Auricular Acupuncture to Relieve Health Care Workers' Stress and Anxiety

Impact on Caring

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Background: The caring relationship between individual health care providers and patients is a critical component of healing. However, caring can result in physical, emotional, psychological, and spiritual symptoms in providers that can interfere with their capacity to enter into these relationships.
Purpose: The aim of this study was to evaluate whether auricular acupuncture is an effective tool for reducing health care provider stress and anxiety and, second, to determine if auricular acupuncture impacts provider capacity for developing caring relationships with patients.
Methods: Preintervention and postintervention surveys were evaluated to see if auricular acupuncture was associated with changes in State-Trait Anxiety Inventory (STAI), Professional Quality of Life, and Caring Ability Inventory scores.
Results: Compared with baseline, participants had a significant reduction in state anxiety (STAI), trait anxiety (STAI), burnout, and secondary traumatic stress scores (Professional Quality of Life). Significant increases were noted in courage and patience, 2 dimensions of the Caring Ability Inventory.
Conclusions: Auricular acupuncture is an effective intervention for the relief of stress/anxiety in providers and supports heightened capacity for caring.
Keywords: Auricular acupuncture, Burnout, Caring relationships, Compassion Fatigue, Secondary Traumatic Stress
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There is growing understanding that the caring relationship between a health care provider (ie, nurses, physicians, social workers, therapists, patient care assistants, or any team member providing care to a patient) and patient is a key component of healing and that this relationship can significantly impact patient outcomes.[1-5] Healing relationships

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based on love, compassion, and awareness have been identified as an essential element of an optimal healing environment.[6] To enter into effective caring relationships, providers must be present and self-aware and practice with compassion and intentionality, remembering that they have the power to support or hinder patient healing, depending on the nature and intent of the relationship. Unfortunately, health care environments are becoming increasingly complex and demanding. The expectation being placed on health care providers is to provide excellent care, while simultaneously juggling intricate processes and advanced technology. They are asked to do this in organizations where specialization, fragmentation, competing priorities, and moral ambiguities are not uncommon. These demands make it challenging for providers to stay in touch with the "art and heart" of their work.

In a meta-analysis of nursing research on caring, Swanson[7] identified the effects of caring and noncaring practices. She found that caring relationships produce positive emotional-spiritual, social, and physical outcomes for patients including enhanced healing, increased physical comfort, and decreased costs and length of stay.[7] Health care providers also benefit emotionally, socially, and spiritually and have an increased sense of personal and professional well-being.[7] Similarly, Halldorsdottir's[1] research supports the connection between caring behaviors and outcomes. She describes a caring-uncaring continuum, where noncaring practices harm those being cared for and negatively influence the ability to heal, versus a genuine caring connection, which positively impacts the patient and potentiates healing.[1,8,9] The purpose of this study was to see if providing staff with auricular acupuncture would reduce stress-related anxiety in these providers and improve their capacity to develop caring relationships with patients.

CONCEPTUAL FRAMEWORK

Jean Watson's[10] Theory of Human Caring provides the conceptual framework for this study. Inherent in this model is the caring-healing partnership between health care provider and patient, one that is based on mutual trust and an acknowledgement of the patient as a holistic being. The "transpersonal caring relationship" in which the provider is fully present and able to connect with the patient on a spiritual level in the moment, potentiating healing and wholeness, is an essential component of this theory.[10,11]

LITERATURE REVIEW

The physical, emotional, psychological, and spiritual problems that health care providers may experience as a result of caring and the pressures inherent in the caring process are widely recognized. Maslach[12] describes a syndrome of burnout in which caregivers experience overwhelming emotional exhaustion leading to negative feelings toward one's work and others (cynicism) and a personal sense of inefficacy. These effects result from the chronic and ongoing stress of dealing with the needs and problems of others until the person has nothing left to give. Burnout can manifest in physical, emotional, and psychological ways such as physical exhaustion, insomnia, susceptibility to illness, substance abuse, poor self-esteem, anger, and paranoia. Maslach and colleagues[12,13] identified 6 workplace factors that increase the risk for burnout when they are in conflict with an individual's views: work overload, role and value conflicts, lack of control and autonomy, inadequate rewards, lack of social support, and perceived unfairness. A relationship between age and burnout has also been established. Specifically, younger workers are at greater risk for burnout due to limited job and life experience.[12]

