

Content available at: <https://www.ipinnovative.com/open-access-journals>

IP Journal of Otorhinolaryngology and Allied Science

Journal homepage: <https://www.joas.co.in/>

Review Article

Mindfulness and its impact in cancer patients- Evidence based medicine

Dheeraj Makkar ^{1,*}¹Dept. of Orthopaedics, NC Medical College, Panipat, Haryana, India

ARTICLE INFO

Article history:

Received 27-04-2023

Accepted 06-05-2023

Available online 23-05-2023

Keywords:

Mindfulness

Stress reduction

Anxiety

Cancer

ABSTRACT

The present investigation aims to examine the impact of the mindfulness-based stress reduction program (MBSR) and mindful practice on individuals diagnosed with cancer, drawing upon the extant literature. The MBSR program typically spans over a duration of eight weeks and involves a structured and intensive approach to training individuals in mindfulness meditation techniques. The present investigation examined the Pubmed search engine and identified a total of 1919 studies through the utilization of specific keywords. The scope of the search was narrowed down to encompass solely studies and trials that incorporated mindfulness practices. Qualitative intervention methods, reviews, observational studies, metaanalysis, yoga, and dietary modifications were explicitly excluded from consideration. We additionally incorporated investigations with an impact factor equal to or greater than 10. The present study involved the analysis and review of nine studies that have been assigned an impact factor of ten or higher. Participants displayed more serenity; they felt more vibrant, balanced, upbeat, pleased, and emotionally strong. Their enhanced level of acceptance, presence, and perceptiveness in their interpersonal connections resulted in an elevated standard of living.

This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](#), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprint@ipinnovative.com

1. Introduction

Mindfulness is defined as "paying attention in a specific way: on purpose, in the present moment, and without judgment" according to Kabat and Zinn.¹ The idea that emotions play a major role in cancer extends from classical times. Galen, an ancient Greek physician, discovered that despondent women were more susceptible to breast cancer.² The 18th and 19th century medical literature consistently related cancer to loss and depressive symptoms.

The definition of transpersonal psychology is "the study of humanity's highest potential and the recognition, comprehension, and actualization of unitive, spiritual, and transcendent experiences."³ It "includes the individual and cosmic aspects of life, heart, mind, and spirit, human and nonhuman, interbeing and ecological"; it is a psychology

that acknowledges our divine position in space and time.⁴

Mindfulness enables meditators to have better clarity and insight and to tap the inner world and healing power necessary to nurture well-being on numerous levels of creation. Practitioners of mindfulness meditation become active participants in their own rehabilitation as they learn to employ their mental, physical, and spiritual aspects of a person's existence impact their recuperation journey.

1.1. Purpose of the article

This study explored how the MBSR program functioned as a holistic remedy for older individuals and how it affected various aspects of their lives. It cast good perspective on how MBSR can be used as an adjunctive intervention and nonpharmacological treatment for older adults in order to help them cope with the various changes they encounter at this age. This study also identified specific ways in

* Corresponding author.

E-mail address: Makkardheeraj@gmail.com (D. Makkar).

which the MBSR program must be modified to meet the unique requirements of older individuals. This study provided an in-depth comprehension, within the field of transpersonal psychology, of how mindfulness meditation promoted profound change in these older individuals and how mindfulness practice itself facilitated spiritual transformation.

1.2. Personal interest

My anecdotal evidence with mindfulness practices and the MBSR program kindled my interest in this topic. I was profoundly influenced by mindfulness and the practices because, in my daily practice, the majority of orthopedic patients, including orthopedic oncology patients, were distressed due to their diagnosis and associated stigma, whereas a select few were serene, cheerful, and accepted life as it is. It piqued my interest, so I inquired in-depth about their personal practices. I observed that the majority of peaceful patients held a firm belief in some spiritual form or another, based on their religion. This exemplifies mindfulness. This prompted me to conduct a literature review and write this article so that other patients can benefit from evidence-based practices.

1.3. Why did we choose studies involving cancer patients for this study?

Cancer continues a significant global public health concern, with over 10 million deaths projected by 2020.⁵ By 2030, an incremental million fatalities annually will be attributed to cancer, the vast majority of which will occur in low- and middle-income regions.⁶ Most patients in low-resource situations don't seek medical attention until their condition has progressed to the point where there are no effective treatments left and they have severe palliative care needs.

