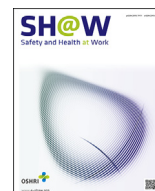




Contents lists available at ScienceDirect

Safety and Health at Work

journal homepage: www.e-shaw.org

Original Article

Impact of Coping and Communication Skills Program on Physician Burnout, Quality of Life, and Emotional Flooding

Jennifer K. Penberthy^{1,*}, Dinesh Chhabra¹, Dallas M. Ducar², Nina Avitabile¹, Morgan Lynch¹, Surbhi Khanna¹, Yiqin Xu¹, Nassima Ait-Daoud¹, John Schorling³¹ Department of Psychiatry and Neurobehavioral Sciences, University of Virginia School of Medicine, Charlottesville, VA, USA² Department of Nursing, University of Virginia School of Nursing, Charlottesville, VA, USA³ Department of Internal Medicine, University of Virginia School of Medicine, Charlottesville, VA, USA

ARTICLE INFO

Article history:

Received 20 April 2017

Received in revised form

22 December 2017

Accepted 26 February 2018

Available online 3 March 2018

Keywords:

Coping skills

Communication

Professional burnout

Physicians

ABSTRACT

Background: Physician behaviors that undermine a culture of safety have gained increasing attention as health-care organizations strive to create a culture of safety and reduce medical errors. We developed, implemented, and assessed a course to teach physicians skills regarding effective coping and interpersonal communication skills and present our results regarding outcomes.

Methods: We examined a professional development program specifically designed to address unprofessional or distressed behaviors of physicians, and we evaluated the impact on burnout, quality of life, and emotional flooding scores of the physicians. Assessments of burnout, quality of life, and emotional flooding were assessed preintervention and postintervention.

Results: Results demonstrated statistically significant reductions over time in physicians' emotional flooding and emotional exhaustion (EE). Specifically, using a Wilcoxon Signed-Rank test, results revealed that flooding scores at follow-up were statistically significantly lower than at baseline, $V = 590$, $p < 0.05$, and EE and personal accomplishment distributions were found to significantly deviate from normal as indicated by Shapiro–Wilks tests ($p < 0.05$). A Wilcoxon signed-rank test indicated that EE scores were significantly higher at baseline compared to follow-up 1, $V = 285$, $p < 0.05$.

Conclusion: We conclude that the physician participants who enrolled in the educational skills training program improved scores on emotional flooding and EE and that this may be indicative of improved skills related to their experiences and learning in the program. These improved skills in physicians may have a positive impact on the overall culture of safety in the health system setting.

© 2018 Occupational Safety and Health Research Institute, Published by Elsevier Korea LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Physician behaviors that undermine a culture of safety have gained increasing attention as health-care organizations strive to create a culture of safety and reduce medical errors. Physicians, among other health providers, are experiencing increasing amounts of stress in today's workforce. They are confronted with constraints of fewer resources, increasing government regulations, greater patient outcome expectations, and rising student debt [1]. Also many have expressed dissatisfaction with the decreasing amount of time allocated to each patient and consider their workload “too heavy”. In a 2014 American Medical Association

national survey, 54% of practicing physicians met criteria for burnout [2]. It should be noted that the issue of distress affects nearly every group of physicians ranging from interns [3,4] to department chairs [5]. These ever-growing strains, coupled with a competitive and demanding work environment, have led to numerous negative psychological consequences including burnout and in some cases, suicide [6]. Awareness of distress has resulted in more frequent reports of distress, encouraging many health-care organizations to respond by creating a “healthy work environment”.

Although this systematic problem has been recognized for years, specialized programs to reduce stress and mitigate burnout levels in physicians are still relatively rare. It is not only important to

* Corresponding author. Psychiatry & Neurobehavioral Sciences, PO Box 800623, Department of Psychiatry, University of Virginia School of Medicine, Charlottesville, VA 22908, USA.

E-mail address: jkp2n@virginia.edu (J.K. Penberthy).

identify those who suffer within the workplace but also to ensure the distressed individuals are actively invited to be cared for. The importance of this point is made evident in a 2012 study revealing that 78.3% of the distressed physicians surveyed had not previously thought about seeking professional help for depression or burnout [7].

Unprofessional and distressed behaviors among physicians are unfortunately not uncommon. Disruptive behavior by a physician has been defined by the Federation of State Medical Boards (2000) as “aberrant behavior manifested through personal interaction with physicians, hospital personnel, health-care professionals, patients, family members, or others, which interferes with patient care or could reasonably be expected to interfere with the process of delivering quality care.” This can include behavior ranging from active verbal abuse, physical threats, and actions to more passive actions, such as refusing to perform assigned or expected tasks. The Joint Commission on Accreditation of Healthcare Organizations (2009) issued a new leadership standard that addresses unprofessional and inappropriate behaviors, which requires that “the hospital/organization has a code of conduct that defines acceptable and unprofessional and inappropriate behaviors” and “leaders create and implement a process for managing unprofessional and inappropriate behaviors.” Additionally, as of January 1, 2001, The Joint Commission also mandated that all hospitals have a process to address physician well-being, separate from disciplinary processes.

