Academic Psychiatry (2018) 42:630–635
https://doi.org/10.1007/s40596-018-0934-2

IN BRIEF REPORT

A Qualitative Analysis of Stress and Relaxation Themes Contributing to Burnout in First-Year Psychiatry and Medicine Residents

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Received: 14 January 2018 / Accepted: 2 May 2018 / Published online: 14 May 2018

Abstract

Objective Qualitative research on trainee well-being can add nuance to the understanding of propagators of burnout, and the role for interventions aimed at supporting well-being. This qualitative study was conducted to identify (i) situations and environments that cause stress for trainees, (ii) stress-reducing activities that trainees utilize, and (iii) whether trainees who report distress (high burnout and depression scores) describe different stressors and relaxation factors than those who do not.

Methods The study was conducted with a convenience sample of first-year medicine and psychiatry residents at a large urban teaching hospital. Participants were asked to complete electronic stress and relaxation diaries daily for 1 week. Diary entries were coded for recurrent themes. Participants were screened for burnout and depression. Codes were compared by subgroup based on baseline burnout and depression status to elucidate if specific themes emerged in these subgroups.

Results Study sample included 51 interns. Sixteen (16/50, 32%) screened positive for burnout and three (3/50, 14%) had a positive depression screen. The most common stressors related to aspects of the learning environment, compounded by feeling under-equipped, overwhelmed, or out of time. The majority of relaxation activities involved social connection, food, other comforts, and occurred outside of the hospital environment.

Conclusions This study reveals that interns (regardless of burnout or depression screen) identify stressors that derive primarily from organizational, interpersonal, and cultural experiences of the learning environment; whereas relaxation themes are diversely represented across realms (home, leisure, social, health), though emphasize activities that occur outside of the work place.

Keywords Well-being · Burnout · Residency · Learning environment

Physician burnout is an increasing concern across the healthcare system that affects all stages of practice, including residency and early training. Among trainees, burnout has been implicated in increased rates of depression and poorer quality of life [1]. Depression in trainees, in turn, has been associated with increased perceived medical errors and worse patient care outcomes [2, 3]. Interventions to address physician burnout have been implemented in diverse settings and, based on a recent meta-analysis, showed some early success in reducing burnout, particularly when the program intervened at the organization level [4]. Some of these, such as mind-body programs, have resulted in sustained decreased perceived levels of stress and improved coping [5]. More research is needed to understand how well-being interventions can directly modify factors contributing to burnout.

Research in the realm of physician well-being is moving from quantifying the problem of burnout, to characterizing its underlying causes—now with growing recognition that the biggest detractors are problems in the learning environment. There is scant qualitative literature describing day to day causes of stress for residents. We conducted a qualitative analysis of a convenience sample of first-year medicine and psychiatry residents (who were participants in a larger pilot study of a resilience intervention) to identify (i) types of situations

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and environments that cause stress, (ii) stress-reducing experiences and activities utilized, and (iii) whether there are different stressors or relaxation strategies engaged by trainees who report distress (burnout and depression screen) and those who do not.

Methods

Study Participants and Procedures

Study participants consisted of a convenience sample of first-year residents (PGY-1s) in the departments of medicine and psychiatry at a large urban teaching hospital who consented to participate in a 6-month, pilot study of the Stress Management and Resiliency Training for Residents intervention (SMART-R) during the 2014–2015 academic year. SMART-R is a manualized group-based intervention that teaches mindfulness practice, stress awareness, and cognitive behavioral skills, as well as positive perspective-taking strategies. All participants in the study received the 6-hour SMART-R intervention delivered in three sessions as part of their required didactic curriculum (previously described [6]).

As part of the SMART-R pilot study, participants completed electronic stress and relaxation diaries administered via REDCap (a secure web-based data capture tool [7]) daily for 1 week immediately following their second SMART-R session. The diaries were not related to or a part of the curriculum content. Demographic data were collected. For each daily diary, participants were asked to use free-text to briefly describe up to three stressful and three relaxing events that occurred that day. The survey did not allow participant re-entry, thus all three events were logged at once. The study was approved by the Partners Institutional Review Board and all participants gave written, informed consent. There was no monetary compensation provided for completion of diaries.