Health care providers may also experience symptoms caused by exposure to the extreme pain, stress, and trauma of patients and their families. Known as compassion fatigue (CF) or secondary traumatic stress (STS), this phenomenon is similar to posttraumatic stress disorder (PTSD). With CF, the person witnessing or being confronted with the traumatic event of others can suffer symptoms similar to the party who actually experienced the event firsthand.[14-17] Symptoms of CF are wide ranging and may include feelings of withdrawal, isolation from others, personal and professional conflicts, low morale and motivation, anxiety, apathy, negativity, absenteeism, somatic complaints, difficulty concentrating, rigidity, impatience, insensitivity, and irritability.[14]

Both burnout and CF can profoundly disrupt the personal and professional lives of a provider. They may result in an unwillingness or incapacity to develop caring relationships with patients and their families and an inability to function effectively as a member of the health care team and can have a deleterious impact on the provider's health and close relationships.[12,18-23] These effects impact not only individuals but also organizations. It is estimated that the stress-related problems of headache, hypertension, and chronic pain account for 54% of job-related absences.[24] The relationship between job stress and heart disease is well documented,[25] and a recent study found that people with high burnout have an increased risk of coronary heart disease.[26] In addition, patient outcomes suffer. For instance, a positive correlation between high provider stress and malpractice has been identified.[27] Moreover, stress and burnout have been linked to suboptimal patient care, hospital-acquired infections, and a higher incidence of medical errors.[23,28-30] It is imperative that staff are educated to recognize the signs of burnout and CF and that they are provided with tools for managing their stress and anxiety.

Prevalence of Burnout and Compassion Fatigue

The presence of burnout and CF in health care providers has been found to be a significant problem within caregiving professions such as social workers, nurses, physicians,

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and nursing assistants. In a survey of 7288 physicians, respondents were at higher risk for burnout symptoms (37.9%) when compared with a sample of working American adults (27.8%). Higher burnout rates were found in the specialty areas of family medicine, neurology, general internal medicine, and emergency medicine.[31] In a study of medical students, burnout was measured and found to be present in 45% of the participants.[32] Similarly, a second study demonstrated 76% of respondents in an internal medicine residency program met burnout criteria.[28] Elevated risk for burnout and CF among hospital providers has been noted in high-stress areas such as the intensive care unit,[33] emergency department,[34,35] and oncology[36] and in other specialty providers such as hospice nurses[37] and pediatric health care providers.[38,39] Compassion fatigue and burnout can affect any member of the health care team. In a study examining social workers, it was found that 15.2% of participating social workers met all the diagnostic criteria for PTSD.[40]

The incidence of burnout and CF is very troubling in nurses. Among health care providers, nursing is considered one of the more stressful professions.[23] In a review of 7 studies examining STS in nurses, Beck[41] found STS/CF reported in participants in all of these studies. A study conducted by Mealer and colleagues[21] looked at 332 inpatient and outpatient nurses and found that symptoms of anxiety, depression, PTSD, or burnout were present in 87% of participants. In addition, they reported that 86% had symptoms consistent with moderate burnout, and 18% met diagnostic criteria for PTSD. Findings indicate that inpatient nurses were more likely to experience PTSD than those working in outpatient areas.[21]

Auricular Acupuncture

Studies have suggested that auricular acupuncture is an effective intervention in reducing stress and anxiety. Only 1 study was found that explored the use of auricular acupuncture to support health care providers in managing stress and providing compassionate care to patients. A Restore and Renew Wellness Clinic was offered to hospital clinicians and employees at the Walter Reed Army Medical Center to help staff deal with symptoms of stress and promote the health and job performance of the workforce.[42] The clinic was offered weekly, and staff members were welcome to attend as often as their schedule allowed. Three complementary and alternative modalities, auricular acupuncture, clinical acupressure, and zero balancing were offered, and participants could receive 1 or more modalities in a visit. Participants were surveyed after each clinic visit, and a total of 2756 surveys were completed over the course of 1 year. Surveys indicated participants received auricular acupuncture at 58.1% of the visits, as compared with acupressure (52.7%) and zero balancing (7.5%). Respondents either agreed or strongly agreed that they had less stress (94.5%), were more relaxed (97.9%), and experienced a sense of calmness (99.1%) after visiting the wellness clinic. Of the staff attending the clinic 9 or more times, 75% strongly agreed they had greater compassion for their patients as a result of attending the clinic.[42]

