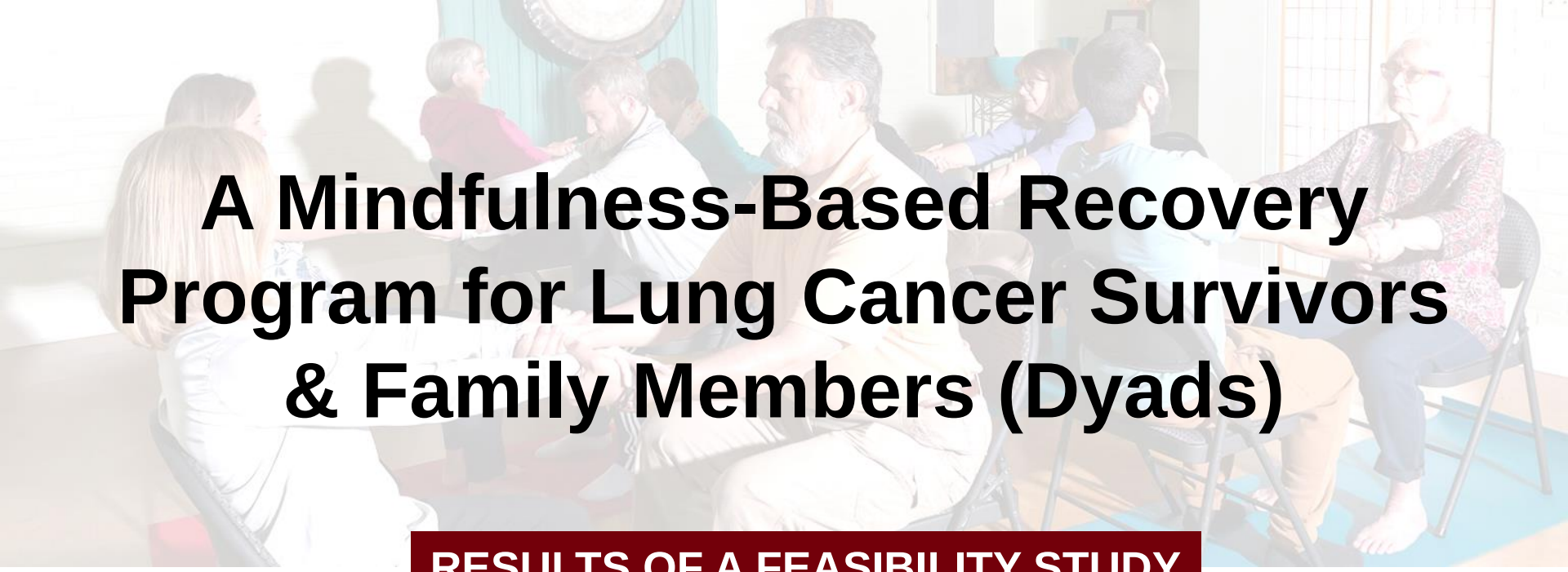


A Mindfulness-Based Recovery Program for Lung Cancer Survivors & Family Members (Dyads)

RESULTS OF A FEASIBILITY STUDY

Karen Kane McDonnell, PhD, RN, Assistant Professor,
College of Nursing, University of South Carolina, Columbia, SC, USA

September 2018 / This study was financially supported by the
Bristol-Myers Squibb Foundation, Bridging Cancer Care program

UNIVERSITY OF SOUTH CAROLINA

Research Team Members

David G. Gallerani, MPH ▪ Research Specialist; College of Nursing; USC

Brandi R. Newsome, MD ▪ Assistant Professor of Clinical Internal Medicine; Division of Pulmonary, Critical Care, & Sleep Medicine; USC

Jenay Beer, PhD ▪ Assistant Professor, Institute of Gerontology, University of Georgia (Athens, Georgia, USA)