Qualitative Data Analysis

Using content analysis methodology [8], diary entries were coded by three independent researchers. Using an inductive approach, coders independently reviewed all responses for recurrent themes which they then categorized and sub-categorized, while comparing emerging categories to each other to determine their substance and significance [8]. This resulted in an initial codebook, which also included code descriptions, and was developed through consensus with the other coders. Researchers then used the codebook to re-code 20% of diary entries to evaluate consensus (goal≥ 0.7). Discrepancies were initially greater than stated goal, and thus were resolved by consensus and code book modification. Upon re-coding a separate 20% of entries, inter-coder reliability was achieved for both stress and relaxation entries (concurrence for stress diaries = 72%, relaxation = 78%). Finally, the remaining diary entries were coded, and inter-coder reliability was confirmed (concurrence for stress = 70.4%, relaxation = 81.5%). The coders met a final time to review the codes, clarify all code descriptions, and resolve discrepancies. This resulted in the final code book, which was used to re-code the entire dataset.

Measures

Participants completed baseline surveys, including the Maslach Burnout Inventory-Human Services Survey (MBI) and the Patient Health Questionnaire 9-item (PHQ-9), before the intervention (methods previously described [9]). The MBI measures burnout on three domains: emotional exhaustion (EE), depersonalization (DP), and low sense of personal accomplishment (PA). We used established cutoffs for burnout (above threshold on either the emotional exhaustion or depersonalization subscales) [9]. Participants were classified as having a positive depression screen if they had a score > 10 on the PHQ-9.

Statistical Analysis

Stress and relaxation codes were aggregated and analyzed to assess for themes across the entire study population. Codes were then compared by subgroup based on baseline burnout and depression status, to elucidate if specific themes emerged in these subgroups. For the purpose of analysis, the ten most common themes were assessed separately and the remaining themes were grouped into a category called "Other."

Results

Characteristics of the Study Population

All 85 PGY-1 residents in medicine and psychiatry met inclusion criteria for this study. Seventy-five of 85 PGY-1 medicine and psychiatry residents (88%) consented to participate in the study. Fifty-one of these (68%) completed both the stress and relaxation diaries as well as the surveys (MBI and PHQ-9). Fifty-five percent ($n = 28$) of participants were female and 22 participants (43%) identified as being in a relationship (Table 1). Diary entries ranged from one to 172 words and consisted of one-word phrases to full sentences.

Burnout and Depression Status

Sixteen (16/50, 32%) were classified as exhibiting burnout and three residents (3/50, 14%) had a positive depression screen, with missing data for one participant.

Table 1 Demographic characteristics of Internal Medicine and Psychiatry residents who completed stress and relaxation diaries

	Internal medicine ($N = 41$); N (%)	Psychiatry ($N = 10$); N (%)
Age group		
Twenties	32 (78)	7 (70)
Thirties	9 (22)	3 (30)
Gender		
Female	22 (54)	6 (60)
Male	17 (41)	4 (40)
Unknown	2 (5)	0 (0)
Race		
White	24 (59)	8 (80)
Black	1 (2)	0 (0)
Asian	12 (29)	2 (20)
Hispanic	4 (10)	0 (0)
Relationship status		
Partnered	15 (37)	7 (70)
Single	26 (63)	3 (30)

Table 2 Stress and relaxation codes as reported in 297 diary entries by first-year psychiatry and internal medicine residents

Stress codes	N (% of 669*)
Clinical and patient responsibilities	98 (14.6)
Work-related time pressure	74 (11.1)
Particular clinical setting	72 (10.8)
Individual patient-specific situations	41 (6.1)
Educational stressors	36 (5.4)
Transportation and commuting	30 (4.5)
Personal issues including work/life balance	26 (3.9)
Issues with supervisors	21 (3.1)
Non-work-related chores and responsibilities	20 (3.0)
Social activities/planning	18 (2.7)
Other codes	233 (34.8)
Relaxation codes	N (% of 501*)
Cooking, eating, and coffee	52 (10.4)
Socializing outside of work	45 (9.0)
Exercise	43 (8.6)
Social media and television	40 (8.0)
Significant others	36 (7.2)
Being home	33 (6.6)
Being outdoors	33 (6.6)
Sleeping or resting	30 (6.0)
Commuting	19 (3.8)
Reading	18 (3.6)
Other codes	152 (30.3)

*Each diary entry may contain multiple codes; therefore, the total number of relaxation codes and stress codes is more than the total number of diary entries

Stress Factors in Residency

The analysis illustrated various stress and relaxation themes. Overall, the most prevalent theme relating to stress was clinical and patient responsibilities (14.6%) (Table 2). This included aspects of work typical of a resident on a clinical service (e.g., receiving pages, clinical workload, navigating unexpected situations), as well as experiences unique to academic medicine (e.g., presenting cases, filling specific roles on a medical team, or team rounds), and excluded direct patient interactions. For example, one resident described:

> Presenting a new patient on a consult service regarding a topic I'm unfamiliar with, and I sensed the fellow didn't know what was going on with the patient. I wound up presenting my impression because it's what made the most sense to me, but it wasn't nearly as polished as I would have liked.

