

Heart Assisted Therapy-Self-Regulation (HAT-SR) for Caregivers of Persons with Dementia

Maria E. Pfrommer^{1*}, Eleanor S. McConnell¹, John H. Diepold², Elisabeth A. Siegert³ and Aulie A. Thompson⁴

¹Duke University School of Nursing, USA

²Private Practice, USA

³The Evergreens Retirement Care Community, USA

⁴Duke University, USA

*Corresponding author: Maria E Pfrommer, Graduate Student, Duke University School of Nursing, 307 Trent Dr Durham, NC 27710, USA, Tel: 609-458-1070; E-mail: Maria.pfrommer@duke.edu

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Abstract

Background/Objectives: Caring for patients with dementia can be challenging due to emotional contagion. This project sought to enhance mindfulness and reduce patient-care related stress/anxiety of caregivers to individuals with dementia to foster positive emotional contagion.

Design: A mixed method design was used to examine the effects of the mindfulness education.

Setting: Continuing Care Retirement Community

Participants: Thirty-four long term care staff completed the initial educational activity; 16 completed pre and post survey and practiced the mindfulness activity for one week.

Intervention: A 1 hour continuing education program was implemented and evaluated to teach caregivers a mindfulness enhancing technique known as Heart Assisted Therapy-SR (HAT-SR).

Measurements: Evaluation focused on caregivers' responses to the education, the intention to use the technique in practice, and staff experiences regarding the mindfulness enhancing intervention. Caregivers also completed a pre and post CAMS-R mindfulness survey and a post educational activity survey.

Results: Mean scores were slightly improved (M=39.00 pre to M=39.73 post) after practicing HAT-SR for one week, however, these results were not statistically significant. The End of Educational Activity survey revealed 100% of participants increased their knowledge base regarding mindfulness, 86% reported the educational activity was helpful in identifying the challenges faced by caregivers of patients with cognitive impairments, and over 85% of participants responded favorably to using HAT-SR as a tool to promote calm and relaxation and to improve their practice.

Conclusion: Caregiver responses indicate positive LTC staff response to mindfulness-based education. Further evaluation should emphasize larger sample sizes and a longer practice period to evaluate differences over time in staff mindfulness.

Keywords: Heart assisted therapy-self-regulation; Dementia caregivers; Mindfulness; Self-regulation; Staff education; Geriatric care; Cognitive impairment

Introduction

Challenges with dementia caregiving, including caregiver stress/role strain continues to be a concern in long-term care settings. This is because residents with dementia have impairments in memory, concentration, reasoning, and judgment, creating difficulties for the provider in anticipating the needs of the individual. The challenges and role strain increase for the individual and caregiver as the resident's cognitive condition diminishes [1]. Examples of caregiver challenges include caring for patients with behavioral issues such as agitation,

aggression, delusions, hallucinations, and wandering. Increased emotional empathy translates into increased patient responsiveness to the expressions, words, and behaviors of the caregivers [2]. This phenomenon is commonly referred to as emotional contagion and can be defined as "a process in which a person or group influences the emotions or behavior of another person" [3]. Emotional contagion may lead to worsening both behaviors and caregiver strain for healthcare professionals who work with persons with dementia. According to authors [4], this contagion effect may also translate into an increased risk for caregiver burnout, decreased empathy, and negative attitudes toward the patients and families they serve.

The ability to empathize with patients is a key component of dementia care because caregivers' emotional states can directly

influence their patients. The symptoms of caregiver role strain include anxiety, depression, heightened irritability, hopelessness, anger, exhaustion, hypertension, gastrointestinal complaints, insomnia, and headaches [5]. Relieving stress and improving the resilience of caregivers should translate into improvements in quality of care and clinical outcomes and an increased sense of well-being for both patients and caregivers [6]. Self-regulation techniques such as meditation, breathing exercises, and focused intention are gaining interest among healthcare professionals [7]. Specifically, self-nurturing techniques such as mindfulness and meditation practices have been shown to prevent and treat caregiver role strain or burnout. This self-nurturing strengthens compassion, resilience, awareness, focus, and caring behaviors [6].

