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ORIGINAL CONTRIBUTION

Moving beyond personal factors: A national study of wellness interventions in emergency medicine residency programs

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Abstract

Background: In 2017, the Accreditation Council for Graduate Medical Education (ACGME) revised its Common Program Requirements to support trainees and faculty by mandating programs to provide dedicated wellness resources and education. Emergency medicine may benefit from this change due to high burnout rates within the specialty. However, the current state of wellness interventions in emergency medicine (EM) residency programs has not yet been well described. Understanding current practices is necessary to assess unmet needs and inform the development and evaluation of future interventions that aim to improve trainee wellness.

Objectives: The goal of this study was to describe currently implemented wellness interventions in EM residency programs.

Methods: This descriptive study surveyed 250 ACGME-accredited EM residency programs between March 1 and June 1, 2020, regarding wellness interventions. The survey included demographic questions; structured multiple-choice questions about cost, frequency, and champions; and free-text response options to briefly describe interventions. Respondents were also asked to classify the interventions according to the seven factors described in the National Academy of Medicine Model of Clinician Well-Being and Resilience.

Results: Ninety of 250 (36% response rate) residency programs participated, describing 162 unique wellness interventions. Respondents classified the majority of interventions ($n = 136$) as targeting personal factors according to the National Academy of Medicine model. Qualitative analysis revealed five major themes describing the interventions: program culture, program factors, environmental and clinical factors, wellness activities and practices, and wellness resources.

Conclusions: Results of this survey may help to inform a national needs assessment addressing the current state of wellness interventions in EM residency programs. Our results highlight the need for more interventions targeting external factors impacting resident wellness.

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INTRODUCTION

Physician burnout is widely recognized as having detrimental effects on patient care and the healthcare system at large.[1,2] Burnout is a multidimensional entity driven by career-related and personal stressors. Emergency medicine (EM) physicians in particular are vulnerable to burnout due to specialty-specific factors such as shift work, throughput-based metrics, and a high-stakes uncontrollable work environment.[3–5] These stressors are compounded in EM residency training due to the sheer number of hours spent at work; the prevalence of burnout in this population exceeds 70%.[6,7] In 2017, the Accreditation Council for Graduate Medical Education (ACGME) revised its Common Program Requirements to directly address well-being, emphasizing that psychological, emotional, and physical well-being are critical in the development of the competent, caring, and resilient physician.[8,9] Following this emphasis on improving the learning environment, a broad array of efforts have been implemented by residency programs to improve resident well-being. A recently published systematic review of wellness interventions for resident physicians across all specialties recommends that interventions are grounded in educational theory, using validated wellness instruments.[10] Within EM residency programs, existing publications of wellness interventions spotlight a few programs with modest impact.[11] To date, there has not been a national assessment of existing interventions intended to improve resident wellness in emergency medicine and gaps therein.

The goal of our study was to broadly survey accredited EM residency programs within the United States to describe self-reported successfully implemented wellness interventions. These data will inform a national needs assessment of the current state of wellness interventions in EM residency programs. By determining common themes, we aim to further the state of the art in supporting EM trainee well-being.

METHODS

Study design

This prospective survey study was conducted by the Academic Life in Emergency Medicine (ALiEM) Education Research Lab and Incubator from March 1 to June 1, 2020. ALiEM is a health professions education organization focused on social media technologies and community building. The survey tool was housed on Google Forms and developed in an iterative fashion with content experts, based on literature review to optimize content validity. Survey contents included the name of the respondent's residency program, free-text description(s) of respondent-identified successful wellness intervention(s) currently in place within their residency programs, multiple-choice questions pertaining to characteristics of each intervention (frequency, monetary cost, time cost, champions), and the intended area of intervention with respect to the seven factors described in the National Academy of Medicine (NAM) Model of Clinician Well-Being and Resilience.[12] It was subsequently piloted by faculty members at study authors' institutions for response process validity evidence collection as well as to improve structure and clarity. This study was granted expedited approval by the institutional review board of the Ohio State University.