There are strong links between a physician's levels of distress and their likelihood to display unprofessional behavior. A national survey reported that US physicians suffer more burnout than other American workers [8]. It has also been reported that 46% of all physicians responded that they had burnout [9], which speaks to the ubiquity of burnout among physicians. In another survey conducted in 2004, 79% of physician executives indicated that problems with physician behavior occurred within their organizations more than 3–5 times a year. Disrespect was the most common behavior noted (83%), but refusal to complete tasks, yelling, and insults were also common. Overall, 70% indicated that physician behavior problems nearly always involve the same physicians, meaning that modifications to the behavior of a relatively small number of individuals could lead to considerable changes throughout the whole workforce and work environment [10]. In a survey among veterans health administration hospitals, a national alliance of more than 1400 not-for-profit hospitals, a total of 77% of respondent health-care workers had witnessed unprofessional behavior among physicians. Specialized physicians were found to be more unprofessional, with general surgeons being most frequently identified as likely to exhibit unprofessional behavior (26%), followed by neurosurgeons (20%), cardiovascular surgeons (13%), and orthopedic surgeons (10%) [11]. These surveys reveal that negative and unprofessional physician behaviors are common to a majority of health-care settings, are usually concentrated to a small number of individuals, and are more common in some specialties versus others. Moreover, they also reveal that health-care settings are in need of an effective maintenance and ideally preventative process to deal with problematic physician behaviors.

1.1. Consequences

Distressed or unprofessional behavior among physicians is linked to a number of negative consequences including: poorer care collaboration, patient dissatisfaction, and increased medical errors. These facets of poor quality health care are strongly linked to burnout. A recent meta-analysis of 82 studies revealed that there is an inverse correlation between burnout and quality of care [12]. It is therefore important to further investigate the prevalence of unprofessional behaviors, their consequences, and to ascertain the

cause of the recent rise in incidence. If this issue remains unaddressed, it will jeopardize the sustainability of health care.

The shortage of nurses in today's era is a relevant concern in the rise of unprofessional physician behaviors. Physician behavior has been cited as a significant factor contributing to nurse dissatisfaction and morale. In a survey conducted in 2001–2002 of 1200 nurses and physicians, 31% responded that they knew of a nurse who had left their hospital because of physicians' unprofessional behavior, with an average of 2.4 nurses leaving each year for this reason [13]. The same investigators studied the potential impact of unprofessional behavior in the perioperative setting in an academic medical center and found that of 244 respondents (46%), including physicians, nurses, and other employees, were aware of a potential adverse event from unprofessional behavior [14]. In a recent survey of over 4500 participants (predominantly nurses and doctors) from 102 hospitals conducted from 2004 to 2007 [11], 94% responded that unprofessional behavior sometimes, frequently, or constantly leads to stress and frustration; 89% noted reduced team collaboration; 91% noted reduced communication; and 99% indicated impaired nurse–physician relationships. In terms of awareness of the consequences of unprofessional behavior, 67% of respondents thought that unprofessional behavior was linked to adverse events, with 71% of this group believing that such behavior led to errors, and 51% believing that such behavior led to reduced patient safety. Furthermore, 18% were aware of a specific adverse event that occurred directly because of unprofessional behavior. In summary, unprofessional behavior can violate principles of medical professionalism, undermine morale, decrease retention, decrease efficiency, consume resources, and threaten patient safety [15,16].

1.2. Risk factors and patterns of behavior

Physicians are under increased stress from working in an environment of declining reimbursement that requires increased productivity just to attain financial stability. In addition, there is also more pressure to practice in specific ways, such as adhering to guidelines and pathways that limit physician autonomy. Stress, addiction, psychological suffering, and personality disorders may also contribute to unprofessional behavior. Among 38 physicians referred to a specialized program for unprofessional behavior at Vanderbilt University, 16% were categorized as having high subjective distress, primarily because of depression and anxiety; 19% had characterological (personality) features, and 61% had normal profiles, based on the Minnesota Multiphasic Personality Inventory®-2 [17]. In some cases, substance use disorders may underlie unprofessional behavior, although the physician executives in the survey discussed above believed that less than 10% of episodes were due to substance abuse [10].

