


The Effects of Yoga in Helping Cancer Patients and Caregivers Manage the Stress of a Natural Disaster: A Brief Report on Hurricane Harvey

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Abstract

Background: This small qualitative study reports on the experiences of patients and family caregivers who participated in a dyadic yoga pilot trial while undergoing cancer treatment in the midst of Hurricane Harvey. Our primary purpose was to determine if participants implemented components of the program to cope with the stressors associated with Hurricane Harvey and if they perceived benefits from the yoga practices. **Methods:** We administered brief semistructured interviews to the dyads participating in a dyadic yoga pilot trial. Participants (n = 5 dyads) were asked to discuss their experience with Hurricane Harvey, including factors that helped them cope with the event while receiving treatment. **Result:** Patients had a mean age of 55.6 years, were mostly non-Hispanic White, male, and had advance stage head and neck cancer. Caregivers had a mean age of 58 years and were mainly non-Hispanic White and female. Analyses of the interviews revealed 2 overarching themes: (1) the storm's negative impact and (2) the use of yoga to cope with the hurricane-related stressors. **Conclusions:** Patient-caregiver dyads experienced psychological distress during the storm and/or its aftermath. Dyads used yoga techniques to cope with these psychological stressors. Yoga served as a means of social support as dyads either participated in these activities together or with other family members.

Keywords

head and neck cancer, family caregivers, yoga, natural disaster, quality of life

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Introduction

Although a substantial body of literature suggests that yoga improves physical and psychological symptoms in cancer patients, previous studies have primarily focused on women with breast cancer.^{1–6} Thus, to establish yoga as an effective supportive care strategy in the cancer setting, there is a tremendous need to examine yoga interventions in other disease sites including those that are frequently diagnosed in men and associated with high symptom burden. For instance, head and neck cancer (HNC) patients undergoing radiotherapy (RT), particularly chemoradiation, are at an increased risk of high-grade toxicities (eg, mucositis, dysphagia, and fatigue), which may lead to decreased physical function and increased health care utilization (eg, emergency department visits, feeding tube placements) during and after treatment.^{7–20} In light of the extremely high

treatment-related burden, HNC patients need extensive and persistent care from their families.^{21–25} Yet, informal caregiving is emotionally and physically taxing, and family caregivers report clinical levels of symptom burden in the domains of distress, fatigue, and sleep disturbances.^{26–29} Because distress and quality of life are interdependent in families coping with cancer, there is a profound need to

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intervene in both patients and caregivers to optimize supportive care strategies.^{30,31} Although urgently needed, evidence-based dyadic mind-body and general behavioral medicine approaches to reduce the burden of HNC are generally lacking in the literature.^{12,32-34}

Seeking to address the supportive care needs of patient-caregiver dyads undergoing RT, we had developed a dyadic yoga (DY) intervention and demonstrated acceptability, feasibility, and initial evidence for efficacy in patients with lung cancer and primary brain tumors while undergoing RT.³⁵⁻³⁸ We sought to extend this research to HNC and conducted a single-arm trial of the DY intervention to assess feasibility of study procedures and initial evidence for efficacy regarding improving HNC treatment-related symptom burden in patients and caregivers. Of note, over the course of the trial's implementation, our hospital was affected by Hurricane Harvey, which devastated the Greater Houston area causing \$125 billion in damage.³⁹ While natural disasters including hurricanes tend to be an overwhelming if not traumatic experience, previous research suggests that yoga interventions reduce acute stress symptoms in individuals who experienced floods and earthquakes.⁴⁰⁻⁴² Building on this research, we were interested in the experiences of a small, convenience sample of dyads participating in the yoga trial at the time that Harvey devastated Houston. Specifically, the purpose of this small, qualitative study was to determine if participants from the parent yoga trial implemented components of the program to cope with the stressors associated with Hurricane Harvey. The secondary objective of the study was to learn about the benefits the participants gained from the yoga practices. We used semistructured interviews to understand the participants' experiences.

