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Narrative Review

A NARRATIVE REVIEW ON MINDFULNESS-BASED INTERVENTIONS IN CANCER CARE: AN EVIDENCE-BASED APPROACH.

H. I. Farrukh*
*Director, Consultant Head and Neck Surgeon, Advance ENT Hospital, Champanagar, Bhagalpur, Bihar, India.

ABSTRACT

The concept of mindfulness holds diverse interpretations, with both Eastern and Western perspectives contributing to its multifaceted nature. While mindfulness-based practices have origins in Eastern religious traditions, the Western approach emphasizes achieving mindful awareness to mitigate stress, enhance physical well-being, and foster life harmony. Historical records suggest potential advantages of mindfulness in promoting physical and mental health, particularly in cancer management. Emotions have long been associated with cancer development, dating back to classical observations linking despondency with heightened breast cancer susceptibility.

This review aims to explore the utility of mindfulness in cancer management, considering diverse perspectives and historical connections. Specifically, it investigates the impact of the Mindfulness-Based Stress Reduction (MBSR) program on physical health, mental health, neuropsychological performance, and spirituality in cancer patients, focusing on bone tumors. Mindfulness-based practices have shown promise in cancer management by reducing stress, improving psychological well-being, and enhancing coping skills. Studies have revealed associations between mindfulness and beneficial outcomes, such as improved sleep quality and reduced anxiety. Mindfulness interventions have also demonstrated immunological effects and altered cytokine production. Moreover, cost-effectiveness analyses have indicated that mindfulness-based therapies can enhance quality of life at a reasonable cost.

Further research is needed to explore the potential of mindfulness in reducing cancer incidence and preventing recurrence. Investigations into its immunological and psychosocial impacts, as well as its cost-effectiveness, should be expanded to provide a comprehensive understanding of its role in cancer care.

Clinicians should consider incorporating mindfulness-based interventions into cancer management strategies, particularly for addressing stress, psychological distress, and improving overall well-being. However, ongoing research is essential to establish evidence-based guidelines and protocols for the effective integration of mindfulness practices in clinical settings.

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*Corresponding author: H. I. Farrukh**
Email: hifarrukh@gmail.com
Director, Consultant Head and Neck Surgeon, Advance ENT Hospital, Champanagar, Bhagalpur, Bihar, India.

INTRODUCTION

The multifaceted nature of the concept of mindfulness is evident, with variations observed between Eastern and Western perspectives. As per the Merriam-Webster dictionary, mindfulness encompasses the dual nature of possessing the attribute of mindfulness as well as engaging in the endeavor of sustaining nonjudgmental awareness of one's thoughts and experiences. Mindfulness-based meditations have their origins in Eastern religious traditions, such as Hinduism and Buddhism. However, the Western interpretation of these practices places emphasis on attaining a state of mindful awareness, with the goal of mitigating stress, improving physical well-being, and fostering overall life harmony. In stark contrast, Eastern philosophical perspectives regard mindfulness as a collection of methodologies aimed at achieving heightened awareness and consciousness [1]. The historical records also make reference to the potential advantages of mindfulness in promoting both physical and mental health, particularly when it comes to the management of cancer.

In the annals of medical literature, there exists a longstanding association between emotions and the development of cancer. Classical observations have elucidated a correlation between feelings of despondency and heightened vulnerability to the onset of breast cancer. The historical origins of the correlation between emotions and cancer can be traced back to Galen, a renowned ancient Greek physician. Furthermore, it is worth noting that in the medical literature of the 18th and 19th centuries, there was a consistent correlation established between cancer and the manifestation of symptoms related to emotional distress, such as feelings of loss and depression [2].

Transpersonal psychology, conversely, explores the pinnacle of human capabilities and the acknowledgment of unifying, spiritual, and transcendent encounters. The concept encompasses both the individual and cosmic dimensions of existence, recognizing our inherent divine placement within the vast expanse of space and the continuum of time [3].

Mindfulness, as delineated by Kabat and Zinn, encompasses the deliberate and non-evaluative allocation of attention

towards the current temporal frame [4]. This therapeutic modality facilitates individuals in attaining lucidity, discernment, and entry into their internal realm and recuperative potential. Through active engagement with their mental, physical, and spiritual dimensions, individuals who practice mindfulness meditation actively contribute to their rehabilitation process, exerting a profound influence on their path towards overall well-being across various realms of existence. This review aims to explore the potential utility of mindfulness in the management of cancer, considering the diverse perspectives and historical connections associated with this topic.

The present study endeavors to address the subsequent research inquiry: The present inquiry aims to investigate the impact of the Mindfulness-Based Stress Reduction (MBSR) program on the physical health, mental health, neuropsychological performance, and spirituality of individuals diagnosed with cancer. The existing literature provides insights into the utilization of the practice as an adjunctive therapy in patients afflicted with various malignancies.