Despite the aforementioned consequences of unprofessional behaviors, many rationalizations can be construed to justify actions. Behaviorally unprofessional physicians may rationalize their reactions as natural responses that are based on their commitment to their work and their unwillingness to compromise patient care, according to their perceptions, with the lower standards of others [16]. Although holding high standards is appropriate, the responses of these physicians are not appropriate, because they may be adversely affecting the quality of care. Often underlying this stance are compulsive personality traits combined with a lack of emotional intelligence. Many physicians exhibit compulsive traits, especially what has been called the “compulsive triad” of self-doubt, guilt, and an exaggerated sense of self-importance [18]. Self-doubt often results from having excessively high personal standards, common in many physicians, that are often so high that the standards are difficult, or impossible, to achieve. Given these high self-expectations, such physicians often impose equally high

standards on others and react strongly if colleagues or staff fails to meet them. Among unprofessional physicians, these traits may be coupled with low emotional intelligence, which refers to how well they understand and are able to regulate themselves (self-awareness and self-regulation) and indicates their ability to read and respond appropriately to others (social awareness and relationship management) [19]. Cultivating emotional intelligence requires introspection and an understanding of what one is feeling in the moment to respond appropriately. Lack of these skills can lead to “flooding,” an overwhelming emotional response to a situation over which an individual has little control. Flooding is a state of negative feelings which virtually overwhelm the individual and make lead to irrational behaviors. Flooding has been described as something akin to being “emotionally high-jacked” in that one’s emotions are so strong that they are no longer under the logical control of the individual.

1.3. Strategies for change

The modern health-care system may benefit from an increased focus on physician well-being and how to achieve and sustain it within the stressful field of health care, as well as strategies to help transform the health-care system to allow sustained engagement. Well-being should be considered as more than simply the absence of distress. Programs teaching mindfulness, effective communication skills, and stress reduction techniques may be key in helping to establish a resilience and effective group of health-care workers. In addition to these interventions, longitudinal studies examining both physician distress and well-being are needed to identify and implement the interventions that have been proven successful. Physician engagement in a mindful communication program is associated with both short- and long-term physician well-being and attitudes associated with patient-centered care. This and other mindfulness-based programs for physicians have reduced burnout levels [20]. As part of this effort, we developed, implemented, and assessed a course to teach physicians skills regarding effective coping and interpersonal communication skills and examined the impact of such on measures of well-being including burnout, quality of life, and emotional flooding tendencies. We hypothesized that such training would lead to increased quality of life and decreases in scores of burnout and flooding.

2. Materials and methods

The ECCS for Physicians Program is approved to provide continuing medical education and is also approved by the UVA Institutional Review Board. A referred individual initially undergoes a brief phone screen to ensure eligibility, which includes identifying if there are issues regarding substance abuse, boundary violations, or prescription writing concerns. These issues are not addressed in our program and if one or more of these are identified as the primary or a significant concern then the professional is referred elsewhere. Once the professional is deemed appropriate for the program, they are oriented to the program goals and requirements. The course is taught by three senior faculty clinicians, who have extensive clinical experience working with professional health-care providers.

2.1. Intervention program: description

A few university medical centers and schools have created programs to assess and help physicians determined to be demonstrating distressed or unprofessional behavior. Vanderbilt University developed a comprehensive assessment program for

professionals over a decade ago [21]. Partially in response to the data reviewed above and the need for services for distressed and unprofessional physicians in our own University hospital, the University of Virginia School of Medicine and Health System, we collaborated with Vanderbilt University Medical Center for Professional Health to develop a program to help educate and train physicians to improve their coping and interpersonal communication skills. This University of Virginia School of Medicine continuing medical education (CME) program is called “Effective Coping and Communication Skills (ECCS) for Physicians” and includes 3 initial consecutive days of training followed by three follow-up 1-day trainings at 1, 3, and 6 months for a total of up to 48 hours of *AMA PRA Category 1 Credit(s)*[™]. Professional practice gaps identified as areas to be addressed through this CME activity/series include: physician difficulty in effective interpersonal communication—both verbal and nonverbal and anger and stress management, including relaxation and mindfulness skills. Other areas include awareness of interpersonal impact on others, including boundary issues—focusing on professionalism, effective goal setting, and organizational skills with a focus on system-based practices.

The University of Virginia Effective Coping and Communication Skills for Physicians Continuing Medical Education (UVA ECCS CME) course has an emphasis on assessment and feedback to identify skill deficits and promote skill enhancement. The course includes assessments at the onset and at 1-, 3-, and 6-month follow-ups. These assessments will be discussed in more detail below and include a 360 degree evaluation component where the physicians are assessed by team members of their choosing, including other physicians, nurses, support staff, and administrators. In this study, we focus on the self-assessments of emotional flooding, burnout, and quality of life. The course materials are provided to the participants in a binder to keep. The core curriculum components are outlined in Table 1 and include: motivational interviewing strategies to help clarify ambivalence and advance readiness to change; education and practice of effective interpersonal communication skills; education regarding empathy and compassion, including interpersonal mindfulness skills; coping skills; stress reduction and mindfulness strategies; cultural awareness skills; anger management; boundary awareness; and assertiveness training; as well as strategies to build resilience, reduce vulnerability to burnout, and increase self-care. Participants engage in role-play as well as self-reflection, discussion, and small group activities.

