

Pause and Recharge: Wellness for Medical Students

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Abstract

Background: Medical students, especially in their core clerkship/third year of medical school, undergo a significant amount of stress which can impact their studies and ability to care for patients. This study investigates how certain wellness activities can affect student wellness during their core clerkship year.

Methods: The Medical Student Stressor Questionnaire was utilized to assess student wellness. This survey assesses 6 domains of wellness which are academic-related stressors, interpersonal & intrapersonal-related stressors, teaching and learning-related stressors, social-related stressors, drive & desire-related stressors, and group activities-related stressors. The survey was distributed about halfway into the core clerkship year, followed by numerous wellness activities, and a repeat survey near the end of the year.

Results: Academic stressors saw a significant decrease post-intervention, indicating a notable increase in that domain of wellness. Other domains did not see a significant increase or decrease.

Conclusion: Overall, student wellness events may have an impact on perceived student wellness. Given that wellness is dynamic, changes may have occurred on a smaller day-to-day level as well. Future work should focus on long-term changes as well as other health care student burnout.

Introduction

Medical students often face a number of responsibilities during their studies, especially in their core clerkship/third year. In this transition from student to provider, they are expected to learn a large amount of information quickly and effectively, complete assignments, work with patients and medical teams in numerous new settings and may commit

to extracurricular activities such as research and community service. Medical students in general often experience high levels of stress, burnout, and mental health challenges secondary to demanding academic schedules and clinical responsibilities (1). A systematic review examining numerous multi-institutional studies found that half or more of medical students experience burnout, often characterized by emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment (2). The consequences of stress and burnout in medical students are far-reaching, and include mental health disorders such as depression and anxiety, substance abuse, and suicidal ideation (3). One meta-analysis published in JAMA found that the prevalence of depression or depressive symptoms among medical students was 27.2%, and the prevalence of suicidal ideation was 11.1% (4). Additionally, burnout can negatively affect students' academic performance and increase likelihood of dropping out (5). In clinical practice, prior work has shown that physician burnout has been associated with medical errors (6).

These alarming statistics underscore the urgent need for interventions supporting medical student wellness. Institutions such as medical schools and hospitals play an important role here in their development of different curricular events/activities, facilitation of academic culture, and other opportunities to improve wellness. When discussing well-being, it is important to consider the physical, mental, emotional, and social components of wellness and how they affect student performance. This study aims to understand how different wellness activities affect medical student wellness over the course of their core clerkship year.

Methods

This study focused on medical students from Geisinger Commonwealth School of Medicine (Class

of 2026) completing clinical rotations at the Guthrie Robert Packer Hospital which began in February and finished in the clinical space in December. To assess stress levels, we used the Medical Student Stressor Questionnaire (MSSQ), developed at the University of Science Malaysia (7). This tool evaluates stress intensity across 6 domains: academic-related stressors, interpersonal & intrapersonal-related stressors, teaching and learning-related stressors, social-related stressors, drive & desire-related stressors, and group activities-related stressors. The survey was first conducted on Aug. 15, 2024, before implementing 3 wellness interventions, and again on Nov. 20, 2024, after all 3 interventions had taken place. Participation was kept anonymous, and as such pre- and post-intervention data was not matched.

To help students manage the stress of exams, grading pressure, and heavy coursework, a quiet group study session was organized (event 1). This provided a structured, supportive space where students could study together, share challenges, and stay motivated. The goal was to foster camaraderie and maintain focus leading up to the National Board of Medical Examiners (NBME) clinical knowledge shelf exams. To determine the activities for the remaining 2 wellness interventions, a student poll was conducted. While these events did not directly target exam stress, they aimed to build a sense of community and provide relief from academic pressures. As part of our physical and social wellness initiative, the authors organized a fall hike at Mount Pisgah State Park (event 2). To support social and emotional well-being, the authors planned a trip to the Corning Glass Museum (event 3). In addition to MSSQ survey results, event attendance served as another key metric for evaluating the effectiveness of our interventions. Statistical significance for interventions was tested with an unpaired two-tailed sample t test.

Results

Out of 22 total students at the campus, 15 students completed the pre-intervention MSSQ, and 16 students completed the post-intervention MSSQ. Five students that were a part of conducting the study were not eligible to participate in the survey. One question (question 26) was not included in the surveys distributed.

Initial MSSQ results from pre-intervention data showed that students experienced the most stress

in the following domains, from greatest stress to least stress (with average score out of 4): academic-related stressors (2.17), teaching and learning related stressors (1.68), group activities related stressors (1.63), social stressors (1.30), drive/desire related stressors (0.58), and interpersonal stressors (0.44). Of the items included in the questionnaire, the most notable stress was attributed to the following items ($\geq$ average score of 2.5): tests/examinations (3.07), self-expectation (3.07), quota systems in exams (2.64), receiving poor grades (2.57), uncertainty regarding expectations (2.5), and the large amount of content to be learned (2.5). The lowest pre-intervention questions were verbal or physical abuse by students, teachers, and personnel scoring respectively at 0.21, 0.21, and 0.14.

Participation in events varied, as 12 students attended the first event of quiet study sessions, 6 students attended the second event of outdoor hike, and 10 students attended the final event of the museum trip. However, these numbers represent the total number of participants, which include those students who could not participate in the questionnaire surveys.

Based on post-intervention MSSQ data, changes were seen in each domain of stressors (Table 1). Reductions in stress were observed in the following domains (average score, percent decrease): academic-related stressors (1.76, -18.88%), teaching/related stressors (1.46, -12.64%), social stressors (1.01, -22.28%), and group activity related stressors (1.61, -1.47%). Increases in stress were observed in 2 domains (average score, percent increase): interpersonal stressors (0.5, +12.50%) and drive/desire-related stressors (0.69, +18.99%). Only the academic stressor domain was found to have a significant change from baseline survey ($p = 0.00063$). Regarding verbal and physical abuse from students, faculty, and personnel, they continued to be low with post-intervention scores of 0.06, 0.5, and 0.25 respectively. Based on post-intervention data, academic-related stressors remained the highest cause of stress among the domains covered on the MSSQ.