Methods

Participants

To be eligible for the parent trial, patients had to (1) be diagnosed with a HNC, (2) be scheduled to receive at least 25 fractions of RT, (3) have an Eastern Cooperative Oncology Group performance status of no more than 2, and (4) have an family caregiver willing to participate in the study. Patients and caregivers had to be at least 18 years old, be able to provide informed consent, and be able to read and speak English. The current study reports on dyads that were undergoing RT and participating in the DY intervention at the time Hurricane Harvey affected Houston.

Procedure

Prior to implementing the interviews, the MD Anderson Institutional Review Board approved the trial's optional procedure for eligible participants. Research staff obtained participants' written informed consent to participate prior to data collection.

Interviews. During the week following Hurricane Harvey's landfall, study participants completed semistructured interviews. Interviews followed an interview guide asking the dyads to describe their experience during Hurricane Harvey, including the following questions: *How was treatment impacted? How did your experience with Hurricane Harvey make you feel? How did you cope?* Last, we would ask the dyads, *were the skills learned in the yoga program helpful?* Interviews were between 10 and 20 minutes long. All the interviews were audio-recorded and transcribed (with participants' permission obtained during the consent process). We followed the "fracturing, grouping, and gluing" style of qualitative data analysis to identify common themes within and across the different interviews.⁴³

DY Intervention. The manualized yoga program was developed in collaboration with Swami Vivekananda Yoga Anusandhana Samsthana. A certified instructor (International Association of Yoga Therapists; C-IAYT) implemented the 15-session (45-60 minutes each) intervention. The program consisted of 4 main components: (1) joint loosening with breath synchronization, (2) postures (asanas) including partner-poses followed by relaxation techniques, (3) breath energization (pranayama), and (4) guided imagery/meditation focusing on dyadic concepts (eg, love, acceptance).

Results

Sample

We identified and approached 5 eligible dyads of which all agreed to be interviewed. The mean age of the patients was 55.6 years (standard deviation = 17.6 years), and the mean age of the caregivers was 58 years (standard deviation = 21 years). Of the 5 patients, 3 were male; 3 were non-Hispanic White, with at least some college education; and 3 had advanced stage HNC. All 5 caregivers were female and 2 of them were romantic partners, and 3 were other relatives. Moreover, 4 caregivers were non-Hispanic White with at least some college education.

The interviews suggested that Hurricane Harvey directly affected 4 of the 5 dyads who were interviewed. One dyad was not affected because they were not physically present in the affected area. Each of the 4 dyads experienced symptoms of psychological distress associated with either storm-related or aftermath stressors.

Themes

We identified 2 overarching themes and 2 subthemes within each theme framing the experience of undergoing cancer treatment during a natural disaster.

Theme 1: The Negative Events Associated With the Storm. The interviews revealed that patients and their caregivers

experienced symptoms of psychological distress, such as stress, anxiety, guilt, and trauma. There were 2 types of negative events experienced by patients: (1) those during storm and (2) those in the aftermath of the storm. Some of the reported stressors during the storm were loss or damage of property, concerns about personal safety or the safety of loved ones, loss of amenities such as electricity, and the negative news coverage of the devastation caused by the storm. For example, a 38-year-old patient and his 23-year-old female caregiver were frustrated when they got locked out of their vehicle at a grocery store parking lot without any help. The patient said, “We [had] to abandon the car in a grocery store parking lot because there was not a soul that could come help us.” Later in the interview, he said that their car suffered severe irreparable damages due to the flood waters. A 41-year-old female patient was home alone without electricity with her 2 young daughters. Although she was safe from the flood waters, she was constantly worried about her mother whose house was flooded in the storm and needed to be evacuated.

After the storm, most patients experienced issues with local traffic, rescheduled appointments, treatment delays, and poor inpatient experience. For instances, a 71-year-old caregiver said, “During the hurricane, [it] wasn’t bad. It wasn’t until everybody started coming back . . . it was a disaster from that point on.” The caregiver was exasperated with the lack of communication between her husband’s medical teams, which she believed could have affected her husband’s health.