Also represented in this theme were clinical tasks outside of direct patient encounters, for example:

> On the phone with the health insurance company

Other prominent stressors were time pressures (11.1%), including running late, feeling rushed, inefficiency, or unexpected situations; certain clinical settings (10.8%) such as inpatient service, Emergency Department, Medical Intensive Care Unit, or consult service; and patient-specific issues (6.1%) including difficult or angry patient interactions, complicated or sick patients, or acute medical events. As an example, one trainee described,

> Seeing a patient in clinic with multiple medical problems and trying to tackle too many of them in one visit while establishing rapport.

Many residents described situations in which they felt overwhelmed by the amount of work present, and the perceived urgency of completing it within too short a time.

None of the themes that described an individual's negative internal emotional response (i.e., rumination/worry, self-criticism or perceived lack of knowledge) fell in the ten most common themes. However, an important thread embedded in residents' descriptions of individual patient-specific encounters is the "responsibility-expertise gap," namely, that the resident felt unable or unequipped to help

and maybe even attributed this feeling of helplessness to their own lack of experience. For example,

> Watching a patient deteriorating, and not having any clue why.

Additionally,

> Four admissions on my first call-night without even knowing how to use the computer and with many active patients on the floor.

For many residents, the challenges inherent to medicine—witnessing suffering, illness, precipitous decline, and death—were compounded by their sense that they might be missing something clinically. For some residents, this was compounded by a lack of supervision, a personal sense of inadequacy, or even time pressure (the perception that there was not enough time to pause, think, grieve, or reflect). One resident describes,

> This evening when one of my clinic patients called complaining of continued pain that she's had for months, and began crying on the phone because of poor pain control. I felt helpless and wished I could do more for her.

Additionally,

> The most stressful was doing a pelvic exam for the first time in a while. I was unsupervised of course. I was most worried about making the patient feel comfortable—being competent with the exam was less of a concern.

The most common stressful incidents described aspects of the learning and practice environment, compounded by feeling under-equipped, overwhelmed, or out of time.

The remaining themes, those grouped into the "Other" category, included stressors such as the burden of administrative requirements, starting a new rotation or having unclear expectations on a rotation, and internal negative responses about one's own performance.

Relaxation Opportunities in Residency

Unlike the stress-related themes, which focused predominantly on the work environment, relaxation themes were much broader and quite dispersed, from home to leisure activities to health behaviors. Overall, the most prominent themes relating to relaxation were leisure activities, including cooking, eating, and drinking coffee (10.4%), socializing outside of work (9.0%), and exercising (8.6%) (Table 2). Trainees described these activities as,

> Purchasing fresh pasta at a local shop while on an evening stroll with my family

and

> Going to the Boston Common for a picnic and Shakespeare on the Common with my boyfriend and his family

and

> Going on a bike ride with my wife.

Few responses identified alcohol or substance use as a relaxation activity and it was notable that the majority, 91.6%, of activities that were perceived as relaxing occurred outside of work hours and outside of the hospital environment. Within the hospital or work environment, a small percentage of participant entries identified the SMART-R as a relaxation intervention. Others identified that certain settings within the hospital, particularly the clinic or ambulatory settings, were perceived as more relaxing. Other prominent themes identified within the hospital environment were feeling more prepared for the day's work and feeling more productive at work including,

> Waking up early this morning to read and review today's patients.

Learning opportunities were also identified as a key relaxation theme, particularly when the learning was observational or passive. One resident describes,

> Lunch lecture. I really enjoy getting an hour to just sit back and passively learn while eating lunch. It feels really rewarding and satisfying. A favorite part of my day!

and

> Shadowing my preceptor in clinic and casually talking to patients.

The remaining themes, those grouped into the "Other" category, included relaxation activities such as working in the ambulatory setting, taking breaks at work or having a peaceful moment, finding ways to get ahead or feel prepared, and feeling connected to others.

Burnout and Depression in Residents

When prominent stressors were compared across burnout status, the reported stressors were similar to each other and similar

to the group as a whole. Participants with a positive depression screen more frequently identified themes relating to mental health issues and conflicts or disagreements in their personal lives than those without. They also endorsed rotation-related stressors such as new rotations or the stress of unclear expectations, and tended to diminish or downplay stressors overall. One trainee with a positive depression screen wrote,

> Just general anxiety about starting on the floors.

Those with a positive depression screen less frequently identified clinical or patient responsibilities, patient-specific issues including difficult patient interaction, or supervisor issues as stressors.