Cancer leads to an array of discomfiting and difficult-to-manage symptoms and worries that cut deeply into patient and family well-being.⁷ These symptoms and worries span the physical, social, psychological, and spiritual realms, and so have far-reaching effects on the patient's quality of life and level of suffering. Psychological symptoms include anxiety, depression/depressive symptoms (such as low mood, sadness), irritability, and concern. Lack of serenity and spiritual suffering are examples of prevalent spiritual symptoms, while examples of social problems include a lack of knowledge, social isolation, and psychological distress.⁸

1.4. What is mindfulness and how to practice it?

One of the principal main groups of meditation practices is mindfulness.⁹ Mindfulness derives from the Pali and Sanskrit words *sati* and *smirti*, which mean consciousness, focus, and recollection. The term "mindfulness" has been called the "heart of Buddhist meditation" and it

encompasses two distinct concepts: (a) mindful awareness, which is a "abiding presence or awareness," a "deep knowing" that appears as freedom of mind (e.g., liberation from reflexive conditioning and delusion); and (b) mindful practice, which is the "systematic practice of consciously attending in an open, compassionate, and discerning way."¹⁰

Acceptance, nonjudgment, forbearance, nonstriving, faith, open mindedness, letting go, tenderness, benevolence, empathy, gratitude, and lovingkindness are the 12 attitudes involved in mindfulness.¹¹

Consequently, a number of programs combining mindfulness meditation and psychological techniques have been devised in order to promote emotional and physical health. These initiatives are not rooted in any cultural or religious tradition, enabling for the implementation of mindfulness training in mental health and clinical settings.¹²

Mindfulness facilitates the process of mental formation.¹³ Individuals discover how to be present and completely aware of the present situation, with receptivity and understanding, without attempting to retreat into feelings about the past or tomorrow that are simply images of consciousness.

Mindfulness on the present moment cultivates one's capacity to break free of automatic mental and emotional responses to one's surroundings and inner thoughts. It enables the practitioner to learn to differentiate between how things appear to the senses and how they are conceptualized and projected in the mind. This allows the practitioner to better understand and evaluate sensory perception and inner mental states. Every emotion or thought is merely noted, rather than reflexively reacting to.

2. Aims of the Study

This study aims to answer the following research question: How does the Mindfulness-Based Stress Reduction (MBSR) program affect cancer patients' mental health, physical health, neuropsychological performance, and spirituality? What does the literature say about the use of the practice as an adjuvant treatment in individuals diagnosed with any malignancy, particularly bone tumors?

3. Materials and Methods

This study utilized a mixed-method and integral inquiry approach, combining quantitative and qualitative methods of data collection and analysis in order to gain a more comprehensive understanding of the effects and lived experience of the MBSR program among older adults.^{14,15}

We included published studies in our article, but excluded the thesis and ongoing research due to lack of evidence. We used "many eyes" (perspectives), "many brains" (approaches to analyzing and interpreting data), and "many mouths" technique for analysis of the results of this

study.(strategies for conveying and discussing findings.¹⁵

We analyzed the studies regarding the experience of patients after eight weeks of the MBSR program, the initial assessment of anxiety and depression due to the diagnosis and treatment of cancer, and the final assessment after eight weeks of the MBSR program.

Consequently, we analyzed both the subjective and objective evaluations of these practices.

4. Discussion

Several qualitative investigations have found a correlation between one's spiritual or religious beliefs and practices and their ability to cope positively with cancer;¹⁶⁻¹⁸

According to studies, cancer survivors frequently have spiritual concerns and expect their oncology clinicians to address their spiritual requirements;¹⁹ However, most physicians do not discuss spiritual matters with patients.^{19,20} With the introduction of integrative care, such as mind-body therapeutic practices in oncology, this framework must be reexamined. In recent years, research has demonstrated that cancer survivors with life-threatening ailments have experienced positive psychological changes.²¹

Patients may have increased levels of despair and anxiety following a diagnosis of a serious illness like cancer. Depressive symptoms and syndromes are more common in people with greater physical impairment and suffering due to cancer, and affect 20–25% of cancer patients. Other malady sequelae, such as cancer-related post-surgery malaise due to chemotherapy or radiotherapy, and disturbed sleep, have also been extensively documented.

