

Pre-Health Professional Perceptions: Should a Formal Stress Relief Program Be Implemented in the Workplace?

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Abstract: Stress, depression, and burnout are a burden on employees and the health care system. These adverse mental states are interlinked, with burnout being a medical condition resulting from the unsuccessful management of chronic stress. The purpose of this study was to gain a better understanding of pre-health student self-care mechanisms, stress coping strategies, and preferences for on-the-job stress relief. This was a convenience sample survey of three pre-health programs with a total of 60 subject responses. The primary endpoint was whether the pre-health students felt they wanted a formal stress relief program to be implemented at work in their future career. Secondary outcomes included stress coping strategies, self-care mechanisms, and barriers to good work–life balance. On a 5-point Likert scale (5

being very important), the mean score for a formal stress relief program was 3.6 ± 1.2 , with 60% of the students selecting a score ≥ 4 . Students scored “break rooms/relaxation rooms,” “time with family and/or friends,” and “being on-call too often” the highest in terms of perceived importance for stress coping, self-care, and as a barrier to work–life balance, respectively. Health care employers should consider implementing a formal stress relief program on-site with consideration for specific pre-health student stress coping and self-care strategies. This type of program has the potential to reduce employee stress and the negative consequences on the employee and health care system. **Keywords:** pre-health, self-care, stress, burnout, mindfulness, work-life, mentorship. *J Extra Corpor Technol.* 2019;51:238–43

Stress, depression, and burnout are highly prevalent in health care professionals and have led to poor work performance, decreased quality of life, diminished quality of patient care, and increased health care spending; a national survey conducted in the United States reported a prevalence of burnout among medical students, residents, and physicians of 55.9, 60.3, and 51.4%, respectively (1). The prevalence of burnout in this medical cohort was higher than that in similarly aged college graduates (resident/fellow burnout prevalence: 50.0% vs. college graduates: 31.4%) (1). In a study of 115 internal medicine residents, those who were burnt out were more likely to self-report suboptimal patient care (2). A survey of 415 U.S. residency programs found high levels of financial and emotional distress as well as increasing levels of cynicism and

depression, and loss of humanism (3). A cross-sectional study of Emory University–affiliated hospital intensive care unit nurses revealed that nearly 30% had symptoms of depression (4). A literature review that examined common behavioral health problems and nursing work performance found that these issues were linked to task-related errors, compromised patient safety, and lower patient satisfaction scores (5). Furthermore, job-related stress may result in worse overall well-being marked by emotional exhaustion and decreased job satisfaction (6). In a productivity cost analysis, employee stress accounted for a \$10.4 million loss in productivity per 1,000 employees per year (7). These studies emphasize the need for a strategy to decrease employee stress and its associated consequences.

The purpose of this study was to gain a better understanding of pre-health student self-care mechanisms, stress coping strategies, and preferences for on-the-job stress relief. In this study, a pre-health student was defined as someone pursuing a master-level degree or higher (i.e., MD, DO, DDS, or PharmD) with the intention of joining their respective professions after graduation. Ultimately, this information could be used to make recommendations to

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health care employers to increase job satisfaction, employee productivity, and improve patient care while reducing stress, depression, and burnout. Previous research has examined improving cultural competencies, professionalism, and communication among health care staff (8–12). However, more attention needs to be paid to the characteristics of the work environment (e.g., high stress) that impede staff from practicing these competencies. In addition, many studies have reported on self-care mechanisms (13–18), but there is no consensus on whether employees want a formal stress relief program at work. A formal stress relief program at work may not be cost-effective if it is not in alignment with the preferred coping strategies of the staff. Therefore, there is a need to explore coping strategies and if future employees may be interested in using them at work.

MATERIAL AND METHODS

This was a cross-sectional study that surveyed a convenience sample (i.e., subjects most readily available to participate) of pre-health students. Three pre-health classes (two in Colorado and one in Arizona) were invited to participate by contacting the program director of each pre-health program and asking his or her permission to survey the students. The directors were provided an explanation of the study goals, the survey consent, and survey instrument. All three pre-health class directors agreed to administer the survey to their students, and the students had the option to opt out of taking the survey. The three pre-health classes were chosen based on proximity and affiliation to simplify communications and maximize the survey response rate. Surveys were administered on paper, stored in a locked file box, and collected by our investigators. No exclusion criteria were applied because all subjects in the pre-health program were students planning on a career in health care. This study was approved by the IRB on 04/05/19 (Protocol #: 19-0557).