2.2. Participants

Forty-six participants were enrolled into groups of 2–8 physicians who meet together for the course. When the participants arrived for the first day of the program, they were oriented and provided an Institutional Review Board–approved consent form from the University of Virginia for review and signature. Questionnaires were then administered, including basic demographics, readiness to change scale [22], emotional flooding questionnaire [23], the Professional Quality of Life questionnaire (ProQOL) [24], the Maslach Burnout Inventory (MBI) [25], and the Beck Depression Inventory (BDI) [26]. The program then commenced with introductions and orientation to the program and materials and completion of the assessment materials. Once these were completed, the course didactic and interactive components began.

2.3. Assessments

Readiness to change: The purpose of a readiness to change assessments is to analyze the level of preparedness of the person to make changes. The greater the complexity of the proposed change,

Table 1
3-day program agenda.

Day 1: (9 am to 5 pm) <ul style="list-style-type: none"> • Introduction and welcome • Orientation to program and materials • Review confidentiality • Rules of engagement • Why you are here: sharing your story of how you got to this program • Clarification of ambivalence (decisional matrix, identifying emotion)
<i>Break for lunch</i> <ul style="list-style-type: none"> • Why you are in medicine: sharing your story of how you got to the field of medicine • The journey and goals of a career in medicine: what are your goals? • Identification of key issues/goals for individuals and the group • Introduction to effective interpersonal communication skills • Factors impacting coping and communication (thoughts, emotions, and behaviors: perception group exercises; interpersonal impact exercises) • Assign homework: complete, genogram, interpersonal inventories for review on Day 2 • Summary, feedback/questions, emotional check-in, and adjourn
Day 2: (9 am to 5 pm) <ul style="list-style-type: none"> • Review of assessments • Review and genogram homework • Introduction to effective communication skills and how they translate into effective interpersonal interactions and behaviors and goal achievement • The role of empathy
<i>Break for lunch</i> <ul style="list-style-type: none"> • Review interpersonal inventories and impact on interactions • Group exercise/role-play stressful situations • Stress management: preventing, reducing, and coping with stress • Progressive muscle relaxation (PMR)—group exercise • Mindfulness training—group exercise • One moment mindfulness • Assign homework: practice mindfulness exercise or PMR; complete anger management inventories; cultural awareness materials • Summary, feedback/questions, emotional check-in, and adjourn
Day 3: (9 am to 5 pm) <ul style="list-style-type: none"> • Check-in and review of homework assignments • The role of cultural and social awareness • Review of interpersonal boundaries and sexual harassment issues • Anger management and self-control—group exercise • Assertiveness training—group exercises • Role-play interpersonal situations brought in by group members—role-play
<i>Break for lunch</i> <ul style="list-style-type: none"> • Feedback on role-plays and lessons learned—group exercise • Importance of exercise and diet in self-care • Reducing burnout and improving job satisfaction • Review of resilience • Increasing positive interpersonal and communication skills—group exercise • Relapse prevention and maintaining progress • Summary, feedback/questions, emotional check-in, and completion of postassessment questionnaires • How to claim your CME

CME = continuing medical education.

change they were in, and how long they had been working to change. We assessed for readiness to change to reduce both their overall stress and anger.

Emotional flooding: We assessed emotional flooding using a modified version of Gottman's flooding scale [23], which was originally designed to use with couples. The scale assesses the tendency or proneness to flood emotionally in interpersonal situations and has been associated with unprofessional behavior.

Professional Quality of Life Questionnaire: The ProQOL [24] is the most commonly used measure of the negative and positive effects of helping others who experience suffering and trauma. The ProQOL consists of subscales for compassion satisfaction, burnout, and compassion fatigue.

Maslach Burnout Inventory: Burnout was measured using the MBI, a validated 22-item questionnaire considered a standard tool for measuring burnout. The MBI has 3 subscales to evaluate the three domains of burnout: emotional exhaustion (EE), depersonalization, and low personal accomplishment (PA). A high score on the EE or depersonalization scales or a low score on PA can be considered a symptom of the burnout syndrome. We considered participants with a high score using cut-offs for medical professionals on either the depersonalization and/or EE subscales as having at least one manifestation of professional burnout.