Theme 2: The Use of Yoga Techniques to Cope With Stressors Caused by the Negative Events. In general, all affected dyads said they used the relaxation techniques that they had learned during the yoga program, including yoga postures and breathing exercises, to help them cope with the stress of cancer treatment and Hurricane Harvey. The use of yoga techniques manifested in 2 ways: (1) they indicated that yoga helped them cope with the stress of their negative experience and (2) yoga served as a form of social support allowing patients to connect with their loved ones. Using yoga to cope with the stressors, a 71-year-old caregiver whose negative inpatient experience left her feeling frustrated said, “I would lay there in that recliner and do those breathing exercises. So yes, very [helpful].” Her spouse, the patient, added, “I thought [yoga], ought to be mandatory, personally.” The dyad who lost their car in the flood said, “I was glad for the breathing exercises because [when caregiver] hyperventilated and had a nervous breakdown, I slowly went over the breathing exercises until she came back down.” A 41-year-old patient who was home alone with 2 young girls worrying about her mother said, “The key to making it through the storm for her was remaining calm.” She attributed her ability to remain composed through the storm to “all the tools I learned like meditation.”

The mind-body techniques served as a means of social support as the patient-caregiver dyad practiced together. The airport closure during the Hurricane caused a 51-year-old female patient to be left alone in Houston. She practiced yoga with her mother over the phone, saying, “There were three times where we sat down, on the phone, and we went through the whole thing [50 minutes of yoga].” The yoga sessions allowed her to remain connected with her family when they could not physically be together. When the house of the patient who was home alone with her 2 daughters lost power, she used yoga as means of entertainment and had them practice with her. When asked about her daughters’ experience with the yoga, she said, “They loved it.”

Discussion

Based on this small sample, it appears that participants were able to use the yoga techniques they learned during the yoga intervention to cope with the direct and indirect stressors of a natural disaster, although the yoga intervention was intended for coping with cancer treatment. It can be inferred that the skills learned in the yoga classes are transferable to other stressful aspects of life. The dyadic model of the intervention allowed patients and caregivers to support one another as they went through their individual stressful experiences. The yoga practices allowed them to help themselves and other family members.

While our data suggest that DY may offer effective relaxation techniques for cancer patients and their caregivers who were undergoing an extreme stressor in addition to the cancer experience, the lack of a control group and the small convenience sample limits any firm conclusions. Moreover, dyads may have used additional forms of coping approaches particularly in the realm of problem-focused coping such as financial assistance or tangible social support, which we did not assess in the current study. Thus, we do not conclude yoga being superior to any other form of coping style.

Nevertheless, dyads were able to apply yoga techniques on their own to cope with a natural disaster supporting that the intervention is acceptable and perceived to be useful. Our ongoing research will further elucidate the effectiveness of DY for HNC patients and their caregivers.