Selection of participants

All ACGME-accredited residency programs were invited to participate in the study. Eligible programs were identified using the publicly available list found on the ACGME website.[13] The survey was distributed through multiple channels including the Council of Residency Directors in Emergency Medicine (CORD) listserv, in person at the 2020 CORD Academic Assembly, and by direct invitation to program leaders or wellness champions at non responding programs. Wellness champions were identified using the publicly available directory developed by CORD.[14] Respondents completed the self-administered online survey regarding their perceptions about the most successful wellness interventions at their respective programs. While residency program information was identified, the identity of the participant was anonymized. When there was more than one respondent for a single residency program, results were collated and duplicate interventions were removed. Programs without responses 4 weeks after the initial email were sent a second reminder email by one of the study authors.

Primary data analysis

Descriptive statistics were used to describe respondents' roles within their residency program; the type of wellness intervention implemented based on the NAM Model of Clinician Well-Being and Resilience; the frequency, monetary, and time costs of the intervention; and the program champion for the intervention. Respondents' descriptions of wellness interventions were analyzed qualitatively using a ground theory approach and interpretivist/constructivist paradigm, where data are iteratively interpreted and compared until themes emerge.[15] The data were analyzed by three investigators with experience in qualitative methodology. SLS and KR independently reviewed responses and met to devise a coding scheme. This coding strategy was established using a constant comparative method in which emerging themes were derived and revised through close examination of the text.[16,17] LY reviewed the text and facilitated discussion between SLS and KR.

RESULTS

Descriptive analysis

A total of 102 responses were obtained. Of these, four responses from non-ACGME-accredited programs were removed prior to analysis. The remaining 98 responses represented 90 unique EM

residency programs (36% of all ACGME-accredited programs). Eight programs had two respondents each; in these cases, the free-text responses for wellness interventions were combined. A comprehensive listing of every deidentified response is available online, with the capability to sort responses by categorical variables such as frequency, monetary cost, and time cost.[18]

Geographical representation of our sample compared to the entire population of ACGME-accredited programs based on Society for Academic Emergency Medicine regions suggests that our sample is representative of the greater population (Table 1). Respondent roles within their respective departments of emergency medicine are detailed in Table 2.

Ninety-four of 98 respondents endorsed the existence of at least one wellness intervention within their residency program. Respondents were given the opportunity to describe multiple wellness interventions at their respective programs; respondents described a total of 162 unique wellness interventions.

Faculty were involved in planning and execution of 80% ($n = 130$) of interventions; 19% ($n = 31$) were reported as solely resident-led. The monetary cost of wellness interventions is displayed in Figure 1.

Interventions were categorized by the respondent according to the NAM Model of Clinician Well-Being and Resilience.[12] Respondents were given the opportunity to attribute multiple factors to each intervention. The frequency of factors targeted in wellness interventions is available in Table 3.

Qualitative analysis

In our qualitative analysis of free-text descriptions of interventions, we identified five major themes: program culture, program factors, environmental and clinical factors, wellness activities and practices, and wellness resources. We defined these themes as follows: program culture is the cultivation and messaging of a culture of wellness within a residency program. Program factors are EM residency program-specific factors impacting resident wellness. Environmental and clinical factors focus on amelioration of environmental elements impacting resident wellness. Wellness activities and practices include a range of specific activities aimed at improving resident wellness. Finally, wellness resources reference the availability of specific resources for supporting resident wellness. Codes within each theme and representative quotes can be found in Table 4.

DISCUSSION

Our study is the most comprehensive description of wellness interventions across U.S. EM residency programs to date since implementation of the ACGME Common Program Requirements for trainee well-being in 2017. Our intent was to describe the landscape of current interventions to provide inspiration and collaborative opportunities to program directors and wellness advocates within residency programs. Although an aspirational goal of EM residency training programs is to create a learning environment that includes "efforts to enhance the meaning that each resident finds in the experience of being a physician,"[9] we have found that most interventions targeted specific facets of the Common Program Requirements rather than this big-picture goal.

