

Brief Report

A Pragmatic Evaluation of Symptom Distress After Group Meditation for Cancer Patients and Caregivers: A Preliminary Report



Gabriel Lopez, MD, Alejandro Chaoul, PhD, Catherine Powers-James, PhD, Amy Spelman, PhD, Qi Wei, MS, Rosalinda Engle, MA, Yousra Hashmi, BS, Eduardo Bruera, MD, and Lorenzo Cohen, PhD

Department of Palliative, Rehabilitation and Integrative Medicine, The University of Texas MD Anderson Cancer Center, Houston, Texas, USA

Abstract

Context. Complementary health approaches such as meditation may help improve cancer patient and caregiver symptoms, yet little research has examined the clinical application of these programs.

Objectives. We explored the effects of a meditation group class, offered as part of an integrative medicine clinic at a comprehensive cancer center, on patient and caregiver self-reported symptoms.

Methods. Participants (patients and caregivers) of any three meditation group classes offered—Power of Breath (PB), Sacred Sounds (SS), and Movement & Breath (MB)—were asked to complete the Edmonton Symptom Assessment Scale (ESAS; scale 0–10, 10 most severe) before and after participation. ESAS individual items and subscales were analyzed; distress subscales included global (global distress score 0–90), physical (physical distress score 0–60), and psychological (psychological distress score, 0–20). Data were analyzed examining premeditation/postmeditation scores using paired t-tests and between types of meditation using analyses of variance.

Results. One hundred forty-two unique participants (76 patients and 66 caregivers) attended one or more meditation groups (mean 1.84) from May to December 2015 (265 total attendance: PB $n = 92$; SS $n = 87$; MB $n = 86$). For all participants, we observed clinically significant reduction/improvement in global distress scores (-5.17 , SD 8; $P < 0.0001$) and in individual symptoms (ESAS decrease ≥ 1 ; means) of well-being (-1.36 SD 1.7; $P < 0.0001$), fatigue (-1.34 SD 1.9; $P < 0.0001$), anxiety (-1.26 SD 1.6; $P < 0.001$), and shortness of breath (-1.2 SD 2; $P = 0.001$). Comparing class length (60 vs. 90 minutes), class content (PB vs. SS vs. MB), and participants (caregivers vs. patients), there were no statistically significant differences in symptom score reduction.

Conclusion. A single meditation group class offered as part of clinical care resulted in relief of multiple self-reported symptoms in both patients and caregivers. *J Pain Symptom Manage* 2018;55:1321–1326. © 2018 American Academy of Hospice and Palliative Medicine. Published by Elsevier Inc. All rights reserved.

Key Words

Integrative medicine, meditation, caregivers, self-reported outcomes, symptoms, complementary health approaches

Introduction

Interest in complementary and integrative medicine (CIM) is increasing in western medical settings,^{1,2} with mind-body approaches, such as meditation, showing promise in relieving symptoms

due to cancer and its treatment. Meditation is an ancient mind-body practice that has been part of many spiritual traditions. It has been described as “a wakeful hypometabolic physiologic state” in which the practitioner is able to be relaxed yet alert and

G. L. and A. C. contributed equally as first authors. Address correspondence to: Lorenzo Cohen, PhD, Department of Palliative, Rehabilitation and Integrative Medicine, Unit 1414, The University of Texas MD Anderson Cancer Center,

1515 Holcombe Blvd, Houston, TX 77030, USA. E-mail: lcohen@mdanderson.org

Accepted for publication: January 26, 2018.

focused.³ Meditation techniques incorporate visualization, breath, sound, and/or movement and can be practiced alone or in a group. According to the National Center for Complementary and Integrative Health, meditation falls under the category of mind and body complementary health approaches and has a high safety profile. With cancer patients and their caregivers commonly experiencing distress during and after cancer care,^{4,5} there is great interest in providing both populations with access to mind-body interventions such as meditation for symptomatic relief.