Declaration of Conflicting Interests

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References

- Cramer H, Lange S, Klose P, Paul A, Dobos G. Yoga for breast cancer patients and survivors: a systematic review and meta-analysis. *BMC Cancer*. 2012;12:412.
- Cramer H, Lauche R, Klose P, Lange S, Langhorst J, Dobos GJ. Yoga for improving health-related quality of life, mental health and cancer-related symptoms in women diagnosed with breast cancer. *Cochrane Database Syst Rev*. 2017;(1):CD010802.
- Telles S, Naveen KV. Yoga for rehabilitation: an overview. *Indian J Med Sci*. 1997;51:123-127.
- Smith KB, Pukall CF. An evidence-based review of yoga as a complementary intervention for patients with cancer. *Psychooncology*. 2009;18:465-475.
- Elkins G, Fisher W, Johnson A. Mind-body therapies in integrative oncology. *Curr Treat Options Oncol*. 2010;11:128-140.
- Carlson LE. Distress management through mind-body therapies in oncology. *J Natl Cancer Inst Monogr*. 2017;2017. doi:10.1093/jncimonographs/lgx009
- Howlader N, Noone AM, Krapcho M, et al, eds. *SEER Cancer Statistics Review, 1975-2010*. Bethesda, MD: National Cancer Institute; 2016.
- Denis F, Garaud P, Bardet E, et al. Final results of the 94-01 French Head and Neck Oncology and Radiotherapy Group randomized trial comparing radiotherapy alone with concomitant radiochemotherapy in advanced-stage oropharynx carcinoma. *J Clin Oncol*. 2004;22:69-76.
- Adelstein DJ. Oropharyngeal cancer: the role of chemotherapy. *Curr Treat Options Oncol*. 2013;4:3-13.
- Pignon JP, le Maitre A, Maillard E, Bourhis J; MACH-NC Collaborative Group. Meta-analysis of chemotherapy in head and neck cancer (MACH-NC): an update on 93 randomised trials and 17 346 patients. *Radiother Oncol*. 2009;92:4-14.
- Bonner JA, Harari PM, Giralt J, et al. Radiotherapy plus cetuximab for squamous-cell carcinoma of the head and neck. *N Engl J Med*. 2006;354:567-578.
- Murphy BA. Advances in quality of life and symptom management for head and neck cancer patients. *Curr Opin Oncol*. 2009;21:242-247.
- Paleri V, Roe JW, Strojan P, et al. Strategies to reduce long-term postchemoradiation dysphagia in patients with head and neck cancer: an evidence-based review. *Head Neck*. 2014;36:431-443.
- Hutcheson KA, Lewin JS. Functional outcomes after chemoradiotherapy of laryngeal and pharyngeal cancers. *Curr Oncol Rep*. 2012;14:158-165.
- Rosenthal DI, Mendoza TR, Fuller CD, et al. Patterns of symptom burden during radiotherapy or concurrent chemoradiotherapy for head and neck cancer: a prospective analysis using the University of Texas MD Anderson Cancer Center Symptom Inventory-Head and Neck Module. *Cancer*. 2014;120:1975-1984.
- Murphy BA, Beaumont JL, Isitt J, et al. Mucositis-related morbidity and resource utilization in head and neck cancer patients receiving radiation therapy with or without chemotherapy. *J Pain Symptom Manage*. 2009;38:522-532.
- Cohen EE, LaMonte SJ, Erb NL, et al. American Cancer Society Head and Neck Cancer Survivorship Care Guideline. *CA Cancer J Clin*. 2016;66:203-239.
- Bhayani MK, Hutcheson KA, Barringer DA, et al. Gastrostomy tube placement in patients with oropharyngeal carcinoma treated with radiotherapy or chemoradiotherapy: factors affecting placement and dependence. *Head Neck*. 2013;35:1634-1640.
- MD Anderson Head and Neck Cancer Symptom Working Group; Eraj SA, Jomaa MK, et al. Long-term patient reported outcomes following radiation therapy for oropharyngeal cancer: cross-sectional assessment of a prospective symptom survey in patients ≥ 65 years old. *Radiat Oncol*. 2017;12:150.
- Ghiam MK, Mannion K, Dietrich MS, Stevens KL, Gilbert J, Murphy BA. Assessment of musculoskeletal impairment in head and neck cancer patients. *Support Care Cancer*. 2017;25:2085-2092.
- Badr H, Taylor CLC. Effects of relationship maintenance on psychological distress and dyadic adjustment among couples coping with lung cancer. *Health Psychol*. 2008;27:616-627.
- Coyne JC, Fiske V. Couples coping with chronic and catastrophic illness. In: Akamatsu TJ, Stephens MAP, Hobfoll SE & Crowther JH, eds. *Series in Applied Psychology: Social Issues and Questions. Family Health Psychology*. Washington, DC: Hemisphere; 1992:129-149.
- Badr H, Taylor CL. Social constraints and spousal communication in lung cancer. *Psychooncology*. 2006;15:673-683.
- Ellis J. The impact of lung cancer on patients and carers. *Chron Respir Dis*. 2012;9:39-47.
- Silver N, Dourado J, Hitchcock K, et al. Chronic opioid use in patients undergoing treatment for oropharyngeal cancer [published online January 6, 2019]. *Laryngoscope*. doi:10.1002/lary.27791
- Fletcher BAS, Dodd MJ, Schumacher KL, Miaskowski C. Symptom experience of family caregivers of patients with cancer. *Oncol Nurs Forum*. 2008;35:E23-E44.
- Braun M, Mikulincer M, Rydall A, Walsh A, Rodin G. Hidden morbidity in cancer: spouse caregivers. *J Clin Oncol*. 2007;25:4829-4834.
- Fletcher BA, Schumacher KL, Dodd M, et al. Trajectories of fatigue in family caregivers of patients undergoing radiation therapy for prostate cancer. *Res Nurs Health*. 2009;32:125-139.
- Fletcher BS, Paul SM, Dodd MJ, et al. Prevalence, severity, and impact of symptoms on female family caregivers of patients at the initiation of radiation therapy for prostate cancer. *J Clin Oncol*. 2008;26:599-605.
- Jacobs JM, Shaffer KM, Nipp RD, et al. Distress is interdependent in patients and caregivers with newly diagnosed incurable cancers. *Ann Behav Med*. 2017;51:519-531.
- Kim Y, Carver CS, Spillers RL, Crammer C, Zhou ES. Individual and dyadic relations between spiritual well-being and quality of life among cancer survivors and their spousal caregivers. *Psychooncology*. 2011;20:762-770.
- Northouse LL, Katapodi MC, Song LX, Zhang L, Mood DW. Interventions with family caregivers of cancer patients meta-analysis of randomized trials. *CA Cancer J Clin*. 2010;60:317-339.