Amanda Bennett ▪ PhD Student, College of Nursing, USC

James W. Hardin, PhD ▪ Arnold School of Public Health, USC

Samira Khan, MSW, MPH ▪ Arnold School of Public Health, USC

Otis L. Owens, PhD ▪ Assistant Professor, College of Social Work, USC

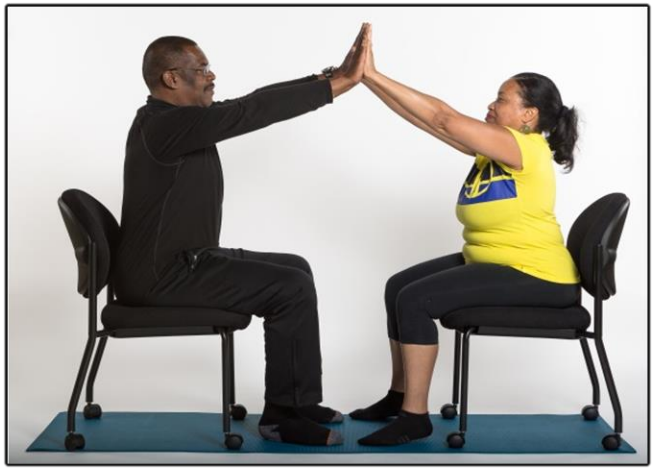
USC = University of South Carolina

Intervention Team Leaders

Upstream:

A Center for Mindfulness

Practice & Holistic Mental Health



in Columbia, South Carolina, USA

Background

- 5-year survival rate for individuals with non-small cell lung cancer is increasing[A]
- Symptom burden remains a common problem for survivors and family members[B]
- Long-term symptoms are associated with increased stress, poorer functional status, lower QOL, and higher mortality[C]

Background

- Evidence exists that “mindfulness-based interventions” improve mood, reduce fatigue, anxiety and depression with patients with various types of cancer[D]
- Few studies have targeted lung cancer survivors or dyads (survivor + family member)[E]

Preliminary Study

Living with Lung Cancer: Receptivity and Preferences for Risk-reducing Behavior Change among African American Families
(2015–2016)

Descriptive, qualitative study

Focus group methodology:
- Survivors alone
- Family members alone
- Together (as dyads)

Sample: Diverse, with few couples
26 dyads (N = 52)

- Survivors reported “unresolved dyspnea & fatigue”
- All receptive to changing lifestyles; dyads reported that lifestyle change required “compromise among all”
- Family members described unique challenges related to stress management and communication

Primary Purposes

#1 Test **feasibility** of tailored intervention *Breathe Easier*

- 8-week intervention consisting of education + meditation + breathing exercises + yoga (2 levels)
- For survivors with non-small cell lung cancer (stages I–IIIa) and their family members (dyads)

#2 Collect **preliminary data**

- Test hypothesis that participants will demonstrate (a) less dyspnea, (b) less fatigue, (c) improved sleep quality and quantity, and (d) less stress

Conceptual Model

Community-Based Participatory Model

- Invited participants from preliminary study
- Built on strength of their interested participation
- Collaborative partnership with survivors and families
- Will report findings at a participant reunion in November 2018

Design

Prospective, one-group, mixed method, 8-week (2 hours/week), face-to-face intervention

Evaluated:

- Recruitment
- Retention
- Intervention dose
- Adherence
- Acceptability

- Preliminary effects

Setting & Recruitment Plan

Setting: 2 large community hospitals in Columbia, South Carolina (USA), with American College of Surgeons–approved cancer programs

Recruitment:

- Goal: 25 dyads (N = 50)
- Two IRBs-approved partial wavier of consent allowed us to mail invitations to survivors (who then invited family members)

Eligibility Criteria

To be included, a **survivor** must:

- ✓ Have completed definitive treatment for localized lung cancer (NSCLC; stages I–IIIa) in past 10 years
- ✓ Be willing to complete 8-week intervention
- ✓ Have a family member willing to participate
- ✓ Be at least 21 years old
- ✓ Speak and read English

Eligibility Criteria

To be included, a **family member*** must:

- ✓ Be willing to complete 8-week intervention
- ✓ Be at least 21 years old
- ✓ Speak and read English