Research has found that meditation has multiple benefits including decreasing distress and enhancing quality of life.^{6–8} Mindfulness-based therapies have shown promise in providing relief for anxiety and other mental health symptoms.⁹ Mindfulness-based stress reduction programs can reduce mood disturbance in the oncology population.^{10,11} Our research supports the use of meditation for reducing anxiety and sleep disturbance and improving quality of life and cognitive function in cancer patients.^{12–14} In addition, mind-body programs incorporating meditation provide quality of life benefits for patients and their caregivers.^{15,16} Although the evidence base is strong for the efficacy of meditation in an oncology setting, little research has examined the clinical implementation of meditation as a standard of care alongside conventional medical care in a hospital setting. Knowing that a particular CIM intervention, in this case meditation, is effective at improving patient and caregiver quality of life does not necessarily translate into the use of the intervention within clinical care or whether it remains effective outside a controlled trial setting.

Integrative oncology, the discipline supporting evidence-informed use of CIM approaches as part of cancer care, may serve an important role in helping to introduce distressed patients and caregivers to mind-body approaches such as meditation.¹⁷ CIM approaches available through our clinical center include three different meditation classes, each using a modified style of meditation from the Tibetan tradition. To learn more about the clinical implementation of meditation in a cancer center, this observational pilot study collected self-reported symptom data from attendees (patients and caregivers) immediately before and after participation in all our meditation group classes. The main goal was to evaluate the delivery of meditation provided alongside conventional cancer care. Our objective was to explore the acute effects of meditation on participant self-reported symptoms, compare symptoms between patients and caregivers, and assess differences between the types of meditation classes offered.

Methods

Participants (patients and caregivers) include those attending any of our three meditation group classes—Power of Breath, Sacred Sounds, and Movement & Breath between May and December 2015. Meditation group classes with rotating content are offered weekly and available as a standard-of-care programs within the hospital at no cost to patients and caregivers. Meditation group classes and other programs offered through the Integrative Medicine Center are advertised in a monthly newsletter that is distributed in both print and electronic versions throughout the cancer center and as part of a mailing list. Participants did not need a medical order to register for a class, yet some may have attended on recommendation from a physician or other clinician. Our instructors are mind-body practitioners with a minimum of five years of experience working in an oncology setting. The majority of participants included individuals seeking oncology care at our comprehensive cancer center or their caregivers. Patients spanned the cancer continuum from prevention through active treatment and into survivorship or living with advanced cancer. Caregivers were defined as individuals not associated with an oncology treatment center at our institution.

Participants were asked to complete the Edmonton Symptom Assessment Scale¹⁸ (ESAS) before and after their class; completed assessments were dropped in a box. Responses were only made available to research staff for data entry purposes as part of an IRB-approved protocol.

ESAS subscales were calculated as follows: global distress score (GDS) as sum of pain, fatigue, nausea, depression, anxiety, drowsiness, appetite, sense of well-being, and shortness of breath (total score 0–90); physical distress score (PHS) as sum of pain, fatigue, nausea, drowsiness, appetite, and shortness of breath (total 0–60); psychological distress score (PSS) as sum of depression and anxiety (total 0–20). Clinically significant reduction for individual ESAS symptoms were defined as a symptom score reduction of ≥ 1 ; for the ESAS subscales, reduction of $GDS \geq 3$, $PHS \geq 2$, and $PSS \geq 2$ indicated clinically significant changes.^{19,20} Higher scores represent worse outcomes for that symptom or subscale.

Intervention

The content for the three different meditation group classes comes from the Tibetan tradition. Classes are of different lengths—Power of Breath and Sacred Sounds are 60 minutes; Movement & Breath is 90 minutes. In all classes, there was an introduction to meditation, followed by a brief (10–12 minutes) guided meditation called “connecting with the heart.”

Power of Breath participants learned an alternate nostril breathing technique called the “Nine Breathings of Purification.” In the Tibetan context, it is used to reduce the impact of one’s afflictive emotions (e.g., anger, attachment, and confusion). In the practice adapted to the oncology population, participants can relate to their emotions and feel less interrupted by them through greater familiarization with the meditation practice. Sacred Sounds participants learned a meditation practice using three Tibetan sound syllables (*A*, *Om*, and *Hung*) that have been used in the Tibetan tradition for centuries and adapted by Tenzin Wangyal Rinpoche in his book “Tibetan Sound Healing.”²¹

The Movement & Breath class included movements that some have classified as “Tibetan yoga.” Participants were taught a breathing technique combining subtle holding and reinhalation with specific movements. The movements are called *Tsa Lung* and come from a Tibetan text called the *Bon Mother Tantra*; they are also explained in English, including a DVD, in “Awakening the Sacred Body.”²² In these texts, there are five movements, but in the duration of one class, usually two to three movements were covered.