Among these psychosocial interventions, mindfulness meditation has demonstrated some effectiveness in fostering stress relief and alleviating psychological tension. The mindfulness refers to a "particular method of paying attention" or "moment-to-moment awareness" in which the subject maintains nonjudgmental and accepting of the various feelings, emotions, and perceptions that span his or her mind. Similarly, it has been defined as the nonjudgmental observation of the continuous flow of internal and external stimuli as they arise.

The typical length of a single weekly session is two and a half hours, and there is a supplementary all-day session per course on a weekend day. Each gathering explores specific exercises and concepts within the paradigm of mindfulness. These involve various types of mindfulness meditation, mindful awareness during yoga postures, and mindfulness in demanding circumstances and interpersonal relationships. Participants adhere to daily 45-minute homework assignments consisting primarily of meditation practice, mindful yoga, and the application of mindfulness to real-world situations, as the cultivation of mindfulness is dependent on regular and repeated practice.

Neurobiological alterations in brain structure and function that appear to be associated to mindfulness practice have been documented by neuroimaging^{22,23} In addition, meditative practices manifest an increase activity in the anterior cingulate cortex, a brain region associated with the self-regulation of concentration.²⁴

Cortisol, the principal stress hormone produced by the adrenal glands, is known to have immunosuppressive effects and is mainly culpable for the stress-induced suppression of immune function.^{25,26} Its hypersecretion can also cause depression.²⁷ In addition, breast cancer patients have been found to have increased cortisol levels both prior to and after treatment.²⁸ Seventy-five percent of metastatic breast and ovarian cancer patients have anomalous cortisol secretion trends, according to. In a group of women with metastatic breast cancer, the slope of the rate of change of cortisol levels throughout the day was correlated with life expectancy, with women who exhibited less fluctuation in cortisol levels, depicted as a flatter slope, enduring premature demise.²⁹

4.1. MBSR and related stress disorders in oncology

The purpose of the randomized controlled trial conducted by Carlson et al' was to evaluate the effects of participation in an MBSR program on symptoms of anxiety.³⁰ The presence of tension and mood disturbances in cancer outpatients. As determined by the Symptoms of Stress Inventory" "I and Profile of Moor States (POMS)" "I Patients' fears decreased significantly pre- and post-intervention, indicating less mood perturbation and fewer stress-related symptoms. Minimal changes occurred in the wait-list control participant during this time period. More Home practice was associated with reductions in tension and total mood disturbance. Bette attendance was also associated with greater declines in stress symptoms, possibly because participants benefited from the presence of others who served as role models for effective coping and stress-reduction techniques "

4.2. MBSR and immune function in cancer patient

Meditation has been linked to immunological effects.' These findings pertain to the field of psychoimmunology. We anticipate that interventions that modify the stress response will result in characteristic and corresponding changes in psychoimmunology functioning.

The 2003 study by Carlson and co-authors "analyzed the relationship between a mindfulness-based stress reduction (MBSR) program and quality of life in early-stage breast and prostate cancer patients, mood conditions, a correlation between stress symptoms, lymphocyte counts, and cytokine production.

Table 1: Regarding disorders or areas of concern of participants, groups may be varied or similar

Author	Year	Mean age of patients	Type of cancer	Type and duration of mindfulness training	Intervention	What was measured	Outcome
Herbert et al	2001	50	Breast	15 weeks of mindfulness	Intervention The Nutrition Education Program (NEP), which was primarily group-based and overseen by a nutritionist, was compared to the Stress Reduction Clinic Program (SRC) and Usual Supportive Care (USC) (UC).	body mass; 7DDR-dietary fat, complex carbohydrates, fiber	The dietary intervention ameliorated the weight changes i.e. weight gain
Monti et al	2005	53.6	Breast, gynecologic, hematologic, neurologic, rectal, o	Eight week of MBAT 2 hr session and 2 sessions per week MBAT means mindfulness based art therapy	Comparison was made between the patients being offered MBAT and those on the wait list for the treatment were considered controls. Both before and after the intervention (at weeks 0 and 8 and 16), symptoms of psychological distress and stress-related physical problems were measured. using SCL-90-R, or the Revised Symptoms Checklist. Nine symptom dimensions and a summary score (Global Severity Index) are evaluated across the SCL-90-R's 90 items (GSI). The GSI is the most accurate measure of the ongoing distress.	PSY: distress, QOL (SCL-90-R, SF- 36 mental health component), PHY: SF-36 physical health components	Distress symptoms (as judged by the Symptoms Checklist-90-Revised) decreased significantly in the MBAT group, and important aspects of health-related quality of life improved significantly, as relative to the controls population (as measured by the Medical Outcomes Study Short-Form Health Survey).