Discussion

This study investigated stress levels among Geisinger Commonwealth School of Medicine medical students at the Guthrie Robert Packer Hospital after intervention with wellness events. Academic stressors found a significant decrease post-intervention.

Compiled pre- vs. post-intervention medical student stressor questionnaire						
Stressor type	Academic Stressors	Interpersonal Stressors	Teaching/Learning Stressors	Social Stressors	Drive/Desire Stressors	Group Activities Stressors
Domain	I	II	III	IV	V	VI
Pre-intervention scores (n=15)						
Class total score	423	40	176	117	26	98
Class average score	2.17	0.44	1.68	1.3	0.58	1.63
Post-intervention scores (n=16)						
Class total score	366	48	164	97	33	103
Class average score	1.76	0.5	1.46	1.01	0.69	1.61
Percent change pre-post	-18.88	12.5	-12.64	-22.28	18.99	-1.47

Table 1. Medical Student Stressor Questionnaire Results

It is well-known that in general, health care workers including physicians experience burnout (6,8–17). The authors feel it is important to provide understanding on the typical workload and expectations of a third year (or core clerkship) student to best understand where academic stress may stem from. In this formative year, a student rotates across at 7 different core specialties (internal medicine, neurology, psychiatry, surgery, obstetrics/gynecology, pediatrics, and family medicine). This is their first time introduced to most, if not all, of these fields clinically, and as such means navigating a brand-new environment every couple of months. Students are expected to work as providers, and thus take on patients, assessing them, creating differentials and treatment plans, and presenting this work to attendings, nurses, and other involved staff. Additionally, these students must learn new clinical content for each course in preparation of their end of rotation shelf exam. Information is broad with thousands of facts per rotation, including specific treatment guidelines for numerous diseases, screenings, risk factors, and best-next steps in diagnosis and treatment plans. Additionally, students are expected to be up to date on their patients and often must read into additional detail regarding their conditions, as well as ensuring a strong understanding of any procedures the patient may undergo during their hospitalization. On top of that, students are expected to significantly improve their clinical skills throughout the year such as auscultating pathologies, suturing, laparoscopic camera driving, and catheter insertions, to name a few. Furthermore, students are also expected to complete numerous rotation specific assignments to be assessed and graded by school faculty. Grading per rotation involves doing well in provider evaluations, NBME shelf exams, and

assignments. Thus, students must strive to excel in all these components. As one can imagine, this is an extensive workload, pushing students academically, and limiting time for other components of wellness such as social well-being.

Students experienced a significant decrease in stress in the academic stressor domain, with initial pre-interventions stressor questions averaging high in tests/grades. Previous literature indicates repeat testing, inadequate preparedness, and time constraints negatively impact student perception of academic stress (1). Decreased reported academic stress in this study may be a factor of increased preparedness resulting from creation of a supportive study environment with the first event. Alternatively, this may have been due to increased clinical knowledge later in the year compared to earlier, as well as greater familiarity with testing processes over time.

Post-intervention results indicated that stress decreased non-significantly in domains of teaching/learning, social, and group activity stressors, and increased non-significantly in the areas of interpersonal and drive/desire stressors. This indicates that our interventions may not have had a significant impact on wellness domains outside of academics. Non-academic stressors contribute substantially to student well-being or lack thereof and can be difficult to address from an institutional standpoint. Highly individual factors such as familial relationships, socio-economic status, and physical health can contribute to the mental health and well-being of students, and are often interconnected (18, 19).

From a campus culture standpoint, the lowest pre-intervention question scored was verbal or physical abuse by other students, faculty, and personnel.

While slight increases occurred post-intervention, they were still all below 1. Increases may have been due to poorly perceived interactions during rotations and/or variability amongst participants completing the surveys. Overall, these low scores indicate that the campus emphasized student safety during this year. The Guthrie campus offers student support from campus-specific faculty as well as from overarching school faculty in case of any abusive behavior.

The authors feel the events provided, while not showing statistical significance, still had an individual-level impact. By organizing the events, students were provided a carved-out time where they could actively focus on wellness, connecting with other students and the local community. Wellness is a dynamic process, that can change both short term and long term. As such, wellness may have increased during the events themselves, and fluctuated afterwards depending on social, emotional, and academic influences. The lack of statistical significance could be attributed to the low sample size. Prior work has shown that other interventions, such as yoga, also had a positive effect on student wellness, further supporting the implementation of wellness activities (20).

This study gives some insight into how our activities may have impacted student wellness. A strength of this study is focusing on multiple domains contributing to wellness as well as different targeted interventions. Limitations to our results include the small sample size, single student type, incomplete survey results (39/40 questions), and single location included. Our study demonstrates some potential effectiveness of interventions aimed at reducing stress levels in students. Future students may benefit from regular surveys at shorter time intervals and closer to events to better evaluate the dynamic process of wellness. Additional work can focus on other targeted interventions to reduce stress in more impacted areas, longer time periods for study, and mixed-methods studies to identify individual themes that could impact wellness. Further studies should explore mitigating stress in medical students at other schools, interns, residents, nursing students, and pharmacy students.

Conclusion

Investigation of medical student wellness revealed that there was a significant increase in wellness from the academic stressors domain for students from beginning to end of the study, possibly due to student

interventions that increased the supportiveness of the environment. Future work should investigate other interventions to decrease stress and investigate wellness for other health care students/providers.

Disclosures

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