Statistics

Data were analyzed examining the preclass and postclass scores using paired t-tests and between types of meditation using analyses of variance. As an individual could attend more than one group class, we only analyzed data for the first visit. We first compared baseline mean symptom scores for patients vs. caregivers. We also examined differences in symptom change for patients vs. caregivers attending their first class, independent of group class. For analysis of symptom change, we only included those symptoms for each participant whose baseline scores were ≥ 1 . We then examined group class differences, comparing differences in participant symptom burden at baseline and differences in observed symptom score reduction. We compared baseline symptom burden between those who attended only one class vs. those who attended two or more classes, examining differences in baseline symptoms and demographics.

Results

For the period May through December 2015, we collected data on 142 unique participants, of which 76 were patients and 66 were caregivers (Table 1). Average class size was 8.8 (range 1–16), and average number of classes attended per person was 1.8. Participant attendance was well distributed across all the meditation classes offered for a total attendance of 265 across all three groups. Overall attendance was

Table 1
Patient and Caregiver Demographic and Medical Factors

Characteristics	Patients, <i>n</i> = 76 (%)	Caregivers, <i>n</i> = 66 (%)
Age		
Mean (SD)	57.5 (11.1)	57.6 (14.8)
Median (min–max)	59.8 (23.8–79.5)	61.2 (14.1–83.1)
Gender		
Female	61 (80.3)	51 (77.3)
Male	15 (19.7)	15 (22.7)
Race		
Black	4 (5.3)	—
White	51 (67.1)	—
Spanish surname	10 (13.2)	—
Other	11 (14.4)	—
Residence		
Harris County	27 (35.5)	—
Rest of Texas	12 (15.8)	—
Rest of U.S.	33 (43.4)	—
International	4 (5.3)	—
Disease type		
Breast	29 (38.2)	—
Hematologic	8 (10.5)	—
Skin (including melanoma)	8 (10.5)	—
Thoracic/head and neck	7 (9.2)	—
Gastrointestinal	5 (6.6)	—
Gynecologic	5 (6.6)	—
Other	14 (18.4)	—
Stage		
Local	43 (56.6)	—
Advanced	12 (15.8)	—
Unstaged	21 (27.6)	—

as follows: Power of Breath *n* = 92; Sacred Sounds *n* = 87; Movement & Breath *n* = 86.

As an individual could attend more than one group class, we only analyzed data for the first visit of 142 participants (Power of Breath *n* = 44; Sacred Sounds *n* = 35; Movement & Breath *n* = 63; 76 patients and 66 caregivers); each individual was only included once in the analysis. We calculated mean symptom scores at baseline and compared baseline mean symptom scores for patients vs. caregivers (Table 2). Significant differences in patient and caregiver symptom reports at baseline were observed for fatigue (2.73 vs. 1.73; *P* = 0.005), well-being (2.72 vs. 1.75; *P* = 0.005), pain (1.55 vs. 0.8; *P* = 0.008), drowsiness (1.36 vs. 0.67; *P* = 0.03), and shortness of breath (0.97 vs. 0.47; *P* = 0.05), respectively, with patients reporting worse outcomes. Significant differences in patient and caregiver symptom expression at baseline for ESAS subscales were observed for the PHS (9.00 vs. 5.25; *P* = 0.003) and GDS (18.02 vs. 11.17; *P* = 0.002), respectively. No significant difference between patients and caregivers was observed for the PSS or the other individual symptoms not already noted.