METHODOLOGY

Using the terms "mindfulness" and "cancer," a PubMed search was carried out with an emphasis on "clinical trials" to find studies on the role of mindfulness in cancer care. A total of 124 studies from the years 2000 to 2023 were found using this search. The selection criteria covered a wide range of topics related to managing cancer, such as immune response, cancer prevention, managing pain, fatigue, cachexia, stress, immune response, and sleep disorders, as well as investigating the role of mindfulness in radiation therapy and cost-effectiveness. Finally, a summary of some mindfulness practices and how they have been modified for use in cancer treatment is given.

In order to obtain a thorough grasp of the impacts and real-world experiences of mindfulness-based stress reduction (MBSR) programs in the context of older individuals, an integrative inquiry methodology that combined quantitative and qualitative data collection and analytic techniques was used in a mixed-method approach. Thesis and continuing research were not included in the analysis since there was insufficient evidence to draw any firm conclusions, although published papers were. The study used a multimodal strategy that included different viewpoints, different approaches to data analysis and interpretation, and different ways to present and discuss the results. The study investigated the eight-week MBSR program participants' experiences, evaluating their pre-program anxiety and sadness over cancer diagnosis and treatment, as well as completing a post-program evaluation. Thus, the research included assessments of these mindfulness techniques in the context of cancer management that were both subjective and objective.

DISCUSSION

A possible advantage of mindfulness in preventing cancer

In a hypothesis-generating study, a prospective analysis was performed to evaluate and compare the levels of 12-hour urinary 6-sulfatoxymelatonin in females who participate in regular meditation practices versus those who do not engage in such activities. The female participants within the meditation cohort demonstrated heightened levels of physiological melatonin when compared to the control group, which comprised of individuals who did not engage in meditation practices. The clinical significance of this discovery is underscored by the well-documented anti-cancer properties of melatonin as evidenced by multiple studies [5, 6]. Additionally, melatonin's involvement in vital biological processes such as immunomodulation and hematopoiesis, which are integral to maintaining overall health and preventing diseases, further accentuates its importance [6].

Multiple scientific investigations have consistently demonstrated a significant correlation between an individual's spiritual or religious convictions and their capacity to effectively manage and adapt to the challenges posed by cancer [7, 8].

Spiritual concerns are frequently reported by individuals who have successfully overcome cancer, with the expectation that their healthcare providers in the field of oncology will address these concerns. However, it is often observed that these discussions pertaining to spirituality are insufficiently addressed. The framework has been challenged by the incorporation of integrative care, which encompasses mind-body therapeutic practices within the field of oncology. Recent scientific investigations have shed light on the phenomenon that individuals who have successfully overcome cancer, despite facing life-threatening conditions, may undergo favorable psychological transformations [9].

In the aftermath of a cancer diagnosis, patients may encounter heightened levels of despondency and apprehension. Depressive symptoms are observed in approximately 20-25% of individuals diagnosed with cancer, particularly among those who experience more pronounced physical impairment. Mindfulness meditation, a therapeutic modality characterized by the cultivation of nonjudgmental cognitive and affective awareness, has exhibited efficacy in ameliorating stress and attenuating psychological tension. The intervention encompasses weekly sessions, accompanied by daily homework assignments, and has demonstrated neurobiological impacts on cerebral functioning [10].

Furthermore, cortisol, a stress hormone, exerts influence on immune functionality and depressive symptoms, and its concentrations can be influenced by the presence of cancer and therapeutic interventions. In patients diagnosed with

metastatic breast and ovarian cancer, there exists a correlation between the patterns of cortisol secretion and the anticipated duration of survival. Specifically, individuals with flatter cortisol slopes have been observed to experience untimely mortality.

Stress associated with cancer and mindfulness

A cancer diagnosis is frequently linked to depression (prevalence: 5%–15%) and a higher risk of suicide [11]. Numerous studies have been conducted on mindfulness in relation to stress reduction and depression brought on by cancer. One study assessed the efficacy of a Mindfulness-Based Stress Reduction (MBSR) program in post-treatment breast cancer patients [12]. Significant improvements in depression, physical and psychological well-being, and coping skills were observed in the MBSR group participants. Self-kindness, common humanity, and other self-compassion features significantly improved among cancer survivors, according to a different study that looked at the effects of Cognitively-Based Compassion Training (CBCT). Adult cancer patients who received mindfulness-based art therapy (MBAT) showed improvements in their spiritual well-being, feeling of coherence, and depression [13].