Participants with a positive depression screen more frequently identified relaxation themes relating to formal stress reduction activities, including the SMART-R curriculum, mindful practice and meditation, and watching or playing sports than other participants. One trainee who screened positive for depression wrote,

> Doing the relaxation body scan at the seminar.

When the relaxation themes were compared across burnout categories, the reported relaxation activities were similar, with more subtle differences (given the wide variety of relaxation codes across the diaries). Participants who screened positive for burnout at baseline more frequently perceived individual or self-reflective activities—such as reading, listening to music or going to shows, or engaging in mindful practices, including meditation or reflection—as relaxing than those who did not screen positive for burnout. They less frequently identified being home or commuting to work as relaxing.

Discussion

Physician burnout is a serious public health concern. Increasing effort and resources are being dedicated to address physician burnout and depression at both the individual and system-level. Identifying the types of stressful situations residents encounter (individual and system-based), and then trying to problem-solve those most prevalent, offers another strategy for reducing physician burnout. Further, understanding which activities help alleviate stress in physicians could offer a means of bolstering resilience.

This exploratory prospective cohort study was undertaken to identify the types of situations that interns report as stressful, as well as activities or experiences that helped alleviate stress. In line with prior research, this study confirms that many intern stressors are influenced by organizational factors, such as work schedule, clinical responsibilities, and the clinical setting, and that this was consistent among residents, regardless of distress state (burnout, positive depression screen, or absence of both) [4]. These results not only validate efforts aimed at altering the learning and work environment but also suggest that making organizational improvements to scheduling, workflow, communication, and teamwork can further reduce physician burnout [4].

Some of the most commonly described relaxation activities consistently involved connection with others (work colleagues, family, and other loved ones). Intuitively, community, connection and creature comforts remedied stress for residents. Of note, a small number of residents identified the resiliency strategies taught through the SMART-R program and other self-guided mindfulness strategies as relaxing. Perhaps curricula that emphasize connection and self-reflection help alleviate the disconnection (from people and purpose) associated with burnout. Perhaps most notably, the relaxation codes were diverse and no specific code was represented heavily. This reinforces that there is no single intervention that supports well-being broadly, and rather individuals may benefit most from organizational support to find strategies that work best for them.

Our study has several limitations. First, our study population was a small convenience sample derived from another study which may have caused some selection bias based on which participants chose to partake in the first study. Further, participants in our study received the SMART-R curriculum, which may have influenced their awareness, self-reflection on and experiences of stress and relaxation, as reported in the diaries. Another limitation is that all participants were first-year residents at a single medical center, in only two specialties, and therefore their responses may not be reflective of residents at other stages or in different settings. However, this study allowed the collection of rich information about resident perceptions of stress and relaxation factors in real time that may help to both enrich understanding of burnout and inform effective interventions.

From this study of one cohort of psychiatry and internal medicine residents, we learned that stressors derive primarily from organizational, interpersonal, and cultural/individual experiences of the learning environment; in contrast, relaxation factors are diversely represented across realms (home, leisure, social, health), though do emphasize activities that occur primarily outside of the work place. In order to decrease burnout and depression in residency training and improve and promote resiliency innovations, research on detrimental factors, coping mechanisms, and outcomes is needed to establish a nuanced evidence base in the resident population. The problem of physician burnout is complex and requires both more qualitative research and, ultimately, a multi-pronged solution—one which includes changes at the organization level. Sustained support from training programs, hospital leadership, and accreditation bodies for well-being initiatives is needed to change the culture of physician training.

Acknowledgements The authors would like to thank Dr. Felicia Smith and Dr. Hasan Bazari for their support of this research within the residency training programs in the departments of Medicine and Psychiatry, respectively, at Massachusetts General Hospital.

Author Contribution Dr. Benson and Dr. Chaukos made equivalent contributions to this manuscript.

Funding/Support This pilot project was supported by an APIRE Janssen Resident Award (award recipient is corresponding author). Nicole M. Benson, MD is supported by the Massachusetts General Hospital/McLean Hospital Research Concentration Program R25MH094612. Dr. Christina Borba is supported by an NIMH Career Development Award: K01MH100428.

Compliance with Ethical Standards

Disclosures Dr. Denninger receives support for unrelated investigator-initiated studies from Onyx Pharmaceuticals. Dr. Denninger receives support from Basis Inc. for materials related to investigator-initiated studies. This does not alter the author's adherence to Academic Psychiatry policies on sharing data and materials.

Ethical Approval Partners HealthCare Human Research Committee/IRB review.

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