Auricular acupuncture has been studied in other populations for anxiety relief. Wang and Kain[43] examined the effect of auricular acupuncture on the reduction of anxiety in healthy volunteers with similar baseline anxiety levels and environmental stress. Divided into treatment and control groups, they found that participants in the auricular acupuncture "relaxation" treatment group were significantly less anxious at 30 minutes and 24 hours after intervention, suggesting that acupuncture may be effective in healthy volunteers for the treatment of daily stress and anxiety. In a second study, Wang et al[44] studied the effects of auricular acupuncture in reducing preoperative anxiety and found that patients in the "relaxation" intervention group were significantly less anxious after auricular acupuncture when compared with the control group. Wu and colleagues[45] compared the use of body acupuncture and auricular acupuncture to treat patients with preoperative anxiety and saw a significant decrease in preoperative anxiety after treatment as compared with baseline with both forms of acupuncture. In another study,[46] auricular acupuncture was provided to mothers of children scheduled to undergo surgery. The mothers receiving the auricular acupuncture were found to have significantly lower levels of anxiety immediately after anesthesia induction when compared with mothers receiving a sham intervention. Of notable interest, they found that the children of mothers in the auricular acupuncture intervention group also had significantly lower levels of anxiety when entering the operating room and when the anesthesia mask was applied compared with children of mothers in the sham group.[46]

Auricular acupressure has also been studied for the relief of anxiety. It differs from auricular acupuncture in that small plastic beads rather than needles are placed on the ear pressure points and held in place with a patch to secure the location. In 1 study, auricular acupressure was utilized on patients during ambulance transport to the hospital and was found to be successful in reducing anxiety.[47] Barker and his colleagues[48] successfully used auricular acupressure to decrease pain and anxiety in elderly hip fracture patients during ambulance transport to the hospital.

Because of the favorable results of auricular acupuncture on the reduction of stress and anxiety–related symptoms, it is being used in a variety of settings. Auricular acupuncture has been included as part of a stress and anxiety reduction program at a prison for juvenile offenders in the United Kingdom.[49] The National Acupuncture Detoxification Association (NADA), a not-for-profit organization focused on community wellness, provides training and advocates

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for a standardized auricular acupuncture protocol used in the treatment of behavioral, mental health, and substance abuse issues, as well as emotional and disaster trauma.[50] Acupuncturists Without Borders, a group formed in 2005 in the wake of hurricanes Katrina and Rita, utilizes the NADA protocol to provide free auricular acupuncture to communities suffering from disasters or human conflict for purposes of stress and trauma relief.[51]

In summary, while studies have found auricular acupuncture to be effective in a variety of populations, only 1 study was found related to the use of auricular acupuncture for stress and anxiety relief in health care workers. Because auricular acupuncture was 1 of 3 modalities offered to participants, the effect of auricular acupuncture specifically on stress and anxiety cannot be isolated. Despite the paucity of research examining the use of auricular acupuncture in health care providers, this intervention shows promise as an innovative approach to reduce stress, CF, and burnout in providers. The purpose of this study was to, first, evaluate whether auricular acupuncture is an effective tool for reducing provider stress and anxiety and, second, determine if auricular acupuncture impacts their capacity for developing caring relationships with patients.

METHODS

Setting and Population

This study was approved by the hospital's institutional review board and conducted on the inpatient surgical burn/trauma intensive care and step-down units at an urban medical center in the Northeast. Any team member who worked on the service was eligible for participation. Eligible participants included nurses, physicians, patient care assistants, unit coordinators, physical therapists, speech pathologists, occupational therapists, dietitians, case managers, clinical specialists and leadership.

Team members were invited to participate through e-mails and postings informing people about the study. In addition, the nursing director and physician overseeing the involved areas educated their staff about the purpose of the study and what it entailed. Finally, the integrative care director was available to anyone interested in the study, answering questions and eventually obtaining consent from those who elected to participate. Of the 76 consented participants who finished the preintervention survey, 37 completed the intervention and postsurvey.