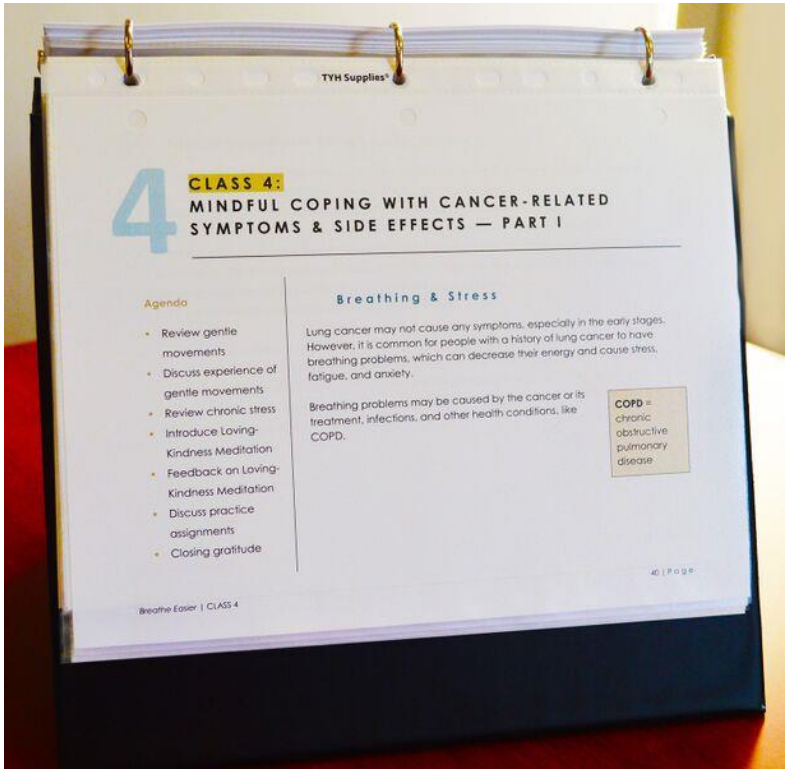
***Family Member** = any close friend or relative considered a support person by the survivor

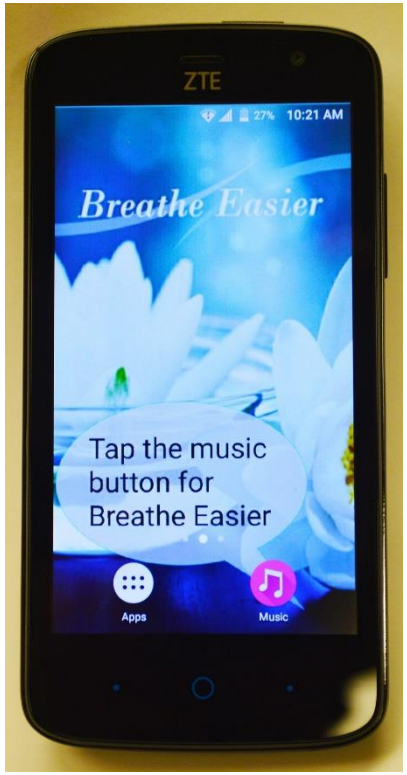
Exclusion Criteria

- ✖ Patients/Survivors with a known diagnosis of advanced lung cancer (stage IIIb–IVb)
- ✖ Survivors and family members for whom physical activity is not recommended

Intervention, Level 1

Education, Breathing Exercises, Sitting Yoga and Meditation





- Audio and visual options for at-home activities
- Literacy level: grade 5
- Racial & gender sensitivity

Intervention, Level 1

CLASS 1 Mindfulness & Mindful Eating
CLASS 2 Learning to Breathe Easier (Dyspnea)
CLASS 3 Reacting vs. Responding to Stress & Living with Lung Cancer
CLASS 4 Mindful Coping with Cancer-Related Symptoms & Side Effects (Stress)
CLASS 5 Mindful Coping with Cancer-Related Symptoms & Side Effects (Sleep & Fatigue)
CLASS 6 Stressful Communication—Knowing Your Fears & Other Difficult Emotions
SATURDAY RETREAT (4 hours)
CLASS 7 Integrating Mindfulness into Daily Life
CLASS 8 Keeping Up the Momentum

Findings: Recruitment & Retention

- **125** Survivors **Responded**
- **23** Survivors **Enrolled**
- **46** Participants **Enrolled**

18%
Recruitment Rate

91%
Retention Rate

Of those who did **not** enroll:

- **32** Not interested
- **22** Had a schedule conflict
- **20** Couldn't find partner
- **12** Undergoing treatment
- **7** Are caregivers for an ill family member
- **6** Too ill to participate
- **3** Moved to a different state

Participant Profile

Characteristics	Survivors (n = 21)	Family Members (n = 21)
Mean Age (SD)	68 years (6.2)	61 years (14.4)
***Gender*:**		
Male	9 (43%)	11 (52%)
***Race*:**		
Black	13 (62%)	12 (57%)
White	8 (38%)	9 (43%)
Completed High School	17 (76%)	20 (95%)
Annual Income < $20,000	5 (24%)	4 (19%)
Employed for Wages	3 (14%)	5 (24%)
Retired	11 (52%)	11 (52%)
Unable to Work	6 (29%)	1 (5%)