The primary outcome of this study was to determine whether pre-health students prefer a formal stress relief program to be instituted by their future employer. This was measured by a 5-point Likert-style question, which is a common scaling system used in survey research, that asked the subjects: “On a scale from 1 to 5, how important would it be to you to have a formal stress relief program at your worksite?” The 5-point Likert scale options were 5 (very important), 4 (somewhat important), 3 (neither important nor unimportant), 2 (somewhat unimportant), and 1 (very unimportant). Secondary outcomes included preferred stress coping strategies, self-care mechanisms, and barriers to good work–life balance. These were measured by asking the subjects to score the perceived importance of various activities on a scale of 1 to 5. Other 5-point Likert-style questions asked the students to reflect on professionalism,

maintenance of good work–life balance, burnout/stress in health care, and mentorship.

Demographic questions served as potential predictors for the other survey questions. These questions included gender, birth year, whether the subject had a family member in their desired area of study, and the subject’s future desired profession.

The survey responses were recorded in Excel and transferred to Stata IC (version 15.1; StataCorp, College Station, TX) for analysis. Descriptive statistics for continuous variables are presented as means and SDs. Categorical variables are presented as percentages. A Wilcoxon rank-sum test was used to determine whether age differed between students who wanted a formal stress relief program at work (score ≥ 4) vs. those who did not (scored ≤ 3). Chi-squared analysis was used to test whether gender was associated with any of the variables in Table 2; these variables were categorized into a score of ≥ 4 or ≤ 3 . A one-way repeated measures analysis of variance was used to test whether there was a significant difference among means for the variables within each domain. Tukey’s test was used to determine if there were significant differences between each variable pair within each domain.

RESULTS

Demographics

Table 1 shows the demographic information for the study subjects ($n = 60$) (the mean response rate for the three programs was 67.8%). Most students were female, in their mid-twenties, and planned on pursuing a medical/osteopathic degree or becoming a certified clinical perfusionist. Ten percent of students had a family member practicing in their desired future career.

Formal Stress Relief Program

The mean score for wanting a formal stress relief program at work was 3.6 ± 1.2 ($n = 60$) (with 5 being very important). Sixty percent of the students selected a score ≥ 4 . Of the 60% who scored a formal stress relief program ≥ 4 , 70% were female. There was no significant

Table 1. Demographic information ($n = 60$).

Variable	Mean \pm SD	n
Age (years)	24.4 \pm 4.0	60
Gender (female)	58.8%	51
Had family member in desired profession	10.0%	40
Planned future profession		60
Perfusion	51.7%	
Medical school/osteopathic medicine	40.0%	
Dental medicine	3.3%	
Pharmacy	3.3%	
Physical/occupational therapy	1.7%	

association between gender and the score given for a formal stress relief program (≥ 4 vs. ≤ 3) ($X^2 = 3.76$, $n = 51$, $p = .053$). There was no significant difference in age between those who selected a score ≥ 4 vs. those who selected a score ≤ 3 ($p = .251$). Among the students who scored a formal stress relief program ≥ 4 , their preferred stress alleviators at work were (i.e., the stress alleviators from Table 2 that received a mean score of ≥ 4) “break rooms/relaxation rooms,” “access to outdoor spaces,” “space to socialize (e.g., lounge),” and “access to mental health support.” This group of students also scored the following barriers to work–life balance ≥ 4 : “long work hours,” and “being on-call too often.” All other stress alleviators and barriers to work–life balance in this student cohort received a mean score ≤ 4 .