Design

Using a pretest/posttest design, consented participants were asked to complete a survey prior to and at the completion of the intervention. The survey tool measured anxiety, burnout, STS, compassion satisfaction, and caring ability. The intervention consisted of 5 auricular acupuncture sessions administered by a licensed acupuncturist over a 16-week period. The completion survey was administered once a participant completed the 5 sessions. This number of sessions was chosen to allow the participant enough exposure to auricular acupuncture to experience a positive outcome while considering the practical challenges of a large team with changing schedules. Whether a positive outcome could be achieved through a lesser number of sessions is a question for further exploration.

Instruments and Measures

STATE-TRAIT ANXIETY INVENTORY

The State-Trait Anxiety Inventory (STAI) for Adults Form Y is a 40-item tool used widely in research and clinical practice to measure anxiety in adults. The tool has been used with members of the armed services, the elderly, student and patient populations, and adults in the workplace.[52,53] The tool can be completed in about 10 minutes and is appropriate for those who have at least a sixth-grade reading level. It distinguishes between the (state) anxiety present in a particular situation versus the (trait) anxiety related to an individual's personality. Each item has a range of 4 responses. Scoring ranges from 20 to 80, with higher scores representing greater levels of anxiety.[52,53]

Internal consistency has been demonstrated with median α coefficients for the state-anxiety and trait-anxiety scales ranging from .86 to .95. Concurrent, convergent, divergent, and construct validity have also been established with the STAI Form Y.[53]

PROFESSIONAL QUALITY OF LIFE

Professional Quality of Life Scale version 5 is a 30-item tool measuring 3 discrete constructs: compassion satisfaction, burnout, and STS. The α reliabilities for the scales are compassion satisfaction .88, burnout .75, and STS .81. Construct validity has been established. Commonly used in research, the Professional Quality of Life Scale is the most widely used measure of the positive and negative aspects of being in a "helping" profession. Originally developed for therapists, the tool is now widely used with medical professionals, humanitarian workers, social and public service employees and teachers, and other professionals.[54]

CARING ABILITY INVENTORY

The Caring Ability Inventory (CAI) is a 37-item tool designed to measure one's ability to care for others. Use of the tool by professional groups such as nurses, pharmacists, social workers, and physicians is recommended, and it has been used in both academic and clinical venues. Subscales of the CAI measure specific aspects of caring including knowing, courage, and patience. Reliability of the subscales has been assessed, and α coefficients are

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reported as ranging from .71 to .84. Content and construct validity have also been established.[55,56]

Procedure

Weekly auricular acupuncture was offered to participants for a total of 16 weeks. Sessions were scheduled on the same day each week and offered every half hour from 1:30 to 4:30 PM. Each session lasted 25 minutes. This allowed for staff with day and evening schedules to participate with greater ease, and the multiple sessions made it possible for providers to cover each other's assignments, thereby encouraging participation by a maximal number of team members. Unit leaders and participants were notified in advance as to when and where the sessions would be held. The intervention took place in a lounge conveniently located 1 floor below the burn/trauma clinical areas and was used exclusively by participants during the auricular acupuncture sessions.

Intervention

After signing in to the session, participants were seated in a quiet room together with soft lighting and comfortable chairs. During the first session, the acupuncturist was introduced, the procedure explained, and participants were encouraged to ask questions. First, the external ear was cleansed with an alcohol preparation pad. Next, 5 fine-gauge, sterilized, 1-time-use stainless-steel auricular acupuncture needles were inserted just under the skin at 5 designated points (the Shen men, sympathetic autonomic, lung, liver and kidney points) unilaterally (Figure). Because body organs have an emotional component and can be adversely affected by excessive and prolonged emotions,[57] these auricular points (which are the same as those used in the NADA auricular acupuncture protocol) were chosen to facilitate the release of negative/toxic emotions from the organs.[50,58] This process allowed the participant being treated to come back into balance, replacing stress and anxiety with a sense of calm.

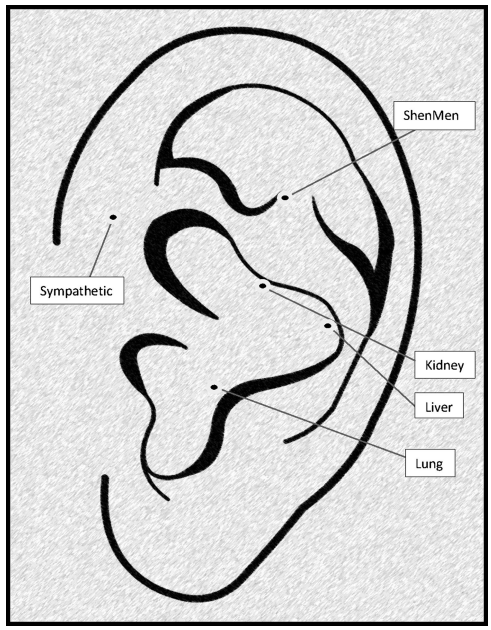

Figure. Auricular acupuncture needle placement.