The five main themes derived from qualitative analysis of free-text responses can be largely divided into those intervening on external factors (program culture, program factors, environmental and clinical factors, and wellness resources) or supporting personal factors (wellness activities and practices) impacting wellness. Four years after implementation of the ACGME Common Program Requirements, the programs endorsed by survey respondents represent a multifaceted, creative array of approaches to supporting resident well-being. It is notable that while some interventions required an investment of significant time and funds (e.g., overnight retreats), many are low cost or straightforward to implement. The majority of interventions targeting external factors fulfill at least one of the 10 recommendations which comprise the well-being section of the Common Program Requirements. While almost every residency program described the existence of wellness interventions, few reach publication.[11] Because of the relative dearth of literature describing outcomes-level data for wellness programming, a rigorous examination of the efficacy of these interventions would further the field with respect to understanding "what works."

TABLE 1 Geographical representation of all national EM residency programs versus represented programs in survey based on SAEM region designation

SAEM region	All national ACGME EM residency programs by region	All responding EM residency programs by region
New England	4.5 (12)	6.7 (6)
Mid-Atlantic	28.7 (76)	30 (27)
Great Plains	9.0 (24)	15.6 (14)
Western	13.6 (36)	13.3 (12)
Southeastern	17.0 (45)	12.2 (11)
Midwest	18.1 (48)	16.7 (15)
South Central	9.1 (24)	5.6 (5)

Note: Data are reported as % (*n*).

Abbreviations: ACGME, Accreditation Council for Graduate Medical Education; EM, emergency medicine; SAEM, Society for Academic Emergency Medicine.

TABLE 2 Respondent role within their department of EM

Respondent role	*n*/total (%)
Program leadership (program director, associate/assistant program director, or academic chair)	71/98 (72)
Faculty (not program leadership)	14/98 (14)
Chief resident, resident	10/98 (10)
Residency program coordinator	3/98 (3)

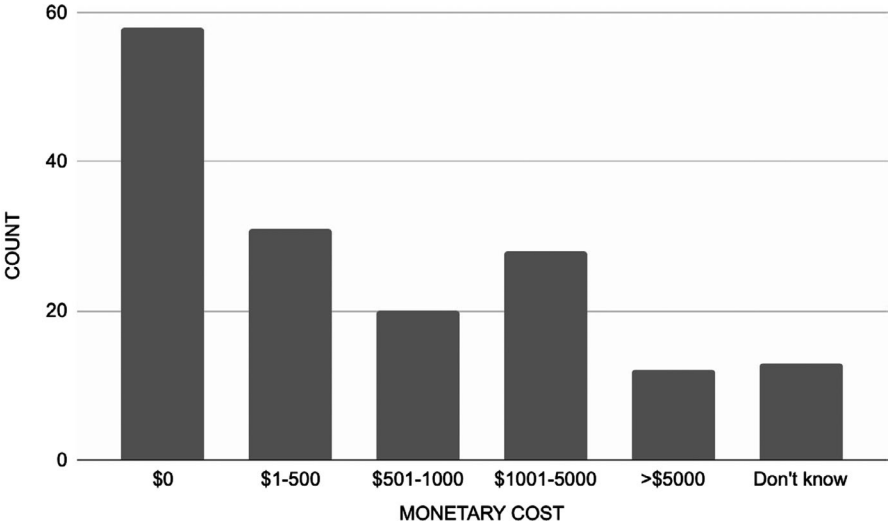

FIGURE 1 Reported monetary cost of wellness interventions

TABLE 3 Frequency of NAM factors affecting clinician well-being and resilience targeted by wellness interventions

NAM factor	Factor type	*N*/total (%)
Personal factors—interventions that promote connectivity and work–life integration	Personal	136/162 (78)
Organizational factors—interventions that promote congruent organizational mission and values, including culture, leadership, and staff engagement	External	52/162 (32)
Society and culture—interventions that promote culture of safety, decreasing bias, and destigmatization of mental illness	External	51/162 (32)
Learning—interventions that promote optimal learning and practice setting	External	32/162 (20)
Skills and abilities—interventions that promote clinical competency level/experience	Personal	30/162 (19)
Healthcare responsibilities—interventions that ameliorate clinical and administrative responsibilities	External	18/162 (11)
Rules and regulations—interventions that promote accreditation, documentation, and reporting requirements	External	10/162 (6)

Abbreviation: NAM, National Academy of Medicine.