Participant Profile

Characteristics	Survivors (n = 21)	Family Members (n = 21)
***General Health*:**		
Fair/Poor	11(52%)	2(10%)
Good/Very Good	10 (48%)	18 (86%)
Comorbid COPD	9 (43%)	2 (10%)
History of Cancer	21 (100%)	6 (29%)
Current Smoker*	3 (14%)	4 (19%)
Never Smoker	1 (3%)	9 (43%)
Oxygen User	3 (14%)	0 (0%)
Smoke-free Home	13 (62%)	13 (62%)
Lives Alone at Home	2 (6%)	2 (6%)

*Self-reported; verified with Nic-alert (saliva).

Participant Profile

Year of Diagnosis	n	%
2018	2	9
2017	1	4
2016	5	22
2015	4	17
2014	4	17
Before 2014	7	30

Note: One family member was diagnosed with lung cancer in 2018

Types of Family Members:

11 Spouses

3 Close Friends

2 Sons

1 Daughter

1 Sibling

1 Father

1 Niece

2 Pastor

1 “Matched”

Adherence

Factors	Expectation	Survivors	Family Members
Attendance*: **Weekly** (8 weeks) Retreat (Sat., 3 hours)	**80% Weekly attendance** **70% Retreat attendance**	91% 78%	90% 83%
***Home Assignments*:** **Breathing Exercises**	**16 min/day for 5 weeks**	16 min/day	21 min/day
***Home Assignments*:** **Meditations**	**18 min/day for 6 weeks**	20 min/day	24 min/day
***Home Assignments*:** **Gentle Movements**	**32 min/day for 4 weeks**	26 min/day	25 min/day

***Attendance calculated minus 4 dropouts (no attendance after consent appointment).

Acceptability

Acceptability Statements[1]	Responses:[2] Survivors, n (%)	Responses:[2] FMs, n (%)
Booklet easy to read	49 (96%)	55 (95%)
Booklet easy to use	49 (96%)	51 (93%)
Time needed for home assignments	44 (81%)	55 (90%)
Photos were helpful for home assignments	40 (78%)	52 (90%)
Audio recordings easy to use	49 (91%)	57 (93%)
Audio recordings helpful	52 (96%)	59 (97%)
Sharing my thoughts w/ others was comfortable	52 (97%)	58 (95%)
Learning gentle movements helped me	52 (98%)	53 (90%)
Involving a family member important to survivor	53 (98%)	54 (89%)

[1] Acceptability measured by a data collection form, “Acceptability Evaluation,” adapted with permission from P. J. Hollen, PhD, RN, FAAN. [2] Responses “strongly agree” and “agree” combined.

Pre/Post Preliminary Outcomes

Measure	Survivors (N = 23)	Family Members (N = 23)	Comparisons
Exercise Capacity[1]	**n = 17[3]**	**n = 16[3]**	**n = 33**
Mean T1 Distance (SD)	305 meters (95.9)	234 meters (90.3)	271 meters (98.6)
Mean T2 Distance (SD)	328 meters (108.2)	247 meters (84.7)	288.7 meters (104.5)
Results of Paired t-tests	t = 0.17, df = 16, **p < .05**	t = 0.36, df = 15, **p < .05**	t = 0.09, df = 32, p < 0.5

T1 = Pre-intervention; T2 = Post-intervention.
[1] Exercise Capacity measured with 6-Minute Walk Test.
[2] Interpret cautiously due to small sample size.
[3] Only included participants who attempted/completed pre/post test.

Significant[2]

Pre/Post Preliminary Outcomes

Measure	Survivor	Family Member	Comparisons
Dyspnea Scores[1]	N = 23 T1 = 10.68 T2 = 7.16	N = 23 T1 = 6.44 T2 = 5.28	N = 46 p = 0.05 (Group) p = 0.12 (Time)
Fatigue FACIT F Scores[2]	N = 23 T1 = 32.0 T2 = 39.3	N = 23 T1 = 36.0 T2 = 39.6	N = 46 p = 0.80 (Group) p = 0.07 (Time)

T1 = Pre-intervention; T2 = Post-intervention.
[1] Dyspnea measured with FACIT-Dyspnea 10-item Short Form.
[2] Fatigue measured with FACIT Fatigue Scale (v. 4).
[3] Interpret cautiously due to small sample size.