Decreasing stress and enhancing mindfulness and self-compassion are especially important for healthcare providers who work with patients with dementia. A study that investigated the links between nurse burnout and nurse-rated quality of patient care in 53,846 nurses in six countries revealed that U.S. nurses had the second highest reported levels of emotional exhaustion and depersonalization [8]. Given these results, the researchers suggested that interventions that increase self-compassion and mindfulness have the potential to reduce stress and burnout in healthcare workers and improve patient outcomes [8]. Mindfulness-based stress reduction (MBSR) techniques show promise as an approach to decreasing both caregiver strain and behavioral symptoms.

Challenges in implementing MBSR in the LTC-based dementia caregiving include time constraints, high dropout rates, and training necessary to perform the MBSR technique. For example, traditional MBSR interventions require the attendee to complete one week of training and practice meditation for a minimum of 45 minutes per day. Fortney, Luchterhand, Zakletskaia, Zgierska, and Rakel [9] viewed the amount of time as a limitation, citing studies that had high dropout rates due to this time commitment. In response, the researchers developed an abbreviated protocol and requested attendees to complete 18 hours of training and practice MBSR 10-20 minutes per day for eight weeks. The sample included primary care clinicians working in the departments of family medicine, internal medicine, and pediatrics (N=30). Scores on burnout were compared during and after the study period and at nine months post intervention. At nine months, attendees had significantly better scores on all Maslach Burnout Inventory burnout subscales (Maslach et al., as cited in Fortney et al.), including emotional exhaustion ($p=0.009$), depersonalization ($p=0.005$), and personal accomplishment ($p<0.001$). Likewise, the depression ($p=0.001$), stress ($p=0.002$), and anxiety ($p=0.006$) subscales were significantly lower.

In a six-week pilot study of HAT-SR conducted at a Continuing Care Retirement Community, Diepold et al. (2014) randomized geriatric subjects ($n=19$) to an intervention or control group and administered pre- and post-intervention surveys. The Cognitive and Affective Mindfulness Scale-Revised [8,9] was used to measure four aspects of trait mindfulness: attention, awareness, acceptance, and present focus. Separate paired *t* tests were conducted to compare CAMS-R scores pre- and post-intervention for the placebo and intervention groups. Results revealed a statistically significant increase from pre- ($M=36.75 \pm 6.90$) to post intervention ($M=38.76 \pm 6.59$) in CAMS scores for the intervention group, $t(N=7)=-2.43$, $p<0.05$, but not for the placebo group, $t(N=6)=0.47$, $p=0.65$.

After conducting a pilot study, the authors gained additional knowledge on the benefits of HAT-SR and were inspired to move

forward with teaching caregivers of patients with dementia about stress reduction and the HAT-SR mindfulness enhancing technique. Therefore, the primary aim of this project was to teach HAT-SR to long-term care staff in a continuing care retirement community (CCRC) and evaluate the effectiveness of HAT-SR as an intervention to improve care for patients with dementia. The authors' secondary aim was to assess baseline knowledge related to mindfulness and caregiver challenges and to evaluate the effectiveness of the HAT-SR teaching session at increasing the participant's awareness of these two aspects of dementia care.

Materials and Methods

Project design

A mixed method design was used to evaluate the HAT-SR educational intervention. The project was approved by the Institutional Review Board of Duke University and was classified as exempt.

Setting and sample

The setting for the project was a CCRC. Approximately 27% of patients in this CCRC have moderate to advanced dementia. A convenience sample of thirty-four long-term care staff members including physicians, medical residents, nurse practitioners, physical therapist, activities directors, nurses and certified nursing assistants, food service workers, and home health aides were invited to attend the educational activity.

Intervention

The project manager conducted a one-hour teaching session to caregivers at the CCRC. In the session, staff was taught how to perform HAT-SR, complete the HAT-SR Activity Recording Sheet, and complete pre- and post-intervention survey tools. To perform HAT-SR, individuals place their overlapping hands on their hearts, free their minds, perform a specific breathing technique, and repeat a tailored acceptance statement. Healthcare staffs were afforded continuing education units (CEUs) for participation in the educational activity.