33. Badr H, Krebs P. A systematic review and meta-analysis of psychosocial interventions for couples coping with cancer. *Psychooncology*. 2013;22:1688-1704.
34. Badr H, Herbert K, Chhabria K, Sandulache VC, Chiao EY, Wagner T. Self-management intervention for head and neck cancer couples: results of a randomized pilot trial. *Cancer*. 2019;125:1176-1184.
35. Milbury K, Liao Z, Shannon V, et al. Dyadic yoga program for patients undergoing thoracic radiotherapy and their family caregivers: results of a pilot randomized controlled trial. *Psychooncology*. 2019;28:615-621.
36. Milbury K, Mallaiah S, Mahajan A, et al. Yoga program for high-grade glioma patients undergoing radiotherapy and their family caregivers. *Integr Cancer Ther*. 2018;17:332-336.
37. Milbury K, Li J, Weathers SP, et al. Pilot randomized, controlled trial of a dyadic yoga program for glioma patients undergoing radiotherapy and their family caregivers. *Neurooncol Pract*. 2018:np052. doi:10.1093/nop/np052
38. Milbury K, Mallaiah 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.
39. National Hurricane Center. Costliest US tropical cyclones tables updated. <https://www.nhc.noaa.gov/news/UpdatedCostliest.pdf>. Published January 26, 2018. Accessed December 4, 2018.
40. Telles S, Naveen KV, Dash M. Yoga reduces symptoms of distress in tsunami survivors in the Andaman Islands. *Evid Based Complement Alternat Med*. 2007;4:503-509.
41. Telles S, Singh N, Joshi M, Balkrishna A. Post traumatic stress symptoms and heart rate variability in Bihar flood survivors following yoga: a randomized controlled study. *BMC Psychiatry*. 2010;10:18.
42. Thordardottir K, Gudmundsdottir R, Zoëga H, Valdimarsdottir UA, Gudmundsdottir B. Effects of yoga practice on stress-related symptoms in the aftermath of an earthquake: a community-based controlled trial. *Complement Ther Med*. 2014;22:226-234.
43. Harding T, Whitehead D. Analysing data in qualitative research. In: Schneider Z, Whitehead D, LoBiondo-Wood G Haber J, eds. *Nursing & Midwifery Research: Methods and Appraisal for Evidence-Based Practice*. 4th ed. Sydney, Australia: Elsevier-Mosby; 2013:141-160.