Significant difference by group[3]

Pre/Post Preliminary Outcomes

Measure	Survivor	Family Member	Comparisons
Perceived Stress Scores[1]	N = 23 T1 = 15.07 T2 = 13.93	N = 23 T1 = 12.64 T2 = 12.71	N = 46 p = 0. 26 (Group) p = 0.73 (Time)
Sleep Quality Scores[2]	N = 23 T1 = 10.12 T2 = 7.82	N = 23 T1 = 8.82 T2 = 8.19	N = 46 p = 0.66 (Group) p = 0.18 (Time)

T1 = Pre-intervention; T2 = Post-intervention.
[1] Perceived stress measured with the Perceived Stress Scale.
[2] Sleep quality measured with the Pittsburg Sleep Quality Index.

Discussion

1. Recruitment was slow over 10 months
   - The isolating nature of lung cancer
   - The uniqueness of this intervention
   - Program commitment
   - Smaller # of survivors of stages I–IIIa lung cancer
   - Dyad requirement

2. Retention was high
   - Participants were engaged
   - Maximized convenience
   - Enjoyed the social interaction

Discussion

3. Adherence was demonstrated by good attendance and exceeding expectations on home assignments for breathing exercises, meditations and meeting expectations for gentle movements (sitting yoga).

4. We received high grades of acceptability from family members and survivors. However, some survivors gave a lower acceptability rating to the photos we used, as well as to the amount of time needed to practice home assignments.

Implications

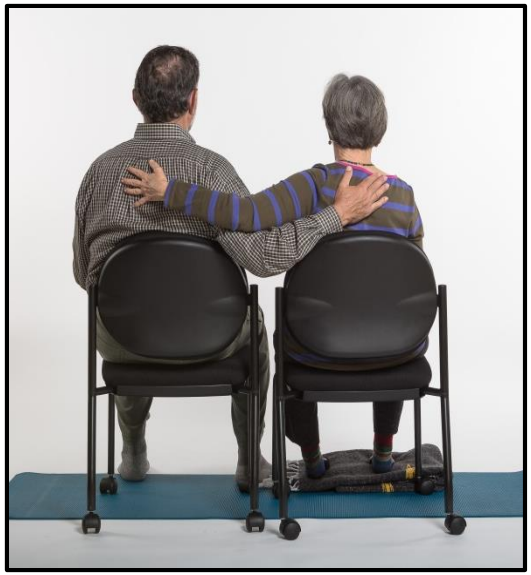
An adapted mindfulness-based cancer recovery intervention is feasible.

Preliminary results showed that it may:

- Improve exercise capacity
- Decrease dyspnea
- Decrease fatigue
- Improve perceived stress and sleep in survivors

Study Strengths

1. Adapted an established intervention
2. Recruited well-trained “practicing” mindfulness practitioners
3. Strong emphasis on fidelity ~ written protocols
4. Measurement, measurement, measurement
5. Used a “unique methodology” to focus on symptom management:
   - Dyads focused on an activity to improve each others’ health
   - Stress management was well received



References

[A] Vijayvergia, N., Shah, P. C., & Denlinger, C. S. (2015). Survivorship in non–small cell lung cancer: Challenges faced and steps forward. *Journal of the National Comprehensive Cancer Network*, *13*(9), 1151-1161.

[B] Newsome, B. R., McDonnell, K., Hucks, J., & Dawson, R. E. (2018). Chronic obstructive pulmonary disease: Clinical implications for patients with lung cancer. *Clinical Journal of Oncology Nursing*, *22*(2), 184-192.

[C] Miller, K. D., Siegel, R. L., Lin, C. C., Mariotto, A. B., Kramer, J. L., Rowland, J. H., ... & Jemal, A. (2016). Cancer treatment and survivorship statistics, 2016. *CA: A cancer Journal for Clinicians*, *66*(4), 271-289.

[D] Carlson, L., & Speca, M. (2011). *Mindfulness-based cancer recovery: A step-by-step MBSR approach to help you cope with treatment and reclaim your life*. New Harbinger Publications.

[E] van den Hurk, D. G., Schellekens, M. P., Molema, J., Speckens, A. E., & van der Drift, M. A. (2015). Mindfulness-based stress reduction for lung cancer patients and their partners: Results of a mixed methods pilot study. *Palliative Medicine*, *29*(7), 652-660.

Contact

Karen Kane McDonnell, PhD, RN

Assistant Professor of Nursing

University of South Carolina

+1 (001) 803-777-9866

Karenkm@mailbox.sc.edu