We calculated symptom change for all participants and compared symptom changes for patients vs. caregivers attending their first meditation class (only for those reporting individual ESAS symptom scores of ≥ 1 before the program), independent of which group class they participated in (Table 3). For all participants, we observed clinically and statistically

Table 2
Baseline Mean Symptoms and Subscale Scores

Symptoms	All Participants	Patient	Caregiver	P-value
	Mean (SD)	Mean (SD)	Mean (SD)	
Pain	1.20 (1.7)	1.55 (1.9)	0.80 (1.3)	0.008
Fatigue	2.26 (2.1)	2.73 (2.2)	1.73 (1.9)	0.005
Nausea	0.32 (1.1)	0.47 (1.4)	0.15 (0.6)	0.087
Shortness of breath	0.74 (1.5)	0.97 (1.7)	0.47 (1.1)	0.047
Appetite	1.70 (2.2)	1.91 (2.1)	1.45 (2.3)	0.231
Drowsiness	1.04 (1.8)	1.36 (2.0)	0.67 (1.5)	0.026
Depression	1.19 (1.9)	1.37 (2.0)	0.98 (1.8)	0.247
Anxiety	1.62 (2.2)	1.74 (2.3)	1.48 (2.1)	0.483
Sleep	2.61 (2.4)	3.21 (2.5)	1.92 (2.0)	0.002
Well-being	2.27 (2.0)	2.72 (2.1)	1.75 (1.8)	0.005
GDS ^a	14.84 (13.3)	18.02 (14.3)	11.17 (11.1)	0.002
PHS ^a	7.28 (7.5)	9.00 (8.1)	5.25 (6.2)	0.003
PSS ^a	2.82 (3.9)	3.14 (4.0)	2.46 (3.7)	0.309

^aGDS (global distress score) equals sum of pain, fatigue, nausea, depression, anxiety, drowsiness, appetite, well-being, and shortness of breath (total score 0–90); PHS (physical distress score) equals sum of pain, fatigue, nausea, drowsiness, appetite, and shortness of breath (total 0–60); and PSS (psychological distress score) equals sum of depression and anxiety.

significant reduction (ESAS decrease ≥ 1 ; means) in symptoms of fatigue (–1.34), shortness of breath (–1.2), anxiety (–1.26), and well-being (–1.36). Patient pre/post comparisons revealed clinically significant reduction in symptoms for nausea (–1.31), fatigue (–1.28), shortness of breath (–1.12), depression (–1.10), anxiety (–1.10), and well-being (–1.11) (Table 3). Caregiver pre/post comparisons revealed clinically and statistically significant reduction for symptoms of fatigue (–1.45), shortness of breath (–1.4), anxiety (–1.52), and well-being (–1.81). For ESAS subscales scores, we observed clinically and statistically significant mean change for GDS, PHS, and

PSS for patients and GDS only for caregivers. There were no statistically significant differences in mean score change between patients and caregivers.

Examining symptom burden of all participants in the different meditation groups revealed no significant differences in participant symptom burden at baseline or in symptom score reduction by group (eTable 1). Comparing group class duration, there was no difference ($P > 0.1$) in mean symptom change when comparing 60-minute classes (Power of Breath and Sacred Sounds; $n = 79$) vs. 90-minute classes (Movement & Breath; $n = 63$). Comparing the baseline symptom burden between patients ($n = 48$) and caregivers ($n = 50$) who attended one class vs. those patients ($n = 28$) and caregivers ($n = 16$) who attended two or more classes revealed no significant difference in baseline ESAS subscales of GDS, PHS, or PSS. We observed a higher appetite symptom score (worse appetite) at baseline for patients who did not follow up vs. those who did follow up (3.44 vs. 2.41, $P = 0.058$), respectively. There were no differences in any other individual ESAS symptoms for the follow-up vs. no follow-up cohorts. Patients were as likely as caregivers to return for a second class. An examination of demographics did not reveal differences in those attending only one or more than one class.