Beck Depression Inventory: The BDI is a 21-item self-report measure of attitudes and symptoms frequently displayed by depressed patients. Respondents rate items on 0 to 3 scales, with higher scores indicating greater depression.

Data analysis participants were not always able to attend every follow-up session, in which case data were not collected. Additionally, all questionnaires were not given at each visit. Only those questionnaires given at both baseline and follow-up 1 data were analyzed. We used the scores on readiness to change and the BDI to evaluate the characteristics of the physicians at the time they initiated the program. Basic descriptive statistics were calculated for these assessments. We compared scores on the emotional flooding, Professional Quality of Life, and Maslach Burnout questionnaires from time 1 at the beginning of the program to time 2 which was 1 month after the end of the 3-day program. We hypothesized that scores on the emotional flooding scale would be significantly reduced at time 2 when compared to time 1. We hypothesized that physician burnout scores would be significantly improved from time 1 to time 2. We specifically hypothesized that the scores on the MBI emotional exhaustion and depersonalization subscales would be significantly reduced from time 1 to time 2, and the scores on the personal accomplishment subscale would increase significantly. Finally, we hypothesized that on the Professional Quality of Life assessment, the burnout scores would significantly improve from time 1 to time 2. Analyses were performed in R 3.2.2 [28] using the g-data, graphics, and stats packages for calculating statistics, creating plots, and performing analyses [29].

3. Results

Since its inception in 2011, the University of Virginia School of Medicine's ECCS program has enrolled 46 medical professionals from many departments at locations from across the United States. The specialties with the most enrollees have been surgery and obstetrics and gynecology (Table 2). Of the 46 physicians enrolled, 73% were male and 27% female. At the beginning of the program, physicians averaged a flooding score 8.7, indicative of a proneness to emotional flooding during conflict, and an average BDI score of 9, which is classified as within the range of normal ups and downs and not indicative of significant depression. At baseline, most physicians were in the action stage of change and had been

the greater the importance of understanding whether and where there is readiness for change as this can be critical first for deciding whether the person is motivated to work for change. We used a modified version of the readiness to change questionnaire [27] to assess if the participant was working toward change, what stage of

Table 2
Physician specialty.

Specialty	Enrollees
Radiology	3 (7%)
Radiation oncology	1 (2%)
Pediatrics	1 (2%)
Surgery (general)	10 (22%)
Ophthalmology	1 (2%)
Obstetrics and gynecology	6 (13%)
Surgery	8 (17%)
Urology	1 (2%)
Anesthesiology	4 (9%)
Internal medicine	3 (7%)
Nephrology	1 (2%)
Neurology	1 (2%)
Hematology and oncology	1 (2%)
Cardiology	1 (2%)
Emergency medicine	2 (4%)
Family medicine	1 (2%)
Pathology	1 (2%)

attempting to reduce the amount of stress in their life, but for less than 6 months. Physicians also endorsed being between the maintenance and action stages of change regarding changing their anger and had been attempting to reduce their angry or acting out behaviors in their life, but with little success. Table 3 provides a breakdown of stage of readiness to change responses of the physician participants at baseline.

3.1. Emotional flooding

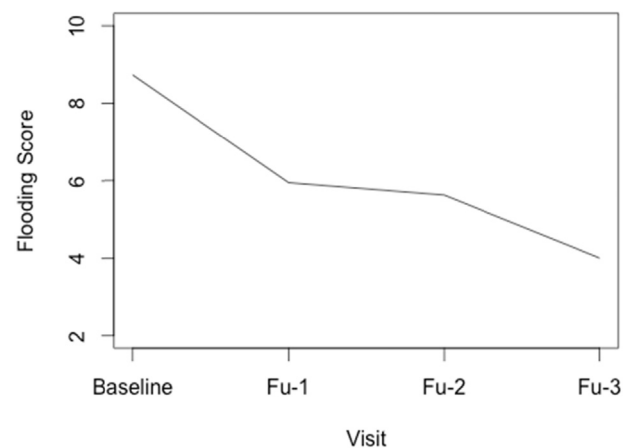
Emotional flooding scores were predicted to be significantly decreased as a result of the course. Using the Shapiro–Wilk test of normality, we tested the null hypothesis that flooding scores came from a normally distributed population; results indicated that the distribution deviated from normal ($p < 0.05$). A Wilcoxon Signed-Rank test indicated that flooding scores at baseline were statistically significantly higher than flooding scores at follow-up 1, $V = 590$, $p < 0.05$. Furthermore, flooding scores show an overall decreasing trend from each follow-up visit (Fig. 1).