RESULTS

Respondent demographics are summarized in Table 1. Participants were primarily women, and nursing was the discipline with the largest number of participants. Nearly one-third of respondents had 21+ years of experience, and 43% were 50 years or older.

The means and SDs are presented in Table 2. Significant reductions in state anxiety, trait anxiety, burnout, CF, and significant improvements in courage and patience were noted from preintervention to the postintervention period. Although trends toward improvement were noted on the compassion satisfaction and knowing subscales, the improvements were not statistically significant.

DISCUSSION

This study was conducted to evaluate whether auricular acupuncture can reduce stress and anxiety in health care providers and improve their ability to enter into caring relationships with patients. A significant reduction in state anxiety (P = .000) from 38.27 to 32.32, as well as significant decreases in trait anxiety (P = .007), burnout (P = .006), and CF (P = .004), was found in participants exposed to the acupuncture treatment when compared with their baseline. The movement of each measure is consistent with a reduction in provider stress and anxiety and supports the hypothesis that auricular acupuncture is an effective strategy in mitigating the risks of caregiving. Significant improvements in postintervention courage and patience scores on the CAI indicate an enhanced capacity of providers to develop caring relationships.[55,56]

The findings of this investigation are consistent with those of other research studies utilizing auricular acupuncture for stress and anxiety reduction in various populations. Using the STAI as a measure, Wang and Kain[43] found the auricular acupuncture "relaxation" group significantly less anxious at the 30-minute (P = .007) and 24-hour (P = .035) points in healthy volunteers. Wang et al[44] determined that elective preoperative patients receiving ear acupuncture at the relaxation, tranquility, and master cerebral points experienced a significant decrease in state anxiety as compared with those in the control group (P = .01). Likewise, in a 2004 study, mothers of children undergoing surgery who received auricular acupuncture had a statistically significant decrease in state anxiety when compared with a sham intervention group (P = .014). In addition, the children of

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TABLE 1 Demographic Characteristics: Study Subjects

Respondent Demographics	
Age, y	
<30	11%
30-39	27%
40-49	19%
50-59	32%
60-69	11%
Female sex	92%
Role	
Registered nurse/personal care associate	65%
Physical therapist/occupational therapist/social worker/pharmacy	16%
Other	19%
Years at Brigham and Women's Hospital	
0-3	16%
4-6	14%
7-10	19%
11-20	19%
21+	32%

these mothers were also significantly less anxious when they entered the operating room ($P = .03$) and at initiation of anesthesia ($P = .016$).[46] In a study comparing the use of body acupuncture and auricular acupuncture on preoperative anxiety, researchers found that both interventions reached a significant level in decreasing preoperative anxiety as compared with baseline ($P = .00$).[45]

Just as caring relationships have beneficial effects for patients, caring interactions directed at health care providers can also have positive effects. Undergoing auricular acupuncture with colleagues provides the opportunity for a shared experience of community and helps the individual recognize that all team members are exposed to the pressures and stress associated with caregiving. Knowing that we are "all in this together" can create the opportunity for understanding and forgiveness among providers and improve communication and teamwork. The experience of having acupuncture provided by a welcoming, accepting, and compassionate caregiver in and of itself can be healing for the health care provider. We observed that participants lingered after the sessions and in many cases opened up and shared their thoughts and feelings with the acupuncturist. Participants also revealed that they felt calmer and better able to connect with patients and their families after the acupuncture sessions. Future studies should include a qualitative component to capture these observations and comments.

These participant reports are consistent with the findings of the Walter Reed Restore and Renew Wellness Clinic study. Duncan and colleagues[42] found that health care workers who participated in any of 3 complementary and alternative modalities (auricular acupuncture, clinical acupressure, and zero balancing) offered at a weekly clinic for staff reported being calmer (99.1%), more relaxed (97.9%), and cared for (99.3%) and less stressed (94.5%). Most importantly, a large number of participants reported having more compassion for patients over time, with the percentage increasing based on frequency of clinic participation (eg, 5-8 visits, 59.9%; >12 visits, 77.4%) connecting the concepts of self-care, stress reduction, caring, and compassion.