Discussion

This pragmatic, observational pilot trial found it was feasible to collect self-reported outcomes data before and after participation in meditation classes that

Table 3
Mean Score Change From Preclass to Postclass for Patients and Caregivers Reporting a Score of At Least 1 on the ESAS (Pre)^a

Symptoms	All Participants		Patient		Caregiver		
	Mean (SD)	P-value ^b	Mean (SD)	P-value ^b	Mean (SD)	P-value ^b	P-value ^c
Pain	–0.60 (2.0)	0.022	–0.61 (2.1)	0.067	–0.59 (1.7)	0.172	0.970
Fatigue	–1.34 (1.9)	<0.0001	–1.28 (2.0)	<0.0001	–1.45 (1.7)	<0.0001	0.681
Nausea	–1.00 (2.4)	0.092	–1.31 (2.5)	0.087	–0.20 (1.9)	0.828	0.392
Shortness of breath	–1.20 (2.0)	0.001	–1.12 (2.1)	0.013	–1.40 (1.8)	0.034	0.712
Appetite	–0.30 (1.6)	0.146	–0.10 (1.4)	0.656	–0.70 (1.8)	0.105	0.167
Drowsiness	–0.77 (2.4)	0.031	–0.74 (2.4)	0.089	–0.81 (2.5)	0.206	0.924
Depression	–1.02 (1.7)	<0.001	–1.10 (1.7)	0.001	–0.85 (1.7)	0.094	0.655
Anxiety	–1.26 (1.6)	<0.0001	–1.10 (1.5)	<0.0001	–1.52 (1.7)	<0.001	0.316
Sleep	–0.66 (1.6)	<0.001	–0.75 (1.9)	0.006	–0.50 (1.1)	0.016	0.506
Well-being	–1.36 (1.7)	<0.0001	–1.11 (1.7)	<0.0001	–1.81 (1.7)	<0.0001	0.064
GDS ^d	–5.17 (8.0)	<0.0001	–5.57 (8.7)	<0.0001	–4.65 (7.0)	<0.0001	0.540
PHS ^d	–2.32 (5.2)	<0.0001	–2.58 (5.8)	<0.001	–1.98 (4.4)	0.002	0.542
PSS ^d	–1.03 (2.1)	<0.0001	–1.15 (2.2)	<0.0001	–0.88 (2.0)	0.003	0.500

ESAS = Edmonton Symptom Assessment Scale.

^aFor all symptoms, a change score of ≥ 1 is considered clinically significant. For predetermined subscales, clinical significance is defined as follows: ≥ 3 for GDS; ≥ 2 for PHS and PSS.^{8,9}

^bIndicates P-value for change from baseline.

^cIndicates P-value comparing patient and caregiver change scores.

^dGDS (global distress score) equals sum of pain, fatigue, nausea, depression, anxiety, drowsiness, appetite, sense of well-being, and shortness of breath (total score 0–90); PHS (physical distress score) equals sum of pain, fatigue, nausea, drowsiness, appetite, and shortness of breath (total 0–60); and PSS (psychological distress score) equals sum of depression and anxiety.

were provided as the standard of care at a cancer center. A single class resulted in statistically and clinically significant relief of multiple patient and caregiver self-reported symptoms. There were similar reductions in symptom scores for patients vs. caregivers and no differences between the group classes, suggesting equivalent benefit of participation, regardless of meditation content. Interestingly, comparison of the 60-minute classes (Power of Breath and Sacred Sounds) vs. 90-minute classes (Movement & Breath) revealed no differences in terms of symptom reduction. This is an important observation when trying to balance the benefit of an intervention and reduce participant burden. Such an exploration of differences in class content and symptom response can help inform further research in this area. Although observational in nature, and not intended to suggest efficacy, the results suggest that encouraging patients and caregivers to participate in a meditation group practice will help with symptom relief.

Exploring differences between patients and caregivers revealed similar effects of the meditation classes, yet patients reported greater physical symptom severity and had similar reports of mental health as caregivers. At baseline, patients reported higher physical symptom scores than caregivers, with the higher physical distress driven by symptoms of fatigue, pain, drowsiness, and shortness of breath. Regarding psychosocial symptoms at baseline, patients and caregivers had comparable clinically significant scores (individual ESAS Score 4 or greater²³) for depression (16.44% and 13.86%, respectively) and anxiety (17.57% and 18.46%, respectively). Similar findings have been observed when comparing ESAS results completed by patients and caregivers in a supportive care center, with significant association between patient and caregiver psychosocial item scores.⁴

