, and inclusive of various therapeutic methods. Across numerous AN studies, the treatment dropout rate is fifty percent or higher [6]. Also, there is a time-dependent relationship in AN from symptom onset to initiation of medical care [7].

Ethical concerns arise in AN patient-healthcare provider encounters, some of which are not typically observed in other mental pathologies. Nevertheless, ethical standards apply; patient autonomy must be respected by the healthcare provider, regardless of the patient's decision concerning their treatment. However, AN patients might be unaware of their health condition and the severe consequences of AN, particularly in the long term; this being especially true in those patients without severe symptoms, creating a false sense of health and disregard for medical advice or treatment [7].

Application of MBSR in AN

Signs and symptoms vary in type and degree in AN. Those affected tend to detach themselves from others and are reluctant to comply with social norms and standards. Variables that influence irregular dietary habits are linked to various fundamental causes, including social, psychological, environmental, and biological [5]. Although there has been limited research regarding MBSR application in AN, MBSR in EDs has shown promise. MBSR practice, the development of nonjudgmental consciousness of the present moment, helps to improve emotional response to food and regulate feelings towards eating [3].

MBSR or MBI has shown positive outcomes concerning pain, stress, negative emotion, and addictive behavior. MBI might reduce the reliance of exogenous opioid intake for those addicted to narcotics; thus, MBI performs a similar function in addressing increased dopamine and serotonin receptor sensitivity in AN [5]. An important finding in MBI, adults who had more extended follow-up visits, appeared to have better outcomes when compared to adults with shorter follow-up visits [6].

MBSR, MBI, and mindfulness-based cognitive behavioral therapy (MCBT) are multi-component therapies capable of diminishing the effects of numerous stressors and thus optimize therapeutic efficacy [2]. There is more to be done in the prevention and control of AN, especially considering the adverse effects of specific medications.

It has been established that prolonged states of stress can have a profound adverse effect on the hypothalamic–pituitary–adrenal axis (HPA) axis, and subsequently alter eating habits [5]. Those with AN have increased endogenous opioid sensitivity during periods of prolonged fasting or eating denial. Thus, it can be opined that neuronal activation of the reward and gratification centers in the brain by opioids could affect AN eating behavior [8].

The application of MBI in AN might reduce AN signs and symptoms by regulating dopamine and serotonin receptor sensitivity [8]. AN should not be underestimated; mortality risk is greater in AN than many other mental disorders [9]. The severity of AN is measured by body mass index (BMI): BMI ≥ 17 kg/m2 (mild); BMI 16–16.99 kg/m2 (moderate); BMI 15–15.99 kg/m2 (severe); BMI < 15 kg/m2 (extreme) [1].

Limitations of MBSR in AN

Several reports have examined the pressure and perceived coercion AN patients experience regarding seeking treatment. AN patients have reported high levels of perceived coercion for treatment. Nevertheless, many AN patients change their perception after treatment has been undertaken [9]. However, AN patients have a high treatment drop-out rate. The cause of this high treatment drop-out rate is unknown, which remains a concern for the patient's family and physician [9].

Much is still unknown about the pathophysiologic, mechanistic, and cellular-level causes of AN. Thus, future research should consider the prompters, mechanisms, and pathways in the development of AN and, in particular, how MBSR or MBI can ameliorate such. In doing

so, medical practice may benefit from a complementary model in treating AN with pharmacotherapy and MBSR. However, precise and established guidelines for the application of MBSR in augmenting the treatment of AN is necessary.

Conclusion

Anorexia nervosa is a psychiatric disorder resulting in pathological weight suppression and or abnormal dietary habits that lead to physical damage and at times, fatal consequences. Mindfulness practices have been used in various forms throughout human history to gain self-awareness and a more profound sense of connection to the human "spirit" or a creator or creative force. Western medicine is beginning to seek a scientific basis for the application of MBSR as adjunctive therapy for specific conditions [1]. MBSR methods may have an advantage in addressing anorexia nervosa and in doing so, help the patient avoid or reduce their dependency on drugs to treat their condition, some of which have undesirable side effects. Currently, there is no standard medical protocol or guidelines in applying mindfulness-based stress reduction or mindfulness-based intervention as an adjunct therapy for anorexia nervosa. This lack of medical protocol makes MBSR application uncertain and challenging, which will likely result in its reluctant use by patients or prescription by healthcare providers. However, more research is suggesting that for specific anorexic patients, mindfulness-based stress reduction may prove helpful in managing and lessening their condition.

Conflict of Interest Statement

The authors declare that this paper was written in the absence of any commercial or financial relationship that could be construed as a potential conflict of interest.

Supplementary Note

Healthcare providers interested in integrating MBSR methods into their practices should consider the following resources:

Mindfulness-Based Stress Reduction, Professional Training—Mindfulness-Based Stress Reduction, Curriculum Guide and Supporting Materials, Integrating Mindfulness Meditation into Health Care (https://www.umassmed.edu/globalassets/center-for-mindfulness/documents/mbsr-curriculum-guide-2017.pdf

Palouse Mindfulness, Mindfulness-Based Stress Reduction (https:/palousemindfulness.com).

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