3.2. Burnout

We predicted that physician burnout scores would be significantly improved from the beginning of the course to the first follow-up session. Of particular interest to this program were the EE and PA submeasures of the MBI, and the burnout submeasure of ProQoL. Both the EE and PA submeasure distributions were found to significantly deviate from normal as indicated by Shapiro–Wilks tests ($p < 0.05$). A Wilcoxon Signed-Rank test indicated that EE scores were significantly higher at baseline compared to follow-up 1, $V = 285$, $p < 0.05$. A Wilcoxon Signed-Rank test indicated that PA was not significantly improved as a result of the program, $V = 140.5$, $p > 0.05$. The burnout submeasure distribution of ProQoL was not found to significantly deviate from normal, so a paired t test was conducted. A paired t test revealed that ProQoL burnout scores were not significantly improved as a result of the course,

Table 3
Stage of readiness to change (RtC) baseline responses.

Readiness to Change	Maintenance stage	Action stage	Preparation stage	Contemplation stage	Precontemplation stage
RtC—stress	21 (46%)	18 (40%)	3 (7%)	1 (2%)	2 (4%)
RtC—anger	28 (62%)	15 (33%)	1 (2%)	0 (0%)	1 (2%)

Flooding score averages**Fig. 1.** Average flooding scores over the course of ECCS program. ECCS = Effective Coping and Communication Skills.**Table 4**
MBI burnout indices among ECCS enrollees at each visit.

Burnout indices	Baseline	Follow-up 1	Follow-up 2	Follow-up 3
Emotional exhaustion*				
1. Mean score	20.3	19.5	20.5	17.1
2. Low score	20 (50%)	15 (48%)	10 (43%)	8 (53%)
3. Moderate score	7 (17%)	5 (16%)	5 (22%)	3 (20%)
4. High score	13 (33%)	11 (36%)	8 (35%)	4 (27%)
Depersonalization*				
1. Mean score	7.1	7.4	8.3	7.8
2. Low score	24 (60%)	16 (52%)	11 (48%)	8 (53%)
3. Moderate score	7 (18%)	8 (26%)	5 (22%)	3 (20%)
4. High score	9 (22%)	7 (22%)	7 (30%)	4 (27%)
Personal accomplishment*				
1. Mean score	39.9	39.9	40.3	41
2. High score	28 (70%)	19 (61%)	15 (65%)	13 (87%)
3. Moderate score	7 (18%)	8 (26%)	5 (22%)	0 (0%)
4. Low score	5 (12%)	4 (13%)	3 (13%)	2 (13%)
MBI missing	5	14	22	30

ECCS = Effective Coping and Communication Skills; MBI = Maslach Burnout Inventory.

* Low, moderate, and high scores calculated using MBI scoring guidelines.

$t = 1.65$, $p > 0.05$. Table 4 provides a comprehensive summary of MBI scores at each time point.

4. Discussion/conclusion

The present study predicted that engagement in the ECCS program would teach stress management skills that focused specifically on reducing emotional arousal, improving interpersonal communication awareness, and improving self-care skills, thereby eventually reducing burnout overall, specifically decreasing EE and increasing PA. The impact upon outcomes was assessed by emotional flooding, burnout, and quality of life at work. Our

hypotheses were partially supported, in that engagement in the program appears to result in a significant decrease in EE scores and significantly sustained decrease in average flooding scores.

The reduction in flooding may represent a change in self-control, self-awareness, and emotional intelligence. Negative affectivity, anger, emotion regulation, and emotional expressivity have all been associated with flooding and observed in those with compulsive personality traits [30]. The reduction in flooding scores indicates increased emotional awareness. This result may have occurred due to the nature of the intervention, an opportunity to focus on self-care, and interpersonal communication awareness. Simply attending group-based therapeutic interventions can be insightful for those who rarely confront their own behavior. Specifically, for those with compulsive personality traits, awareness of the dynamic nature of modern health care may allow for one to break free from rigid perceptions and cognitively reframe their situations. This cognitive reframing may allow one to reassess their own reactions and to effectively practice emotional control when flooding occurs and keep impulses in check. In a health-care environment, unprofessional behavior can undermine morale, while also decreasing collaboration, retention, and patient safety. While unprofessional behavior is correlated with burnout, the relationship between the two is unknown. What is known is that three categories of causes of burnout exist: individual, interpersonal, and institutional [31]. Increased emotional control and self-awareness would likely affect one's perception and relationship with others. Moreover, it is likely that gains in both of these domains could result in a decrease in all three causes of burnout. If an individual experiences changes in their ability to cope with stressful situations (decreased flooding), this can foster improved interpersonal relations and even affect the institution as a whole.