Each component of the NAM Model of Clinician Well-Being and Resilience[12] were represented in responses, although "personal factors—interventions that promote connectivity and work–life integration" was the predominant factor at more than twice the next most frequent category. Many of the interventions within this category focused on social events. While it is important to recognize that social events play a significant role in fostering camaraderie and interconnectedness within a training program, it is also notable that the time required of trainees with an irregular and demanding work schedule often precludes participation of all who would benefit from organized social activities. Furthermore, in considering those trainees who are the least well or most burned out, many do not have the emotional energy to "opt in" to additional activities.[6] A greater focus by programs on interventions targeting those who may be isolating or struggling or who do not identify socialization as their main form of restoration is needed.

Despite the overrepresentation of wellness interventions addressing personal factors implemented by residency programs, it is important to recognize that in fact environmental factors comprise the majority of elements impacting physician well-being in the

TABLE 4 Qualitative analysis of wellness interventions: themes, codes, and illustrative quotes

Themes and codes with definitions	Illustrative quotes
Program culture	
Culture of wellness: promoting an environment that values resident wellness	Fostering a culture within program administration that favors continuous improvement, with administrators and faculty who appropriately balance education/curriculum improvement, resident needs, a culture of wellness, and alleviating unnecessary burden. Wellness shift, described as one shift per year taken at any time without payback requirements.
Peer support: formalized peer support sessions	Wellness committee–led resident support meetings—off site, casual, residents only, story sharing. "Sweat it out, then talk it out": group physical activity followed by open confidential facilitated discussion of recent difficult cases. On shift wellness check-ins—senior residents are assigned an intern/junior resident and check in with them after shifts to see how they are doing.
Mentorship: meaningful time with faculty and peers to facilitate development of mentoring relationships	Mentorship groups. Class families—each residency class is assigned to a faculty member who hosts social events and meets with residents individually. Attending–resident pairings and Big Sib/Little Sib resident groups.
Recognition and appreciation: recognition of peer effort and excellence	Great saves presented during resident conference—recognizing residents who've made a particularly good diagnosis or navigated a challenging situation.
Diversity and outreach: valuing diversity, equity, and inclusion	Women in Emergency Medicine—meets biannually to discuss the challenges of being a woman in EM. Immersive educational activities [to] learn more about our patient population—"A Day in the Life"—walking in the shoes of our homeless population for a half day and [meals] with our Somali interpreters at a Somali restaurant.
Program factors	
Shift scheduling: shift request and scheduling optimization	One weekend off per EM block. Protected overnight Tuesday shifts so all residents can attend conference. Move forward on the circadian clock (day to evening to night) as schedule progresses. Night shift block scheduling × 2 per year so that residents don't have… nights for the rest of the year. No payback sick call policy.
Resident feedback: solicitation and incorporation of feedback for program change	Asking the residents at each resident meeting what's frustrating them at work, making a list, and working on process improvements related to these. Dedicated resident/faculty and resident/resident meetings during conference to discuss operational issues. Face-to-face semiannual evaluation that includes soliciting information on resident personal wellness.
Protected personal time: time off for personal activities and responsibilities	Giving time off during conference to complete personal wellness related activities (and giving conference credit for it). Giving conference time to complete required task (surveys, in-service (exam), mediatory health tests).
Protected wellness time: protected time for program-driven wellness activities	Monthly in conference activities that exemplify a wellness topic (yoga, service animals, meditation, financial wellness). Monthly residency breakfast—focus on one wellness topic, celebrate successes, and discuss challenges solutions or failures around that topic (sleep, stress, exercise, etc.).