Stress Management, Self-Care, and Work–Life Barriers

Table 2 shows the mean scores for the variables within each domain. There was a significant difference in score among the variables reported within the “stress alleviator,” “self-care activity,” and “barrier” domain ($F_{[7, 407]} = 6.42$, $p < .001$), ($F_{[6, 348]} = 37.35$, $p < .001$), ($F_{[6, 348]} = 10.07$, $p < .001$), respectively. Eight of the 28 pairwise comparisons within the first domain were significantly different including “break rooms/relaxation rooms vs. private workspace” (mean difference .68, $p = .001$). Fourteen of the 21 pairwise comparisons within the second domain were significantly different, including “time with family

Table 2. Perceived importance of activity within three domains.

Domain	Mean \pm SD
Stress alleviator	
Break rooms/relaxation rooms	4.0 \pm 1.1
Access to outdoor spaces	4.0 \pm 1.1
Minimum 1-hour lunch break	3.9 \pm 1.4
Access to mental health support	3.8 \pm 1.2
Space to socialize (e.g., lounge)	3.8 \pm 1.1
Exercise facility on-site	3.7 \pm 1.8
Private workspace	3.3 \pm 1.3
On-site childcare	3.0 \pm 1.4
Self-care activity	
Time with family and/or friends	4.5 \pm .9
Physical activity	4.4 \pm .9
Getting at least 7 hours of sleep per night	4.4 \pm 1.0
Maintaining a healthy diet	4.3 \pm .8
Hobbies	4.0 \pm 1.2
Mind–body activities (yoga/meditation/massage/ breathing/exercises/spiritual)	3.1 \pm 1.4
Meeting with a mental health counselor	2.5 \pm 1.2
Barrier	
Being “on-call” too often	3.9 \pm 1.0
Long work hours	3.8 \pm 1.0
Worrying about sick patients, job errors, and malpractice	3.7 \pm 1.1
Family or caretaking demands	3.6 \pm 1.1
Poor food options at work	3.6 \pm 1.2
Stigma or repercussion in seeking mental health support	3.0 \pm 1.3
Lack of facilities for meditation/privacy/prayer	2.8 \pm 1.3

and/or friends vs. hobbies” (mean difference $-.5$, $p = .005$). Ten of the 21 pairwise comparisons within the third domain were significantly different, including “being on-call too often vs. stigma or repercussion of mental health support” (mean difference $-.94$, $p < .001$).

A significantly higher percentage of women scored “break rooms/relaxation rooms” ≥ 4 than men (86.7%, 95% CI [68.8–95.0%] vs. 52.4%, 95% CI [31.4–72.6%], $X^2 = 7.29$, $n = 51$, $p = .007$). A significantly higher percentage of women also scored “spaces to socialize” (80.0%, 95% CI [61.5–90.9%] vs. 52.4%, 95% CI [31.4–72.6%], $X^2 = 4.38$, $n = 51$, $p = .036$) and “long work hours” (66.7%, 95% CI [47.9–81.3%] vs. 33.3%, 95% CI [16.5–55.9], $X^2 = 5.51$, $n = 51$, $p = .019$) ≥ 4 more often than men. All other stress alleviators, self-care activities, and barriers reported in Table 2 were not significantly associated with gender.

Perceived Lifestyle, Professionalism, Burnout, and Mentorship

Students were asked to respond to five additional questions that assessed 1) how much perceived lifestyle influenced their choice of career, 2) how worried they were about stress impacting professionalism, 3) how confident they were that they could maintain good work–life balance, 4) how worried they were about burnout/stress in health care, and 5) how satisfied they were with the mentorship they received.

Career choice based on perceived lifestyle was scored on a scale of 1 through 10 (1: not a factor at all and 10: major factor). The mean score for this question was 6.6 ± 2.0 ($n = 60$). The percentage of students that selected a score ≥ 7 was 68.3%. Figure 1 shows the percentage of students who selected a score ≥ 4 on four 5-point Likert-style questions;