Continued on next page

Table 1 continued

Shapiro et al	2003	57	Breast	Within two-year post-treatment Not specified 6 weeks (2-h sessions), one 6-h silent retreat	PSY: sleep latency, quality of sleep, feelings upon awakening, total sleep; QOL, psychological distress (POMS), sense of control (SCI), anxiety (STATE), depression (BDI), sense of coherence (SOC), worry (PENN) PSY: mood (POMS), stress (SOSI mental health component), PHY: SOSI physical health components
Specia et al	2000	50.8	Breast, ovarian, prostate, NHL, melanoma, endometrial, colon, cervical, other	7-week MBSR program (90 min per session)	

Continued on next page

Table 1 continued

Carlson et al	2004	54.5	Breast prostate	8-week MBSR program (90 min/session); 3-h silent retreat at week 6/7	The program had three paramount aspects:: theoretical content on mindfulness, relaxation, meditation, yoga, and the body–mind link, experiential training of meditation and yoga during group sessions and home-based practice, and group process focusing on solving problems related to barriers to successful practice, practical mindfulness applications, and supportive collaboration. The levels of cortisol and melatonin in saliva were measured utilizing solid-phase ELISAs while DHEAS was measured based on serum levels.	PHY: cortisol, melatonin, DHEAS	Approximately 40% of the sample exhibited aberrant cortisol secretion patterns both pre- and post-intervention; however, within this group, trends switched from "inverted-V-shaped" to "V-shaped" secretion. There were no aggregate changes in DHEAS or melatonin, but insignificant alterations in DHEAS patterns were consistent with healthier profiles in both men and women.
Carlson et al	2005	54	Breast, prostate, ovarian NHL	Not specified 8-week MBSR program (90 min/session); 3-h silent retreat at week 6		PSY: sleep (PSQI), stress (SOSI mental health components), mood and fatigue (POMS) PHY: SOSI physical health components	

Continued on next page

Table 1 continued

Garland et al	2007	52	Prostate, colorectal, lung, ear/nose/throat, brain, skin, lymphatic, other	specified 8-week MBSR program (90 min/session); 3-h silent retreat at week 6/	PSY: post-traumatic growth (PTGIR); spirituality (FACIT-Sp); stress (SOSI mental health components), mood (POMS) PHY: SOSI physical health component
---------------	------	----	--	---	---

Overall quality of life as measured by the European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QL(C30) improved significantly.³¹ Although there were no significant changes in the total number of lymphocytes or cell subsets, the changes in the immune profiles of these patients were indicative of a shift away from a depressive pattern and toward one more indicative of robust immune function. This was also the first study to demonstrate alterations in cancer-related cytokine production as a result of a program.

4.3. MBSR and sleep disturbance

Shapiro and colleagues also investigated the efficacy of an MBSR intervention for breast cancer patients, focusing on the impacts of sleep complaints. The authors hypothesized that mindfulness-based stress reduction (MBSR) would aid in reducing psychological distress. Increase the capacity to monitor negative thoughts and, as a result, reduce sleep disturbance. The analyses of the data revealed that participation in the MBSR programme led to a significant improvement in daily diary sleep quality measurements but not in sleep efficacy. Participants who reported more mindfulness practice performed significantly better on the sleep quality indicator most strongly associated with distress. The authors concluded that MBSR appears to be a promising intervention for enhancing the sleep quality of breast cancer patients with stress-related sleep complaints.^{32,33}

4.4. MBSR and the hormonal connection

In a 1995 study, Massion and colleagues tested the hypothesis that frequent mindfulness meditation practice is associated with higher physiological levels of the pineal hormone melatonin. Melatonin may be associated with a variety of biological functions that are essential for maintaining health and preventing disease, such as breast and prostate cancer. The results of the study indicated that regular meditation had an effect on the women who participated. These results supported the authors' hypothesis that meditation practice is associated with increased melatonin levels.³⁴

Similarly, healthy regular meditators produced higher levels of melatonin after a nocturnal meditation session than on a control night when they did not practice meditation.