Primary outcome

The primary outcome measure was staff response to the End of Educational Activity Evaluation, which was used to assess the likelihood of staff continuing to use HAT-SR and ways in which participants might use the information from the educational activity to improve their approach to caring for patients with dementia. The End of Educational Activity Evaluation was designed specifically for this project and included four Likert-scale questions on the educational value of the workshop, seven yes/no with open-ended questions regarding the HAT-SR exercise, and two open-ended questions.

Secondary outcome

The CAMS-R [10] was administered prior to and after the educational activity to examine four aspects of mindfulness: attention, awareness, acceptance, and present focus. The 12-item CAMS-R, which uses a Likert scale, has been validated through psychometric evaluation [10]. Permission to use the CAMS-R was granted by the authors. The HAT-SR Activity Recording Sheet [11], which had a box that could be checked for each time the attendee completed the exercise, was used for seven days. The recording sheet was used to

compare results and examine if there were differences between the number of times HAT-SR was performed in relationship to CAMS-R scores [12].

Statistical Analysis

All quantitative analyses were conducted in SPSS version 22. Descriptive statistics were calculated to describe participants. Paired sample t-tests were conducted to compare differences in pre- and post CAMS-R scores and the ANOVA was added to examine the relationship between the amounts of times HAT-SR was practiced and post CAMS-R scores. The Cronbach's alpha was calculated for each subscale of the CAMS-R to detect reliability of the instrument. A two-tailed test was performed to determine if there was a relationship between those that completed the post CAMS-R to those that did not complete post surveys. Qualitative analysis of the End of Educational Survey was performed to assess baseline knowledge of mindfulness techniques and caregiver challenges as well as to examine perceived usefulness of HAT-SR for improving care and practice change for patients with dementia.

Results

Demographics

Thirty-four participants were taught HAT-SR and asked to practice HAT-SR for one week. Of the 34 participants, 16 chose to practice

HAT-SR and returned survey tools. All participants were eligible to receive 1 CEU after the educational session and then received an additional CEU for turning in their post surveys. Of the 34 participants, 13 agreed to practice HAT-SR for one week and completed the post-CAMS-R and the End of Educational Activity Evaluation. Of the 34 participants there were 32 females and 2 males. Occupations represented included Registered Nursing (20%), Licensed Practical Nurses (9%), Certified Nursing Assistance (32%), Physicians (6%), Physical Therapist (6%), Administration (6%), Advanced Practice Nurse (3%), Coordinator, (3%) Activities Director (3%), and Housekeeper (3%)

Primary outcome

Qualitative analysis of the End of Educational Survey revealed a majority of positive response to all questions on the survey. Table 1 depicts the questions and common responses to the questions in the survey.

Question	Number	Percentage	Comments
1. This continuing education activity increased my knowledge base about HAT-SR and mindfulness enhancing techniques.	15	100% strongly agree/agree	n/a
2. This continuing education activity was helpful in identifying the challenges faced by caregivers of patients with cognitive impairments	15	86.67% strongly agreed/agreed 13.33% undecided	n/a
3. I am confident I will be able to perform the HAT-SR technique	15	85.7% strongly agreed/agreed 14.29% undecided	n/a
4. HAT-SR would be useful for caregivers to family members with cognitive impairments?	15	93.0 % strongly agreed/agreed 67% undecided	n/a
5. What did you like best about this continuing education activity?	15	Open-ended	"Breathing; it relaxed me; it is easy; learning a new technique to help myself and residents; the calm feeling you experience right after the exhale; ease of performance with immediate effect; self help; taking myself into a peaceful state; the relaxing quality; I like the acceptance statement in the activity; It made me feel better afterwards and made me real proud of who I really am; my head feels clear afterwards; quick and easy to learn; learning a skill that can be used in practice; and it helps people".
6. What did you like least about this continuing education activity?	8	Open-ended	"The phrase; remembering to do it (n=2); rushed education; nothing (n=2); the last set of heart breaths; Relaxing; and felt I should do it more".
7. Would you recommend this continuing education activity to other healthcare professionals?"	14	86% strongly agreed/agreed that the educational 7.1% undecided 7.1% no	n/a
8. Do you have any prior knowledge of mindfulness practices? If so, can you please elaborate?	14	36% yes 64% no	Yoga (n=3), meditation, learned during labor training, 4-7 breathes technique, I have an interest in positive psychology, read an article