EE decreased significantly as a result of the intervention, which may indicate that this intervention has particular success in attending to emotions and altering one's perception of said emotions. This measure examines feelings of being emotionally overextended and exhausted by one's work [32]. These results illustrate that the reduction of flooding may not simply be due to emotional control but further evidence of internalizing the teachings of this program and cognitively reframing one's relationship with one's reactions. Importantly, significant changes were not observed in the PA submeasure of MBI. It could be hypothesized that PA is more state-dependent to those who exhibit compulsive personality traits and may be more difficult to substantially change. It is important to note that significant changes were not observed in scores which relate to burnout in one's professional life; specifically the burnout submeasure of the ProQOL scale. It is conceivable that follow-up did not occur long enough to detect a change in burnout; this may be because burnout is highly interconnected with psychological climate [33]. An individual's perceptions and interpretations of an organization's structures, processes, and events constitutes psychological climate [34]. Specifically, the psychological climate of a workplace has been shown to have a strong relationship to burnout and can increase the risk of occupational aggression [35]. Psychological climate takes time to change as unprofessional individuals must change and colleagues must notice this change. Given the mediating role of psychological climate, it is likely that changes in interpersonal relations and, thereby, burnout will require more time than what present study follow-up allowed for.

There are multiple limitations to the current study, including a small, self-selected, and fairly homogeneous sample, and missing data that limited our ability to assess longer term effects. We also do not have a large enough sample size to examine more complex questions of mediating effects. Additionally, the use of multiple assessments may have impacted the study to increase the likelihood of finding results. Although we attempted to keep the number

of assessments to a reasonable amount, there were still multiple and possibly redundant questions. The hypothesis of this current program was that gains in emotional regulation and effective self-management would result in improved functioning as evidenced on emotional flooding measures and measures of burnout and quality of life. We found some support for this but are not able to make conclusive summaries or link actions to outcomes directly. The present study has only partially revealed the impact of teaching such skills to clinicians exhibiting unprofessional behavior. Future research should be conducted to explore the temporal relationship between teaching stress reduction and burnout amelioration; and the role of improving mood and mindful awareness in this relationship. Finally, further research should directly measure how programs such as ECCS impact institutional factors relevant to flooding and burnout, as this has the potential to reveal how individual and interpersonal changes impact larger occupational systems as a whole.

Further research is needed to ascertain what role a reduction in flooding and, thereby, an increase in emotional control and improvement in both interpersonal communication awareness and self-awareness have on burnout. There is a complex interaction between individual, interpersonal, and institutional factors, which remains unclear. We do not yet understand which of the three dimensions has the greatest importance nor do we know how one affects the other. Specifically, additional research regarding the impact of programs such as ECCS, among populations of clinicians with unprofessional behavior, is likely to reveal how teaching these skills can reduce burnout overall. In regard to this population, additional research investigating the long-term effects of this program on burnout and flooding may have the potential to reveal a relationship between the two. Additional research should also be directed to colleagues of unprofessional clinicians to ascertain the wide-reaching impact of such programs.

Conflicts of interest

The authors have no conflict of interest.

References

- Privitera MR, Rosenstein AH, Plessow F, LoCastro TM. Physician burnout and occupational stress: an inconvenient truth with unintended consequences. *J Hosp Adm* 2015;4:27–35.
- Shanafelt TD, Hasan O, Dyrbye LN, Sinsky C, Satele D, Sloan J, West CP. Changes in burnout and satisfaction with work-life balance in physicians and the general US working population between 2011 and 2014. *Mayo Clin Proc* 2015;90:1600–13.
- Rosen IM, Gimotty PA, Shea JA, Bellini LM. Evolution of sleep quantity, sleep deprivation, mood disturbances, empathy, and burnout among interns. *Acad Med* 2006;81:82–5.
- Dyrbye LN, West CP, Satele D, Boone S, Tan L, Sloan J, Shanafelt TD. Burnout among US medical students, residents, and early career physicians relative to the general US population. *Acad Med* 2014;89:443–51.
- Gabbe SG, Melville J, Mandel L, Walker E. Burnout in chairs of obstetrics and gynecology: diagnosis, treatment, and prevention. *Am J Obstet Gynecol* 2002;186:601–12.
- Schernhammer E. Taking their own lives – the high rate of physician suicide. *N Engl J Med* 2005;352:2473–6.
- Fridner A, Belkic K, Marini M, Gustafsson SM, Schenck-Gustafsson K. Why don't academic physicians seek needed professional help for psychological distress? *Swiss Med Wkly* 2012;142:13626.
- Shanafelt TD, Boone S, Tan L, Dyrbye LN, Sotile W, Satele D, West CP, Sloan J, Oreskovich MR. Burnout and satisfaction with work-life balance among US physicians relative to the general US population. *Arch Intern Med* 2012;172:1377–85.
- Peckham C. Physician burnout: it just keeps getting worse. *Medscape* 2015 Jan 26, 2015.
- Weber DO. Poll results: doctors' unprofessional behavior disturbs physician leaders. *Physician Exec* 2004;30:6–14.
- Rosenstein AH, O'Daniel M. A survey of the impact of unprofessional behaviors and communication defects on patient safety. *Jt Comm J Qual Patient Saf* 2008;34:464–71.