There are a number of limitations to this study. The study was conducted at a single institution with a long established integrative medicine program. In addition, because these classes were offered on a rolling basis as part of the standard of care, participants were self-selected, not randomized to different classes; therefore, there was no control group. Therefore, there exists a selection bias limiting the generalizability of the findings. However, the intent of the study was not to determine efficacy, but to examine pre/post benefits of meditation delivered as part of the standard of care within a cancer setting. Another limitation is that some participants may have attended a class on the recommendation of a clinician within our institution but can also have participated as a member of the community without any clinical recommendation. In addition, we did not account for patients and/or caregivers who may have attended a meditation class before the study period or who may

engage in their own personal meditation practice. It is also possible we did not detect differences in the effects of class content on symptom change because of group heterogeneity (patients with different cancer types and stages, caregivers). Future studies may benefit by examining a more homogenous participant population.

We have already included practices taught in Power of Breath and Movement & Breath in our Tibetan Yoga studies, finding that those participants practicing *Nine Breathings* and *Tsa Lung* have less sleep disturbances and better quality of life.^{13,14} We have yet to examine the longitudinal effects of regular meditation class attendance on self-reported symptoms and the effects of continued practice on quality of life.

Further research with a larger sample size is needed to better understand the symptoms that meditation can help control, the potential impact of differences in meditation length, and how relative differences in meditation technique can affect outcomes. Our preliminary findings suggest that 60-minute interventions appear to be associated with similar benefits to those of greater length (90 minutes). Future research should also explore the possible mechanisms whereby meditation leads to reduced symptom burden. Although reduction in subjective stress states and buffering of sympathetic nervous system activation are posited as some of the benefits of meditation and other mind-body practices,⁸ further evidence in this area will help justify the more widespread use of these practices. Based on extensive existing research showing the benefits of meditation in an oncology setting and our current findings showing the acute effects of a single meditation session, more hospitals and centers should consider offering mind-body programs to help improve cancer patients and caregivers quality of life.

Disclosures and Acknowledgments

This work was in part supported by a grant from Duncan Family Institute for Cancer Prevention and Risk Assessment. The authors are appreciative of Tenzin Wangyal Rinpoche for his advice in designing Tibetan-based mind-body programs for people with cancer.

Ethical approval: The study was conducted as part of an IRB-approved protocol.

References

1. Gansler T, Kaw C, Crammer C, et al. A population-based study of prevalence of complementary methods use by cancer survivors: a report from the American Cancer Society's studies of cancer survivors. *Cancer* 2008;113:1048–1057.

