

Medical student stress, burnout, and workplace factors

Le stress des étudiants en médecine, l'épuisement professionnel vécus et facteurs milieu de travail

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Introduction

Studies spanning decades shed light on the mental health of medical students.¹⁻³ High levels of stress take a toll on the personal and professional lives of medical students and affect their ability to learn and function at their optimum level.^{2,4} Moving closer to understanding this situation will be a breakthrough for medical education.

There are two contrasting approaches to finding solutions to burnout: fixing the person or fixing the job.⁵ We believe attending medical school is the job of medical students. There is evidence that the demands and conditions under which medical students work strongly affect their stress and burnout.^{2,4} While some studies have explored the work environment for residents and students,^{2,6-9} our purpose is to explore the relationship between stress, burnout, and psychosocial factors in the medical student workplaces (medical schools and clinical environments). Discovering these relationships may lead to further research on eventual solutions that might fix the job.

Therefore, we established these two research questions:

1. To what extent are the psychosocial factors present in the medical student work environments associated with their stress and burnout at pre-clerkship and clerkship stages of their medical education career?
2. What are the differences in the associations between stress, burnout, and psychosocial factors present in their work environments among cohorts at different (1) stages of their training and (2) institutions?

Design

This is a repeated measures longitudinal study involving multiple medical schools in the US and Canada. We are using a convenience sampling of medical schools adding more sites as they volunteer to join the project. Each medical school is an independent unit needing to apply for and receive their own IRB/REB approval. This study received approval from the IRB of Augusta University, Georgia as an Exempt Review study with minimal risk. All partner medical school will obtain their own REB/IRB approval to collect data from their own students.

Methods

Within each medical school, we are inviting all students in the cohorts of interest to participate. We will use the grant funds to recruit participants according to the requirements of each medical school's IRB/REB. In the fall of 2022, we plan to collect data from students within the first (pre-clerkship) and second years (likely pre-clerkship but possibly clerkship depending on the medical school) using the three instruments described below. Using an individually generated and unique identifier, we will collect data from these same individuals in the fall of 2024 (either still in their pre-clerkship or in their clerkship).

We are using these three instruments, each with evidence of validity for this purpose:

- A) The Perceived Stress Scale (PSS), a widely used psychological instrument for measuring the perception of

stress using items designed to quantify how unpredictable, uncontrollable, and overloaded respondents find their lives.

(<https://www.mindgarden.com/documents/PerceivedStressScale.pdf>)

B) Maslach Burnout Inventory™ (MBI), the leading measure of burnout validated by more than 35 years of research. MBI-General Survey for Students (MBI-GS S) was designed for use with adult students in college and university. (<https://www.mindgarden.com/117-maslach-burnout-inventory-mbi>). Three sub-scales make up the MBI: Exhaustion, Cynicism, and Personal Efficacy.

C) The Copenhagen Psychosocial Questionnaire (COPSOQ) provides an assessment of psychosocial conditions and health promotion at workplaces. The questionnaire covers areas such as demands at work, recognition, quality of leadership, social support from peers, and job security. It was developed by a group of researchers led by Tage S. Kristensen and Vilhelm Borg at the Danish National Research Centre for the Working Environment (1995-2007).¹⁰ (<https://www.copsoq-network.org/>)

To ensure all sites employ the same methodology, each medical school sends a representative to the Coordinating Committee where they will make project-wide decisions and share information. Medical school partners may withdraw at any time and they own their data.

Following data collection, we will use mixed models to examine our two research questions. We also plan to conduct a confirmatory factor analysis to check the structure of the COPSOQ as modified for medical students.

Summary

Medical student stress and burnout has been a longstanding issue.¹⁻³ This longitudinal study will use three instruments validated to measure the variables of interest (The Perceived Stress Scale, the Maslach Burnout Inventory, and the Copenhagen Psychosocial Questionnaire). We expect to find relationships between stress, burnout, and psychosocial factors at work. Specifically we expect that the quantity of work will be associated with burnout and stress. This study may provide valuable information for wellness initiatives in all medical schools especially those in North America. Where we find a relationship between stress, burnout and workplace factors, medical schools can target interventions in those areas and monitor the results. In addition, we can further study those areas showing strong associations to uncover

causal relationships among medical student stress, burnout, and workplace factors. This study will make a major contribution to both our understanding of stress and burnout among medical students and our ability to implement targeted initiatives to improve the work lives of medical students.

Conflicts of Interest: None.

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References

1. Rotenstein LS, Ramos MA, Torre M, et al. Prevalence of depression, depressive symptoms, and suicidal ideation among medical students: a systematic review and meta-analysis. *Jama*. 2016 Dec 6;316(21):2214-36. <https://doi.org/10.1001/jama.2016.173242>.
2. Dyrbye L, Shanafelt T. A narrative review on burnout experienced by medical students and residents. *Med ed*. 2016 Jan;50(1):132-49. <https://doi.org/10.1111/medu.129273>.
3. Shanafelt T, Trockel M, Ripp J, Murphy ML, Sandborg C, Bohman B. Building a program on well-being: key design considerations to meet the unique needs of each organization. *Acad Med*. 2019 Feb 1;94(2):156-61. <https://doi.org/10.1097/ACM.00000000000024154>.
4. D'Eon M, Galilee Thompson AS, Campoli J, Riou K, Andersen M, Koehncke N. The alarming situation of medical student mental health. *CMEJ*. 2021 Jun;12(3):176. <https://doi.org/10.36834/cmej.70693>
5. Maslach C. Finding solutions to the problem of burnout. *Consult. Psychol. J Pract. Res*. 2017 Jun;69(2):143-152. <https://doi.org/10.1037/cpb0000090>
6. Dyrbye LN, Lipscomb W, Thibault G. Redesigning the learning environment to promote learner well-being and professional development. *Acad Med*. 2020a;95(5), 674-678. <https://doi.org/10.1097/ACM.0000000000003094>
7. Zhou AY, Panagioti M, Esmail A, Agius R, Van Tongeren M, Bower P. Factors associated with burnout and stress in trainee physicians: a systematic review and meta-analysis. *JAMA*. 2020; 3(8), e2013761-e2013761. <https://doi.org/10.1001/jamanetworkopen.2020.13761>
8. Van den Broeck A, Vander Elst T, Baillien E, et al. Job demands, job resources, burnout, work engagement, and their relationships: an analysis across sectors. *JOEM*. 2017;59(4), 369-376. <https://doi.org/10.1097/JOM.0000000000000964>
9. Dyrbye LN, Leep Hunderfund AN, Winters RC, et al. The relationship between residents' perceptions of residency program leadership team behaviors and resident burnout and satisfaction. *Acad Med*. 2020b;95(9), 1428-1434. <https://doi.org/10.1097/ACM.0000000000003538>
10. Burr H, Berthelsen H, Moncada S et al. The third version of the Copenhagen Psychosocial Questionnaire. *Saf Health Work*. 2019 Dec 1;10(4):482-503. <https://doi.org/10.1016/j.shaw.2019.10.002>