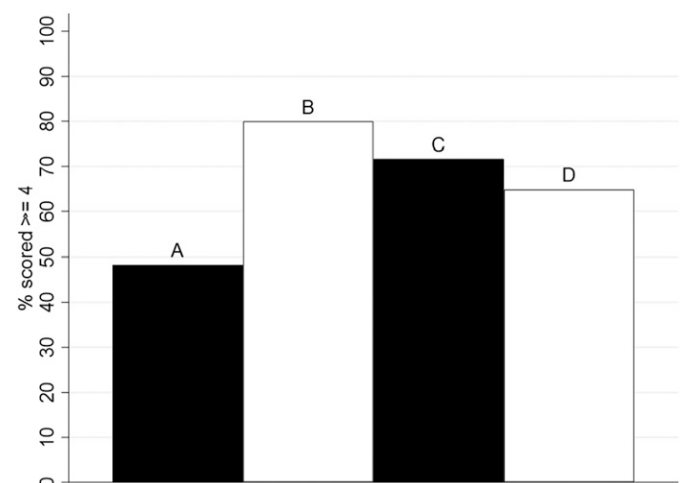


Figure 1. Percent of students who selected a score ≥ 4 on four 5-point Likert-style questions related to (A) worry that stress will impact professionalism, (B) confidence in maintaining good work–life balance, (C) worry about burnout, and (D) satisfaction with mentorship.

those who reported being “very worried” or “somewhat worried” about stress impacting their ability to maintain a professional disposition at work was 48.3%. The percentage of students who reported being “very confident” or “somewhat confident” that they could maintain good work–life balance in their career was 80%. 71.7% of students reported being “very worried” or “somewhat worried” about burnout/stress in health care, and 65.0% said they were “very satisfied” or “somewhat satisfied” with the mentorship they had received related to their chosen career. Chi-squared analysis showed that gender was not significantly associated with any of the four questions listed earlier.

DISCUSSION

The main finding for this study was that most pre-health students were in favor of a formal stress relief program at work. The mean score was 3.6 ± 1.2 , with 60% of students selecting a score of ≥ 4 on a scale of 1 through 5. There was no significant difference between score (≥ 4 vs ≤ 3) and gender. Age was also not a significant predictor of score. Among the students who scored a formal stress relief program ≥ 4 , their preferred stress alleviators were “break rooms/relaxation rooms,” “access to outdoor spaces,” “space to socialize (e.g., lounge),” and “access to mental health support.” This cohort identified “long work hours” and “being on-call too often” as barriers to good work–life balance. These findings suggest that it may be beneficial for health care employers to institute a formal stress relief program because most upcoming professionals rated its importance high. In addition, health care employers should consider implementing break rooms, outdoor spaces, social spaces, and an area to access mental health support. Finally, health care employers should review employee work hours and call time to optimize work–life balance.

This study also showed that there was a hierarchy of preferences related to stress alleviators at work, self-care mechanisms, and barriers to good work–life balance. The top two activities that pre-health students perceived to be most important for stress coping at work were “break rooms/relaxation rooms” and “access to outdoor spaces.” The activity that pre-health students perceived to be the most important self-care strategy was “time with family and friends.” Finally, the activity that was perceived to be the most important barrier to good work–life balance was “being on-call too often.” Analysis by gender showed that more women than men preferred break rooms, socialization spaces, and were concerned about long work hours as a barrier to good work–life balance. These preferences could be influenced by a need for privacy for nursing mothers or by a preference for fewer hours at work when parenting. These results suggest that health care employers could

improve employee health by designing strategies to promote the stress alleviators listed in Table 2. The largest impact could be made by focusing on those that were scored the highest. Health care employers may try to bolster the self-care mechanisms listed in Table 2 by altering their culture and/or facilities (e.g., on-site wellness centers or modifying staff schedules). Finally, it may be in the employer’s best interest to reduce barriers to good work–life balance by being mindful of off-call and on-call hours covered. A needs assessment on employee time management could help determine how to best arrange working hours and on-call hours while still meeting institutional needs.

This study also helped clarify pre-health students’ priorities and perceptions when deciding on their future career. Most students reported that their career choice was influenced by perceived lifestyle. In addition, most students felt that stress would not impact their ability to maintain a professional disposition at work, that they could maintain good work–life balance, and that they were satisfied with the mentorship they received. However, most students were worried about burnout/stress in health care. The perception of professionalism, work–life balance, mentorship, and thoughts about burnout/stress did not differ by gender. Health care employers should be mindful that most students selected careers based on perceived lifestyle and that burnout/stress was a common worry.