9. Do you think the HAT-SR exercise is something that enhanced your practice? If so, can you please elaborate?	11	73% yes 27% no	"Yes, I can do HAT in a shorter time frame; yes, because I think everyone needs a exercise such as mindfulness practice in our everyday lives as acceptance and mindful to others and especially to the residents; yes, thinking clearly increases caregiver acceptance of where the patient is right now in their disease process and; yes, taught my mom and to a patient.
10. Do you think the HAT-SR exercise is something that enhanced your compassion for your patients? If so, can you please elaborate?"	13	69% yes 31% no	"It let's me have more patience; I am more relaxed so I can see past my stress and empathize; no, I am always compassionate; help calm them down; I am always compassionate; keeping me calm and remembering to breath really helps; absolutely more compassionate and especially with combative/ resistive and verbal abusive residents and; the exercise helps diffuse my frustrations towards different patients".
11. Do you think the HAT-SR exercise is something that has enhanced your ability to have more patience? If so, can you please elaborate?	13	77% yes 23% no	"Not really, already overly patient (n=2) HAT-SR relies me and makes me more aware of my feelings; make me think before I react; HAT-SR reminded me that it is okay as an employee to take a few moments to myself if needed; not really; in accepting them (residents) for who they are and more than happy to help them and leave a smile on their face every single day; more aware, we all have burdens; calmness and; yes, more aware, we all have burdens"
12. Do you think the HAT-SR exercise is something that has enhanced your ability to be more attentive to your patients? If so, can you please elaborate?	13	67% yes 25% no 8% maybe	"Yes, because I'm relaxed I am more aware; yes, in understanding them and be at their present moment and help to relate to how they feel; yes, gives me patience; it increased awareness of the stressors on caregivers and; no, I have always been hyper aware of others feelings".
13. What was the one most important thing you learned about yourself from practicing the HAT-SR technique?	13	Open-ended	"Slow breathing to calm self; that I can control my emotions with this technique, less stress; calming my mind; I can control my thoughts, emotions, and feelings; facilitates relaxation when tense or tired; helps with stress; that I actually have patience somewhere inside of me; accepting my; staff (more so even than myself and the residents); breathing is important; thinking clearly; I need to be able to calm myself; I need to make more time to take care of myself and; I need to do it to be calm"
14. Do you plan to continue using this self-care exercise?	14	71% yes 7% no 7% undecided 7% " I will try"	n/a

Table 1: Questions and common responses to the questions in the survey

Secondary outcome

The total CAMS-R scores at pre- and post-intervention were compared using a paired sample t-test which revealed that the mean scores increased (39.00 pre to 39.73 post) after one week of practicing HAT-SR; however, this increase was non-significant ($p=0.443$). A one way ANOVA revealed there was not a significant effect of the amount of times HAT-SR was performed on post CAMS-R scores at the $p<0.05$ level, $F(10, 1)=0.994$, $p=0.661$. For those that completed the HAT-SR sheets ($n=13$), a Pearson r correlation revealed no relationship between the HAT-SR recording sheets and CAMS-R scores, $r(df)=0.16$, $p=0.162$.

Cronbach's alpha was calculated to measure reliability for pre and post CAMS-R subscales. The pre-attention subscale Cronbach's alpha revealed a marginal score (0.51) and an acceptable score for the post attention subscale (0.70). The pre-present focus subscale analysis revealed an unacceptable (0.18) and a questionable (0.58) post-present focus. The Awareness pre-subscale Cronbach's alpha was questionable (0.58) and the post Awareness was acceptable (0.774). The pre-acceptance and post-acceptance subscale analysis both yielded an acceptable result (pre=0.70, post 0.75).