2. Horneber M, Bueschel G, Dennert G, et al. How many cancer patients use complementary and alternative medicine: a systematic review and metaanalysis. *Integr Cancer Ther* 2012;11:187–203.
3. Wallace RK, Benson H, Wilson AF. A wakeful hypometabolic physiologic state. *Am J Physiol* 1971;221:795–799.
4. Tanco K, Vidal M, Joseph AA, et al. Testing the feasibility of using the Edmonton Symptom Assessment System (ESAS) to assess caregiver symptom burden. *Palliat Support Care* 2018;16:14–22.
5. Girgis A, Lambert S, Johnson C, et al. Physical, psychosocial, and economic burden of caring for people with cancer: a review. *J Oncol Pract* 2013;9:197–202.
6. Biegler KA, Chaoul MA, Cohen L. Cancer, cognitive impairment, and meditation. *Acta Oncol* 2009;48:18–26.
7. Goyal M, Singh S, Sibinga EM, et al. Meditation programs for psychological stress and well-being: a systematic review and meta-analysis. *JAMA Intern Med* 2014;174:357–368.
8. Chaoul A, Milbury K, Sood AK, et al. Mind-body practices in cancer care. *Curr Oncol Rep* 2014;16:417.
9. Hofman SG, Sawyer AT, Witt AA, et al. The effect of mindfulness-based therapy on anxiety and depression: a meta-analytic review. *J Consult Clin Psychol* 2010;78:169–183.
10. Garland SN, Tamagawa R, Todd SC, et al. Increased mindfulness is related to improved stress and mood following participation in a mindfulness-based stress reduction program in individuals with cancer. *Integr Cancer Ther* 2013;12:31–40.
11. Carlson LE, Doll R, Stephen J, et al. Randomized controlled trial of Mindfulness-based cancer recovery versus supportive expressive group therapy for distressed survivors of breast cancer. *J Clin Oncol* 2013;31:3119–3126.
12. Chaoul A, Lopez G, Lee R, et al. An analysis of meditation consultations in an integrative oncology outpatient clinic. *J Altern Complement Med* 2014;20:A86.
13. Cohen L, Warneke C, Fouladi RT, et al. Psychological adjustment and sleep quality in a randomized trial of the effects of a Tibetan yoga intervention in patients with lymphoma. *Cancer* 2004;100:2253–2260.
14. Milbury K, Chaoul A, Biegler K, et al. Tibetan sound meditation for cognitive dysfunction: results of a randomized controlled pilot trial. *Psychooncology* 2013;22:2354–2363.
15. Milbury K, Malliah S, Lopez G, et al. Vivekananda yoga program for patients with advanced lung cancer and their family caregivers. *Integr Cancer Ther* 2015;14:446–451.
16. Milbury K, Malliah S, Mahajan A, et al. Yoga program for high-grade glioma patients undergoing radiotherapy and their family caregivers. *Integr Cancer Ther*. <https://doi.org/10.1177/1534735417689882>. [Epub ahead of print].
17. Witt CM, Balneaves LG, Cardoso MJ, et al. A comprehensive definition for integrative oncology. *J Natl Cancer Inst Monogr* 2017;52:3–8.
18. Bruera E, Kuehn N, Miller MJ, et al. The Edmonton Symptom Assessment System (ESAS): a simple method for the assessment of palliative care patients. *J Palliat Care* 1991;7:6.
19. Hui D, Shamieh O, Paiva C, et al. Minimal clinically important differences in the Edmonton Symptom Assessment Scale in cancer patients: a prospective, multicenter study. *Cancer* 2015;121:3027–3035.
20. Hui D, Shamieh O, Paiva CE, et al. Minimally clinically important difference in physical, emotional, and total symptom distress scores of the Edmonton Symptom Assessment System. *J Pain Symptom Manage* 2016;2:262–269.
21. Rinpoche TW. *Tibetan sound healing*. Boulder, CO: Sounds True, 2006.
22. Rinpoche TW. *Awakening the sacred body*. NY, NY: Hay House, 2011.
23. Ripamonti CL, Bandieri E, Pessi MA, et al. The Edmonton Symptom Assessment System (ESAS) as a screening tool for depression and anxiety in non-advanced patients with solid or haematological malignancies on cure or follow-up. *Support Care Cancer* 2014;22:783–793.

Appendix

eTable 1
Within-Group Analyses for Those Reporting a Symptom Burden of ≥ 1 on the ESAS

Symptoms	<i>n</i>	Breath and Movement		Power of Breath		Sacred Sounds		<i>P</i> -value
		Mean ^a	Change	Mean ^a	Change	Mean ^a	Change	
Pain	52	2.46	-1.12	3.11	-0.54	2.63	-1.00	0.545
Fatigue	83	3.04	-1.28	3.00	-1.50	3.52	-1.58	0.807
Nausea	16	2.25	-1.71	2.25	-0.75	3.60	-2.00	0.601
Shortness of breath	33	3.06	-1.69	2.08	-1.60	-2.00	-1.10	0.669
Appetite	55	3.06	-0.42	3.39	-0.44	3.47	-0.62	0.930
Drowsiness	40	3.04	-1.80	2.73	-0.89	3.25	-1.00	0.376
Depression	41	3.68	-1.42	3.13	-1.36	2.77	-0.82	0.495
Anxiety	59	3.31	-1.32	3.52	-1.87	2.50	-1.19	0.351
Sleep	77	3.74	-0.73	3.03	-0.83	3.24	-1.00	0.822
Well-being	85	3.24	-1.50	3.14	-1.88	2.63	-1.04	0.158

ESAS = Edmonton Symptom Assessment Scale.

^aMean baseline symptom score.