Research

Yogic Breathing Sessions for Cancer Patients and their Caregivers: An Analysis of Feedback

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Abstract: We examined the expected and experienced improvements of cancer patients' stress, mood, pain and appetite through a yogic breathing intervention. Cancer patients and caregivers were instructed in five different yogic breathing techniques in 20-minute sessions over a period of six months. Thirty participants completed the voluntary survey afterwards. Participants reported improvements on all outcomes, demonstrating the great potential of yogic breathing as complementary therapy during cancer treatment.

Background

Yogic breathing (YB, also called *Pranayama* in the yoga tradition) is an act that involves bringing intentional awareness to one's every breath, and implementing exercises to regulate breathing. By inhibiting the body's sympathetic "stress" response, and activating the body's parasympathetic "relaxation" response, yogic breathing modulates biomarkers known to be correlated with disease progression.

Several studies have suggested a correlation between the practice of yogic breathing and the modulation of hormone levels, inflammatory markers, and various cytokines involved in immunity (Balasubramanian et al., 2015; Kochupillai et al., 2005; Twal et al., 2016; Venkatesh et al., 2020). Furthermore, oncology patients practicing yogic breathing and mindfulness have reported improvements in symptom burden associated with cancer and chemotherapy, including decreased nausea and pain levels (Lee et al., 2023). Finally, numerous psychological benefits have been studied and reported among both cancer patients and non-cancer patients practicing yogic breathing, including reductions in fatigue, depression, anxiety, and sleep disturbances (Cramer et al., 2017; Alford et al., 2023). It is evident that the potential benefits of yogic breathing within the oncology population are numerous and multifaceted.

The American Cancer Society Carol Grotnes Belk Campus Hope Lodge located in Charleston, SC, is a local "home away from home" for cancer patients and their caregivers, providing no-cost lodging while undergoing treatment at nearby hospitals including the MUSC Hollings Cancer Center (ACS, 2024). Patients and their caregivers have the opportunity to socialize with others, enjoy meals together, and participate in various activity offerings led by local volunteers.

Methods

The study period spanned a six-month time frame in 2022, during which weekly twenty-minute yoga breathing sessions were offered at the local Hope Lodge facility to cancer patients and their caregivers in small groups (2-5 individuals). The session curriculum was developed by a certified yoga therapist (C-

IAYT), and modified for implementation in this specific setting. The instructor was a medical student, trained by the C-IAYT mentor, and a volunteer at the Hope Lodge.

A total of five techniques were taught and practiced together, as described previously (Alford et al., 2023):

1. Deep Breathing
2. Alternate Nostril Breathing
3. Thirumoolar Pranayama Breath-Holding Exercise (with "mental mantra" repetition)
4. Smiling Breathing
5. Ocean-Sound Breathing

Following the session, participants were invited to complete an optional anonymous survey, including questions on age, type of cancer, expected versus experienced improvements, and overall satisfaction. A total of 30 survey responses were collected. 15 were from patients undergoing cancer treatment, and 15 were from caregivers of patients.

Results

The majority of participants were female (70%), spanning an age range of 30 to 75 years. The median age group represented was 55-60 years. Among participants, there was a wide range of cancer diagnoses represented, with head and neck cancer and multiple myeloma being the majority (Figure 1). Other reported types of cancer among participants included breast cancer, thyroid cancer, skin cancer, leukemia, and otherwise not specified cancers.

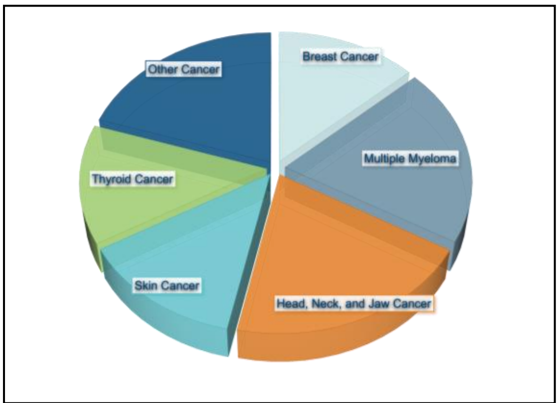

Figure 1. Cancer patients, by type of cancer.

The participants reported that their experienced improvement was the same as they expected in terms of stress (86.7%) (Figure 2). Interestingly, a total of 19 participants reported experiencing an improvement in mood, with six of those participants (20%) having not expected to experience that improvement. Additionally, three participants experienced an improvement in their pain level (10%) while two participants (6.7%) experienced an improvement in their appetite.

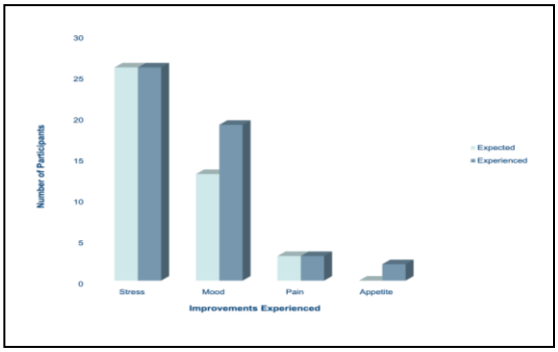

Figure 2. Expected versus experienced improvements of participants after participation in a yoga breathing session.

Conclusions

The practice of yogic breathing appears to offer both physiological (i.e., pain and appetite) and psychological benefits (i.e., reported stress and mood levels) to participants. When practiced in a community or organizational setting, it can also promote a sense of belonging and shared wellbeing (Donnelly et al., 2020). Our study was unique in that it allowed both patients and caregivers to be integrated into one shared environment while participating. While caregivers may not have the same physical ailments of the patients they are providing care for, they can experience their own symptoms of psychological burnout, depression, insomnia, and worsening of underlying comorbidities (heart disease, diabetes, etc.) that often go unnoticed (Junkins et al., 2020). An equal voluntary participation was seen among both patients and caregivers, shedding light on the idea that caregivers are interested in participation, however only to the degree that services are available to them, too.

The limitations of this study include both the smaller sample size as well as the short-term nature of the individuals participating. Ideally, a larger pool of participants representing various forms of cancer, captured over an extended period of time would provide a more thorough analysis of the effects experienced.

The areas of improvement to explore in future sessions include the addition of enhancing sensory features (i.e. audio equipment, dim lighting), gentle stretching of accessory muscles such as the neck and face, and the offering of virtual practice for continuation in the home setting. This would also allow for participants who are unable to commute to a central location, extremely immunosuppressed, or otherwise unable to leave the home the chance to still participate.

Finally, there are several populations to consider expansion for further application of practices, including pediatric oncology (Stritter et al., 2021), addiction management, and sleep disorders. The session structure would likely need to be tailored to the age, group size, and diagnoses represented among the individuals, however, would nonetheless likely be beneficial and worth exploring. In each of these avenues, there remains an opportunity to provide care to both the patient as well as the caregiver – and to make an impact on their psychological and physiological health.

Conflict-of-Interest Statement

Sundar Balasubramanian is the founder and principal of PranaScience Institute LLC, a research and educational entity engaged in yogic breathing. There are no financial relationships with entities that could be perceived to influence the content of the submitted work. There are no patents, copyrights, or royalties relevant to the submitted work. There are no other relationships or activities that could have influenced the content of the submitted work.

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