Additionally, a study conducted on cancer outpatients showed that the MBSR treatment significantly improved a number of mood-related subscales and reduced stress and mood disturbance. It was shown that the ConquerFear intervention, which attempted to lessen cancer recurrence anxiety, was successful in lowering anxiety-related discomfort and enhancing general quality of life [14].

Furthermore, studies investigating mindfulness meditation during chemotherapy administration have shown promise in lowering cortisol levels and the activity of the neuroendocrine system in cancer patients. In a study of breast cancer survivors, mindfulness-based cancer recovery (MBCR) outperformed supportive-expressive therapy (SET) in terms of enhancing psychological wellbeing [15]. Prostate cancer anxiety and uncertainty intolerance were shown to decrease in a feasibility and preliminary efficacy research of MBSR in low-risk patients. Additionally, there were increases in mindfulness, overall mental health, and post-traumatic growth.

MBSR and related disorders

The study by Carlson and colleagues [16] aimed to see how participating in an MBSR program affects anxiety symptoms in cancer outpatients dealing with tension and mood issues. Using the Symptoms of Stress Inventory and Profile of Mood States, they found that patients' fears decreased significantly before and after the program, showing reduced mood disturbances and stress-related symptoms. The wait-list control group, however, saw minimal changes during the same period. Patients who practiced more at home and attended more sessions experienced greater reductions in stress symptoms, possibly due to support and effective coping strategies from fellow participants.

Meditation has been associated with immunological effects, particularly in the field of psychoimmunology. The 2003 study by Carlson and colleagues analyzed how an MBSR program impacted the quality of life in early-stage breast and prostate cancer patients, mood conditions, the connection between stress symptoms, lymphocyte counts, and cytokine production. Overall quality of life improved significantly based on the European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire [17]. While there were no significant changes in the total number of lymphocytes or cell subsets, the immune profiles of these patients shifted away from a depressive pattern towards a more robust immune function. This study also revealed alterations in cancer-related cytokine production due to the program.

Shapiro and colleagues investigated the effectiveness of MBSR for breast cancer patients, particularly in addressing sleep issues caused by psychological distress. They believed that MBSR could reduce distress, improve the ability to monitor negative thoughts, and subsequently reduce sleep problems. The data analysis showed that participation in the MBSR program significantly improved daily sleep quality measurements in diaries but did not affect sleep efficiency [18]. Those who practiced mindfulness more performed better in the sleep quality aspect strongly linked to distress. The study concluded that MBSR holds promise in enhancing the sleep quality of breast cancer patients with stress-related sleep issues.

Cost effectiveness

Numerous researches have shown that mindfulness-based therapies can reduce stress and enhance quality of life at a reasonable cost. In comparison to other therapies, MBSR improved health-related quality of life at a reduced cost per quality-adjusted life year in a trial on breast cancer survivors [19]. In contrast, mindfulness-based art therapy (MBAT) was initially more expensive in a research that compared it to a breast cancer support group (BCSG). However, sensitivity analysis revealed that MBAT might be just as cost-effective if specific costs associated with the intervention were eliminated.

Another study on breast cancer pain management indicated that mindfulness-based cognitive therapy (MBCT) was a cost-effective treatment. With a probability ranging from 70% to 82%, it remained cost-effective even after accounting for smaller effects and higher MBCT expenditures. It had a high probability (85%) of reaching the Minimal Clinically Important Difference (MCID) in pain intensity [20].

CONCLUSION

Mindfulness meditation is a powerful tool for connecting with one's true self, fostering awareness, and embracing life's challenges with serenity and resilience. It allows individuals to connect with their inner divinity, be present in the universe, and find meaning in every moment. Mindfulness-based practices are increasingly applied in cancer management, with prospective trials demonstrating their utility in reducing toxicity and stress. However, further research is needed to explore their potential in reducing cancer incidence and preventing recurrence.

Hypothesis

Mindfulness-Based Stress Reduction (MBSR) programs significantly enhance the physical health, mental health, neuropsychological performance, and spirituality of individuals diagnosed with cancer, resulting in improved overall well-being. This hypothesis aligns with the purpose and findings of the review, which highlighted the positive impacts of mindfulness interventions on various aspects of cancer care, including psychological well-being, immune function, and quality of life, ultimately contributing to a comprehensive approach to cancer management.

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List of abbreviations

MBSR- Mindfulness-Based Stress Reduction
CBCT- Cognitively-Based Compassion Training
MBAT- Mindfulness-based art therapy
SET- Supportive-expressive therapy
MBAT- Mindfulness-based art therapy
BCSG- Breast cancer support group
MCID- Minimal Clinically Important Difference
MBCT- Mindfulness-based cognitive therapy

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Conflict of interest

The authors have no competing interests to declare.

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