5. Conclusion

For me, mindfulness meditation is a marvelous tool for gaining access to my true self and a technique that enables me to be conscious, to embrace life events with serenity, to face anguish with resilience and self belief, to connect with my divinity, to be in the universe and connect with the others, and to find meaning in every moment of my life. Mindfulness is a way of Being and a means of being present.

6. Source of Funding

None.

7. Conflict of Interest

None.

References

1. Staff M, Zinn JK. Jon Kabat-Zinn: Defining Mindfulness; 2017. Available from: <https://www.mindful.org/jon-kabat-zinn-defining-mindfulness/>.
2. Bahnson CB. Stress and cancer: the state of the art. *Psychosomatics*. 1980;21(12):975–81.
3. Lajoie DH, Shapiro SI. On defining transpersonal psychology. *Psychologia: An Int J Psychol Orient*. 1992;35(2):63–8.
4. Caplan M, Hartelius G, Rardin MA. Contemporary viewpoints on transpersonal psychology. *J Transpersonal Psychol*. 2003;35(2):143–62.
5. Ferlay J. Cancer statistics for the year 2020: An overview. *Int J Cancer*. 2021;149(4):778–89.
6. Ngwa W. Cancer in sub-Saharan Africa: a Lancet Oncology Commission. *Lancet Oncol*. 2022;23(6):251–312.
7. Teunissen S, Wesker W, Kruitwagen C, De Haes H, Voest EE, De Graeff A. Symptom Prevalence in Patients with Incurable Cancer: A Systematic Review. *J Pain Symptom Manag*. 2007;34(1):94–104.
8. Van Den Beuken Van Everdingen M, Hochstenbach LMJ, Joosten EAJ, Tjan-Heijnen VCG, Janssen DJA. Update on Prevalence of Pain in Patients With Cancer: Systematic Review and Meta-Analysis. *J Pain Symptom Manag*. 2016;51(6):1070–90.
9. Goleman D. The Experience of Touch: Research Points to a Critical Role. *Science*. 1988; Available from: <https://www.nytimes.com/1988/02/02/science/the-experience-of-touch-research-points-to-a-critical-role.html>.
10. Khong BSL. Expanding the Understanding of Mindfulness: Seeing the Tree and the Forest. *Humanistic Psychologist*. 2009;37(2):117–36.
11. Shapiro SL, Schwartz GE, Bonner G. Effects of mindfulness-based stress reduction on medical and premedical students. *J Behav Med*. 1998;21(6):581–91.
12. Olendzki A. Mindfulness and Meditation. Springer; 2009. p. 37–44.
13. Thera VN, Edition F. Abhidhamma studies. *Buddhist explorations of Consciousness*. 1965;.
14. Creswell JW, Zhang W. The application of mixed methods designs to trauma research. *J Trauma Stress*. 2023;22(6):612–21.
15. Braud W, Anderson R. Transpersonal Research Methods for the Social Sciences. and others, editor. SAGE Publications; 1998. p. 321.
16. Ashing-Giwa KT. Understanding the breast cancer experience of women: A qualitative study of African American, Asian American, Latina and Caucasian cancer survivors. *Psycho Oncol*. 2004;13(6):408–28.
17. Sweet M, Michaelsen LK. Team-Based Learning in the Social Sciences and Humanities: Group Work that Works to Generate Critical Thinking and Engagement. and others, editor. Stylus Publishing, LLC; 2012. Available from: https://www.researchgate.net/publication/331843105_Team-Based_Learning_in_the_Social_Sciences_and_Humanities_Group_Work_that_Works_to_Generate_Critical_Thinking_and_Engagement.
18. Nejati V. Principles of Cognitive Rehabilitation. 1st ed. and others, editor. Elsevier; 202. p. 368.
19. Balboni DM, Peteet DJ. Spirituality and Religion Within the Culture of Medicine: From Evidence to Practice. and others, editor. Oxford University Press; 2017. Available from: <https://academic.oup.com/book/24624>.
20. Çekirdekci O, Kark N, Özlem G. Handbook of Research on Interdisciplinary Perspectives on the Threats and Impacts of Pandemics. and others, editor. IGI Global; 2021. p. 556.