Although our small sample size did not allow for a meaningful comparison of results based on age, we did note that postintervention scores showed a greater positive impact in participants 40 years or older as compared with those younger than 40 years . In light of Maslach's[12] findings that younger workers are more susceptible to burnout, finding modalities that are effective for health care workers of all ages is an important consideration for future research.

Based on the results of this study, it does appear that auricular acupuncture is a promising and effective strategy for the relief of health care provider situational stress and anxiety. The fact that this can be done in community with multiple people at 1 time, takes no more than 30 minutes and requires only a qualified acupuncturist and a quiet space makes it a viable option in an organizational setting.

LIMITATIONS

There are several key limitations to this study. Scheduling was an important factor in participation as many of the

TABLE 2 Survey Results: Means and SDs

Measure/Subscale	n	Time 1, Mean (SD)	Time 2, Mean (SD)	*P*
State-Trait Anxiety Inventory				
• State anxiety	37	38.3 (7.7)	32.3	.000[a]
• Trait anxiety	37	37.2 (7.7)	34.2	.007[a]
Professional Quality of Life Scale				
• Compassion satisfaction	37	41.2 (5.9)	42.1 (6.5)	.142
• Burnout	37	22.9 (5.4)	21.3 (6.0)	.006[a]
• Compassion fatigue	37	21.2 (5.6)	19.4 (5.1)	.004[a]
Caring Ability Inventory				
• Knowing	37	77.3 (8.6)	79.5 (9.1)	.052
• Courage	37	69.2 (10.5)	71.4 (9.6)	.044[a]
• Patience	37	60.0 (4.1)	61.4 (4.4)	.015[a]

[a]Statistically significant at $P < .05$.

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nursing and medical staff work off-shift hours or have a schedule consisting of 12-hour shifts, limiting the number of days worked per week. Acupuncture sessions were offered on Wednesdays from 1:30 to 4:30 PM in order to capture participants working day and evening hours. Therefore, those working nights and weekends as well as people who were off that day had to come in from home to take part. Although this situation did occur with a few nurses, distance from home to work prevented some people from coming in for sessions when they were not scheduled to work. Fluctuation in census and workload was also a consideration and often diminished the ability of staff to attend. In addition, some participants were rotated midstudy to other services or, in some cases, to other hospitals and were unable to continue.

Of the 76 participants who originally consented to participate, only 37 completed the study. The majority of participants who completed the study were nurses. Although 2 physicians were consented and took part in the prestudy survey, they did not participate in the acupuncture sessions. Analysis needs to be done as to why certain disciplines did not participate, and whether this was related to barriers such as scheduling and workload, or a lack of understanding of the value of self-care and integrative therapies. The study needs to be repeated with a larger number of participants to fully evaluate the effectiveness of auricular acupuncture in reducing provider stress and anxiety, the impact this has on caring relationships, and the number of sessions necessary to achieve positive outcomes. Also, further investigation and understanding is needed on how best to mitigate the symptoms of burnout and STS in younger health care workers.

Finally, multiple *t* tests were conducted to evaluate each domain of anxiety, quality of life, and caring ability on a small sample. However, even if we had corrected for multiple testing, many of the outcomes remain significant or nearly significant including state and trait anxiety, burnout, and CF.

CONCLUSIONS

Health care providers are exposed to the trauma, suffering, and pain of patients and their families on an ongoing basis and need to recognize the physical, emotional, psychological, and spiritual symptoms that may result. Effective strategies and tools are needed to help them manage and ameliorate symptoms related to stress and anxiety. Failure to do so could impair the ability of providers to develop caring, healing relationships with patients and families and could negatively impact patient outcomes and the well-being of the provider. Leaders need to be aware of and understand the risks associated with caregiving and, more importantly, encourage staff to participate in offerings that support self-care. The results of this study indicate that auricular acupuncture is a helpful and effective strategy for reducing provider stress and anxiety. Limitations and barriers that prevent staff from practicing and/or participating in anxiety/stress reduction offerings need to be explored and addressed.

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