- [12] Salyers MP, Bonfils KA, Luther L, Firmin RL, White DA, Adams EL, Rollins AL. The relationship between professional burnout and quality and safety in healthcare: a meta-analysis. *J Gen Intern Med* 2017;32:475–82.
- [13] Rosenstein AH. Nurse-physician relationships: impact on nurse satisfaction and retention. *Am J Nurs* 2002;102:26–34.
- [14] Rosenstein AH, O'Daniel M. Impact and implications of unprofessional behavior in the perioperative arena. *J Am Coll Surg* 2006;203:96–105.
- [15] Leape LL, Fromson JA. Problem doctors: is there a system-level solution? *Ann Intern Med* 2006;144:107–15.
- [16] Pfifferling JH. Physicians' "unprofessional" behavior: consequences for medical quality and safety. *Am J Med Qual* 2008;23:165–7.
- [17] Roback HB, Strassberg D, Iannelli RJ, Finlayson AJ, Blanco M, Neufeld R. Problematic physicians: a comparison of personality profiles by offence type. *Can J Psychiatry* 2007;52:315–22.
- [18] Spickard Jr A, Gabbe SG, Christensen JF. Mid-career burnout in generalist and specialist physicians. *JAMA* 2002;288:1447–50.
- [19] Goleman D, Boyatzis R, McKee A. *Primal leadership: realizing the power of emotional intelligence*. Boston: Harvard Business School Press; 2002.
- [20] Goodman MJ, Schorling JB. A mindfulness course decreases burnout and improves well-being among healthcare providers. *Int J Psychiatry Med* 2012;43: 119–28.
- [21] Samenow CP, Swiggart W, Spickard Jr A. A CME course aimed at addressing unprofessional physician behavior. *Physician Exec* 2008;34:32–40.
- [22] Nigg CR, Burbank P, Padula C, Dufresne R, Rossi JS, Velicer WF, Laforge RG, Prochaska JO. Stages of change across ten health risk behaviors for older adults. *Gerontologist* 1999;39:473–82.
- [23] Gottman JM. The roles of conflict engagement, escalation, and avoidance in marital interaction: a longitudinal view of five types of couples. *J Consult Clin Psychol* 1993;61:6–15.
- [24] Stamm BH. Professional quality of life: compassion satisfaction and fatigue version 5 (ProQOL); 2009. www.isu.edu/~bhstamm. www.proqol.org.
- [25] Maslach C, Jackson SE, Leiter MP. *Maslach burnout inventory manual*. Palo Alto: Consulting Psychologists Press; 1996.
- [26] Beck AT, Steer RA, Brown GK. *Manual for the Beck depression inventory-II*. San Antonio, TX: Psychological Corporation; 1996.
- [27] Heather N, Gold R, Rollnick S. *Readiness to change questionnaire user's manual: technical report 15*. Kensington, Australia: National Drug and Alcohol Research Centre, University of New South Wales; 1991.
- [28] R Core Team. *R: A language and environment for statistical computing*. Vienna, Austria: R Foundation for Statistical Computing; 2015.
- [29] Warnes GR, Bolker B, Gorjanc G, Grothendieck G, Korosec A, Lumley T, MacQueen D, Magnusson A, Rogers J. *gdata: various R programming tools for data manipulation*; 2015. R package version 2.17.0, <http://CRAN.R-project.org/package=gdata>.
- [30] Steenkamp MM, Suvak MK, Dickstein BD, Shea MT, Litz BT. Emotional functioning in obsessive-compulsive personality disorder: comparison to borderline personality disorder and healthy controls. *J Pers Disord* 2015;26: 794–808.
- [31] Maslach C. *Burnout: the cost of caring*. Los Altos: ISHK; 2003.
- [32] Maslach C, Schaufeli WB, Leiter MP. Job burnout. *Annu Rev Psychol* 2001;52: 397–422.
- [33] D'Amato A, Zijlstra FR. Psychological climate and individual factors as antecedents of work outcomes. *Eur J Work Organ Psychol* 2008;17:33–54.
- [34] Parker CP, Baltes BB, Young SA, Huff JW, Altmann RA, Lacost HA, Roberts JE. Relationships between psychological climate perceptions and work outcomes: a meta-analytic review. *J Organ Behav* 2003;24:389–416.
- [35] Bedi A, Courcy F, Paquet M, Harvey S. Interpersonal aggression and burnout: the mediating role of psychological climate. *Stress Health* 2013;29:350–9.