(Continues)

TABLE 4 (Continued)

Themes and codes with definitions	Illustrative quotes
Environmental and clinical factors	
Personal safety: innovations to promote personal safety, e.g., safe ride home after shift	Rideshare app to allow residents to travel home from the hospital after shift if they are too tired to drive. Residents are allowed to return to the hospital at a later time … to retrieve their vehicle. The program pays for all travel.
Nutrition: conference or on-shift food funded by department	Snacks in resident lounge funded through the GME office. Good food for residents at weekly academic conferences. Meal cards for residents.
Admin burden: reducing administrative burden	Scribes in the ED.
Wellness perks: benefits intended to improve wellness	Massage chair in the residency lounge. Free access to hospital fitness center.
Wellness activities and practices	
Altruism: volunteer activities	Wellness days × 2 per year in lieu of conference with volunteer activities, holiday gift exchanges, etc. Community outreach activity: entire class has 24 h off for an outreach activity within the community followed by a social outing.
Mindfulness: mindfulness, reflection, and gratitude	Reflective practice during conference time: 1–2 h for group reflection where residents share stories and support each other, particularly during times of stress. This includes a gratitude reflective circle near Thanksgiving. Since COVID-19 began to affect our program—I have been sending a weekly update with mindfulness techniques and related them to our current moment. This ties in with our already established periodic emphasis on bias training and reflective practices. Lecture on mindfulness and emergency medicine during intern orientation, with notebook to write and reflect on training experiences.
Physical fitness: activities to promote physical fitness	We have a fitness challenge from April–January. It's longstanding and a lot of fun. It encourages healthy habits and encourages group workouts/personal time. Yoga after conference. Group activities such as kayaking followed by a cookout, resident–attending softball games.
Retreat: annual residency retreat	Creation of annual resident retreat with all residents excused from clinical duties for 36 h. Residency retreat—2 days for team building, self-reflection, and programmatic evaluation. Following the in-service examination, all residents have the rest of the day and night off to go on their own (no faculty, residents only) on an overnight team-building retreat.
Stress management: techniques for management of stress	Bimonthly meetings with residents to talk about stressors.
Wellness event: residency-sponsored "fun" event	PD-sponsored resident breakfast before conference to discuss life outside residency. Monthly wellness outings—no educational topics discussed. Resident–faculty wellness activities: bowling, putt putt golf, food/beer pairing. Tuesday Evening WebEx social—activities include potluck dinner, yoga, happy hour, chat/discussion with founding chair and prominent alum, introduce your pet, cooking class.
Peer bonding: group activities to promote camaraderie	Intern boot camp month: dedicated 4 weeks in the ED at the start of intern year to encourage camaraderie and meet the department. Team-building activities during scheduled academic time. "Conference cup": residents are split up into teams and earn points for attending conference, team-based activities (escape room, sim, oral boards, jeopardy, etc.). Prizes are allotted at the end of the year. Resident and attending "families" for social activities (dinners, game nights, etc.).

(Continues)

TABLE 4 (Continued)

Themes and codes with definitions	Illustrative quotes
Narrative medicine: story sharing, medical humanities	Narrative medicine event similar to "airway," focused on topics like burnout, mental health, work–life balance, microaggressions, racism in medicine, etc.
Wellness resources	
Wellness committee: group of residents and/or faculty supporting well-being	Wellness committee: go-to group of faculty and residents to advocate on behalf of residents, organize events, and talk through issues that come up in residency.
Wellness curriculum: education pertaining to wellness topics	Preresidency wellness curriculum. Wellness curriculum built into conference—six per year, 2 h each with breakout sessions. Wellness morning reports (i.e., yoga, stress management).
Mental health resources: awareness and provision of mental health support resources	Starting a google doc of recommended therapists that residents or faculty have used in the past. This both destigmatizes the use of therapy / counseling and hopefully gets folks to a therapist … who they may connect with. Free, confidential counseling. Opt-out mental health counseling. Resident well-being self-assessments.
Faculty dedication: dedication of faculty by giving of time or resources	Every month, an attending physician sponsors a social activity partnered with a senior resident. Ultrasound journal club: quarterly evenings at a faculty member's home … followed by games, great food, conversation, pets. Wellness and resiliency club: evenings at a faculty home with various activities to tackle sources of stress and job dissatisfaction. Topics include sleep hygiene, communication, in flight emergencies, surviving getting sued, etc.