Discussion

Our results indicated that healthcare staff was very interested in learning about techniques to help relieve stress and alleviate caregiver burnout. In fact, 100% of attendees agreed that the education increased their knowledge base of mindfulness and HAT-SR. Staff who have not previously been exposed to mindfulness-based stress reduction strategies were enthusiastic and willing to learn the technique. We were surprised when staff shared that they were even teaching the technique to patients, family, and other staff members. These outcomes parallel those of prior research that using self-regulation techniques might lead to better quality of care for patients and reduced stress and burnout among healthcare staff [6,8,9,13]. The majority of participants also agreed that the continuing education activity was helpful in identifying challenges faced by caregivers. In looking at future directions for the educational activity the authors considered a 93% response rate a signal that HAT-SR would be useful for caregivers and family members who have cognitive impairments.

The majority of participants (73%) said that they agreed that HAT-SR would be useful for practice change. As their comments suggest, the ease of doing this activity and the positive sensations they experienced

make the HAT-SR a promising technique. This degree of agreement also speaks volumes to the value of this educational activity and further mindfulness education especially since 64% of participants said they had no prior knowledge of mindfulness practices.

We found it helpful to ask open-ended questions; however, we noticed that negative responses were often accompanied by an explanation. For example, when the authors asked questions such as “did HAT-SR enhance your sense of compassion?” or “did HAT-SR increase your patience?” The reply by several respondents was “no it did not because I am already compassionate and patient”. Knowing the perception of the respondent is helpful to better understand the data and for more specific language choices in future evaluations.

The open-ended question number 13 was particularly useful and getting at what respondents learned about themselves when practicing HAT-SR. The qualitative responses included common themes such as “it’s very calming, it helps me control stress, I felt I was accepting myself for who I am, and it helps me to think more clearly”, which lead the authors to believe that HAT-SR and the educational activity were both well-received and embraced by this caregiver population.

Although statistically significant differences were not observed on the CAMS-R pre- and post T scores, the mean scores and the t-scores trended towards improved mindfulness. Two important limitations of this evaluation included the small sample size (n=16) and only a one-week to practice the intervention prior to collecting post surveys. These limitations will serve to assist the authors in planning additional educational activities. Recommendations for future educational opportunities to the surrounding communities, including family caregivers of patients with dementia, and increasing the amount of time that the individual practices HAT-SR (e.g., 4 weeks). Also, offering the mindfulness education after the shift ends and meeting once a week with participants will allow for reinforcement of the technique as well as allow for summative assessment that can be used to improve process outcomes.

Conclusion

The authors designed an educational intervention to enhance mindfulness and reduce patient-care related stress/anxiety of caregivers to individuals with dementia to foster positive emotional contagion by employing a stress reducing educational activity with mindfulness enhancing qualities. The approach used is known as Heart Assisted Therapy-SR (HAT-SR) [7,13]. The authors chose HAT-SR as a self-regulation activity because HAT-SR is brief, self-nurturing, easy to learn, and can be taught to an individual in about 15 minutes.

This project demonstrated the feasibility of teaching a mindfulness-based stress reduction technique among long term care staff in a CCRC through a continuing education approach. While mindfulness scores of participants tended to increase after the intervention, these results were not statistically significant. However, over 85% of participants who completed post-education follow-up responded favorably to using HAT-SR as a means to improve their practice [14-17].

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Conflict of Interest

The authors report no conflicts of interest.

Author Contributions

Pfrommer, ME: Conception and design, recruitment, data acquisition, data analysis and interpretation, drafting of manuscript, revision of manuscript for all content, final approval.

McConnell, ES: Chair of DNP committee, design, revision of manuscript for key content, final approval.

Diepold, JH, Jr.: committee member, designed protocol, tool, and intervention creation, revision of manuscript for key content, final approval.

Siegert, EA: DNP committee member, design, revision of manuscript for key content, final approval.

Thompson, JA: Data analysis and interpretation, revision of manuscript for key analytical content.

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