21. Brymer E, Reid P. Adventure Psychology. and others, editor. Taylor & Francis; 2023. p. 199–244. Available from: [https://www.google.co.in/books/edition/Adventure_Psychology/MJCdEAAAQBAJ?hl=en&gbpv=1&dq=\(Heferon+et+al.+2009](https://www.google.co.in/books/edition/Adventure_Psychology/MJCdEAAAQBAJ?hl=en&gbpv=1&dq=(Heferon+et+al.+2009)
22. Lazar SW. Meditation experience is associated with increased cortical thickness. *Neuroreport*. 2005;16(17):1893–7.
23. Richard D, Zinn K. Alterations in Brain and Immune Function Produced by Mindfulness Meditation. *Psychosomatic Med*. 2023;65(4):564–70.
24. Lutz A, Slagter HA, Dunne JD, Davidson RJ. Attention regulation and monitoring in meditation. *Trends Cogn Sci*. 2008;12(4):163–9.
25. Andersen R, Shirai Y. Discourse Motivations for Some Cognitive Acquisition Principles. *Stud Second Language Acquisition*. 2023;16(2):133–56.
26. Cohen S, Williamson GM. Stress and infectious disease in humans. *Psychological Bull*. 1991;109(1):5–24.
27. Sikes CR, Stokes PE, Carson RC, Lasley BJ. Cognitive sequelae of pituitary-adrenal dysregulation in major depression. *Am Coli Neuro psychopharm*. 1989;25(7):148–9.
28. Pompe GD, Duivenvoorden HJ, Antoni MH, Visser A, Heijnen CJ. Effectiveness of a short-term group psychotherapy program on endocrine and immune function in breast cancer patients: An exploratory study. *J Psychosomatic Res*. 1997;42(5):453–66.
29. Sephton SE, Sapolsky RM, Kraemer HC, Spiegel D. Diurnal Cortisol Rhythm as a Predictor of Breast Cancer Survival. *J National Cancer Inst*. 2000;92(12):994–1000.
30. Carlson LE, Specia M, Faris P, Patel KD. One year pre-post intervention follow-up of psychological, immune, endocrine and blood pressure outcomes of mindfulness-based stress reduction (MBSR) in breast and prostate cancer outpatients. *Brain, Behavior, and Immunity*. 2007;21(8):1038–1049.
31. Carlson NR, Birkett MA. Physiology of Behavior. 14th ed. and others, editor. Pearson; 2017. Available from: <https://www.pearson.com/en-us/subject-catalog/p/physiology-of-behavior/P200000002758/9780137499519>.
32. Tacón AM, Tacón AM, Ronaghan C. Mindfulness, Psychosocial Factors, and Breast Cancer. *J Cancer Pain Symptom Palliation*. 2005;1(1):45–53.
33. Shapiro SL. The integration of mindfulness and psychology. *J Clin Psychol*. 2009;65(6):555–60.
34. Nehra D, Nehra S, Dogra R. Positive Psychological Functioning with Mindfulness Based Stress Reduction (MBSR) Program. *Biopsychosocial Issues Positive Health*. 2023;p. 328. Available from: https://www.researchgate.net/publication/252627080_Positive_Psychological_Functioning_with_Mindfulness_Based_Stress_Reduction_MBSR_Program.

Author biography

Dheeraj Makkar, Assistant Professor  <https://orcid.org/0000-0002-8682-7935>

Cite this article: Makkar D. Mindfulness and its impact in cancer patients- Evidence based medicine. *IP J Otorhinolaryngol Allied Sci* 2023;6(1):3-11.