Other studies show that there is a desire for a formal stress relief program and that these programs can be effective. The Vanderbilt Medical School Wellness Program, developed by students and administrators to combat increasing rates of burnout and stress in health care, was marked by high participation and satisfaction among its students (19). This program formed an advisory college of senior students and faculty, expanded student leadership, and created workshops to promote mentorship, leadership, and personal growth (19). In a mindfulness stress relief program instituted in first- and second-year medical students, students reported high satisfaction and positive feedback (20). This program employed psychotherapists and a clinical psychologist to deliver coursework to promote daily life and workplace mindfulness (20). Employee stress relief programs (i.e., worksite wellness programs) have potential for high participation, but this participation may be limited by the self-perceived barriers of the employees (21). Some of these barriers included demographic characteristics such as old age and level of education, and others were related to shift work and distance to work (21). Participation in wellness programs may also be determined by the needs or illnesses within the population they are meant to serve. For example, participation in medical programs may be related to employees suffering from chronic illness, and participation in educational offerings may be related to age (22). These studies are consistent

with the finding that pre-health students may desire a formal stress relief program. Stress relief programs have been well received by students and employees, and it is important that the program matches the needs of the population. Bright et al. (23) developed a needs assessment survey to maximize employee participation in work-site health, emphasizing the importance of matching employee needs with employer services. The match between needs and services is applicable to this study's survey because an effective stress relief program should be designed to incorporate preferred stress coping strategies and limit barriers to work-life balance.

The stress alleviators, self-care mechanisms, and barriers to good work-life balance reported in this study are comparable to those documented in the literature. Other studies have looked at similar variables (13,16,17); however, they did not score their importance based on a 5-point Likert-style scale. There were other stress coping mechanisms not explored in this study such as alcohol and drug consumption that have been previously examined (16). The literature is limited in regard to the exact questions asked in this study. However, one study pointed out that medical students generally had an optimistic perception of their future career, with the positive aspects exceeding the negative ones (24).

One limitation of this study may be described as career bias because it included a disproportionately high number of aspiring physicians and perfusionists relative to other future health care careers. However, there does not appear to be a distinction among pre-health students going into different professions with regard to coping strategies, self-care mechanisms, barriers to good work-life balance, or perceptions of their future career. The external validity of this study may be limited by a smaller sample taken from three pre-health programs. These pre-health programs may not be representative of the larger population of pre-health students in the United States; however, the advantage of this sample is that it represents health care professionals at a very early stage in their career. Coping strategies, self-care mechanisms, and barriers to work-life balance were pre-defined for the students, so unless a student entered an idea into the "other" section of the survey, they were limited to certain choices. Students were asked how important perceived lifestyle was in influencing their career choice; however, the specifics of this perception were not surveyed. The choices on the survey were meant to cover the most common variables present in previous studies as well as those gathered from the authors' experience in health care.

Stress, depression, and burnout are common characteristics of our modern health care system, and these are linked to poor work performance, decreased quality of life, and increased health care spending (1-7). Understanding what future health care professionals need to be successful in their careers may be the key to reducing the negative consequences of stress in health care. This study found that

most pre-health students were interested in a formal stress relief program at work and that there were specific stress coping strategies, self-care mechanisms, and barriers to good work-life balance that should be considered by employers. Gender may be linked to certain stress coping preferences and barriers to good work-life balance; however, performing a baseline needs assessment may be most important to discern subgroup preferences. Most pre-health students were optimistic about their future career in regard to professionalism, mentorship, and work-life balance despite worries about burnout. Health care employers should consider implementing a formal stress relief program at work because most pre-health students perceived it to be of high importance. In addition, program design should attempt to incorporate the needs of future professionals with emphasis on the variables (Table 2) that scored the highest or based on the results of an institution-specific needs assessment. Future studies could examine the cost-effectiveness of different types of stress relief programs to determine which ones would be sustainable and effective at reducing stress, depression, and burnout in health care practitioners.

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