model proposed by the NAM. We would like to emphasize that the end results of a system that fails to support its physicians, such as burnout, are rarely a direct result of the characteristics of an individual, but rather the inevitable result of a system not designed to prioritize physician well-being. Residency program leadership must do their part to design and advocate for a training environment in which external factors are addressed: a psychologically safe learning environment with a no-blame culture of safety, streamlining of administrative tasks, mitigation of implicit bias toward physicians of different backgrounds, and a curriculum addressing resident professional development to support work engagement and job satisfaction.

Future directions for graduate medical education include further implementation of evidence-based wellness practices within residency wellness programming, development of systems to benefit those who are most in need of wellness interventions, amelioration of environmental factors impacting physician well-being, and a continued emphasis on fostering a culture of wellness during residency training.

LIMITATIONS

There are several limitations to the design of our study. We received responses from 90 of 250 (36%) ACGME-accredited residency programs. It is possible that programs that did not respond differ in important ways. However, our demographic distribution suggests that our sample was representative of the greater population with respect to geography and practice setting (academic vs. community medicine orientation). It is important to recognize that while the ACGME requires that each program offer wellness programs to satisfy its Common Program Requirements, the extent to which well-being is a focus will vary significantly. Although it is possible that respondents from programs with more robust wellness offerings were more likely to respond than those without a strong focus on wellness, our goal was to describe existing interventions, not to describe the presence or absence of interventions in the entire population. Due to the timing of our survey release, it is also possible that our response rate was affected by the beginning of the COVID-19 pandemic. However, we do not anticipate that the content of the responses would have been affected as we asked programs to describe interventions that were already in place prior to the pandemic.

While qualitative analysis of free-text written responses on surveys may not provide the rich exploration of phenomena that is possible using other data collection methods (e.g., focus group or semistructured individual interview), we intentionally chose a survey method that allowed for responder anonymity, broad representation across EM residency programs, and candid reporting of perceptions regarding wellness interventions. Finally, the efficacy of wellness programming is in the eye of the beholder; we received responses from those in program leadership, non–program leadership faculty, residents, and program coordinators. While within a given residency, the wellness programming identified as "most effective" will vary

based on the respondent, we did allow for multiple responses per respondent and multiple respondents per program.

CONCLUSIONS

Our national survey of emergency medicine residencies describes a broad array of interventions and demonstrates that almost all represented programs have wellness programs in place. The themes derived from descriptions of wellness programming include interventions for program culture, program factors, environmental and clinical factors, wellness activities and practices, and wellness resources. While interventions targeting all facets of physician well-being are represented, those addressing personal factors such as social connectivity are disproportionately represented. Future directions for interventions within emergency medicine residency programs include an evolving emphasis on environmental factors to support physician well-being.

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CONFLICT OF INTEREST

The authors have no potential conflicts to disclose.

AUTHOR CONTRIBUTIONS

Simiao Li-Sauerwine: study concept and design, acquisition of the data, analysis and interpretation of the data, drafting of the manuscript; Katie Rebillot: study concept and design, acquisition of the data, analysis and interpretation of the data, drafting of the manuscript; Arlene S. Chung: study concept and design, acquisition of the data, drafting of the manuscript, critical revision of the manuscript for important intellectual content; Wendy C. Coates: study concept and design, analysis and interpretation of the data, critical revision of the manuscript for important intellectual content, statistical expertise; Sneha Shah: study concept and design; Lalena M. Yarris: study concept and design, acquisition of the data, analysis and interpretation of the data, drafting of the manuscript, critical revision of the manuscript for important intellectual content.

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