



# Medical Student Mental Health: Challenges and Opportunities

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Recognition has grown in recent years of the poor mental health of medical students, residents, and physicians. The medical student depression rate is estimated to be 27% and anxiety and burnout rates exceed 50% [1–3]. Residents suffer from similar rates of depression and burnout is even higher than in medical students [4, 5]. Physicians' burnout rate in 2014 was 54% and climbing, and the suicide rate is the highest of any profession [6]. Given the scope of the problem, the pressing question is what is being done about this. The short answer is more than before, but still not enough.

## The Saint Louis University Medical Student Wellness Initiative

An assessment of medical student mental health was conducted at Saint Louis University School of Medicine in 2008, revealing high rates of depression and anxiety across all 4 years. At that point, we launched an initiative to reduce these adverse mental health outcomes using a model which was quite simple:

- Reduce unnecessary stressors and enhance the learning environment
- Teach students skills to better manage their stress
- Create more opportunities for students to find meaning in their work

The specific changes which spanned 7 years are as follows:

2009—changes to the pre-clerkship curriculum, (1) move from a four-tier to a two-tier (pass/fail) grading system, (2) across the board (all courses), 10% cut in curriculum

hours combined with efforts to get faculty to reduce the amount of detail taught, and (3) institution of longitudinal electives and theme-based learning communities  
2010—resilience and mindfulness curriculum for first year students (initially 6 hours in length, later reduced to an hour and a half)

2011—changes to the Human Anatomy course, reducing the difficulty of the exams and moving the course from first in the curriculum to second

2012—change to “true” pass/fail in first 2 years whereby performance was not used for determination of eligibility for AOA

2013—restructuring the four-year curriculum to allow an early start and end to the clerkship year

2014—optional confidential assessment of depression and anxiety at three time points in the pre-clerkship years and follow-up contact with those with positive depression and/or anxiety screens

2015—focused support of second-year students in the run-up to the USMLE Step 1 Examination

## Impact and Outcomes

These collective changes resulted in a dramatic improvement in the mental health of students in the pre-clerkship years compared to historical controls and outcomes in the medical education literature. Depression rates decreased dramatically (see Table 1), as did anxiety rates (see Table 2).

In addition, we found very positive student perceptions of the learning environment and well-being in the annual Association of American Medical Colleges (AAMC) Year 2 Questionnaire (see Table 3).

In this same survey, SLU students reported getting a half hour more of sleep per night and spending one and a half hours less per day in class or studying than students nationally.

Strikingly—despite this reduction in contact hours and time studying, in conjunction with lowered academic pressure through elimination of grades in the pre-clerkship years—

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**Table 1** Depression symptoms (percent of class with moderate to severe symptoms of depression as measured by the Center for Epidemiologic Studies (CES-D) scale)

Class of	Orientation	MS1	MS2
2011	6	27	29
2012	6	27	35
2018	4	4	6

academic performance, as measured by USMLE Step 1 Examination, actually *improved* (see Table 4).

An important question to ask is how academic performance could improve with these changes. One potential explanation is the Yerkes-Dodson curve. It is human nature to believe that more always produces better outcomes. If 1 hour of homework is good, 2 hours must be better, and 4 hours even better than that. It turns out that no human endeavor follows this path. As illustrated by the Yerkes-Dodson curve (see Fig. 1), as one increases stress (or class time, or amount of homework), performance initially increases, but eventually levels off and ultimately declines.

Pre-clerkship medical education is likely too far on the right-hand side of the Yerkes-Dodson curve. In this condition, reducing class time, amount of detail taught, and overall pressure can paradoxically lead to improved academic performance.

## Implications and Recommendations

The problem that we face in medical education is in some ways akin to that of canaries in the coal mine. Years ago, before technology advanced, coal miners would take canaries in small cages into the mines. If the birds got sick or died, the miners knew there was a problem with the environment. They did not teach the birds to meditate or do yoga, nor did they encourage them to eat well, exercise, and get enough sleep. Yet, as we face a mental health crisis in medical education, that is how we continue, too often, to approach the problem. While we have to support our students, our canaries, we need to recognize that the problem is not primarily with them, but rather is with the mines.

**Table 2** Anxiety symptoms (percent of class with moderate to high symptoms of anxiety measured with the state portion of the State Trait Anxiety Inventory (STAI))

Class of	Orientation	MS1	MS2
2011	33	56	58
2012	27	54	61
2018	21	14	32

**Table 3** AAMC Year 2 Questionnaire (YQ2) 2016 (mean ratings by students)

	National	SLU
Emotional climate	9.2	10.8
Student-faculty interaction	14.8	16.0
Quality of life	40.1	45.5
Perceived stress	5.8	4.7
Disengagement	9.7	8.2
Exhaustion	11.8	9.3

We also need to recognize that the education pipeline preceding medical school has caused damage to far too many students. Many students enter medical students with a range of potentially destructive mindsets. These include the following:

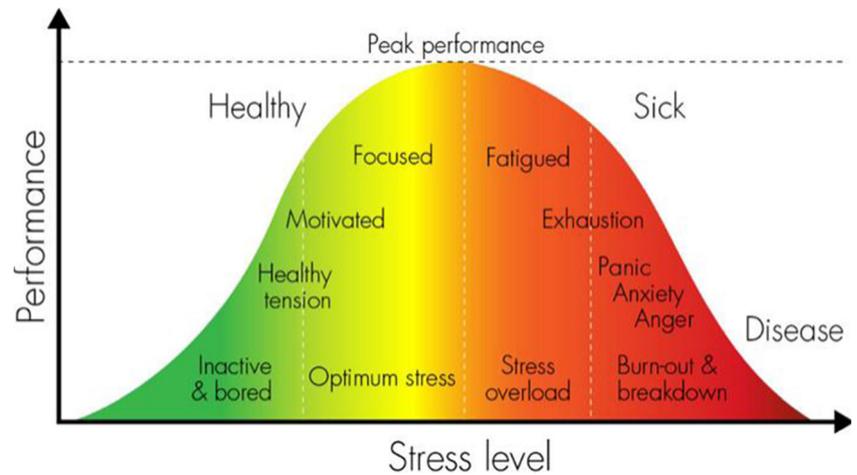
- Viewing performance as identity rather than just performance, “I am my test score”
- Overuse of comparison, defining one’s self-worth in comparison to the academic performance of peers
- Maladaptive perfectionism, repeatedly setting the bar so high for oneself that one is repeatedly disappointed in oneself
- Impostor phenomenon, despite objective evidence to the contrary, viewing oneself as incompetent, incapable of growth or improvement, a fraud, and/or an impostor who does not belong
- Cognitive distortions such as magnification or catastrophization, all-or-nothing thinking, overgeneralization, and predicting the future with certainty
- Feelings of inadequacy, embarrassment, and shame related to academic performance
- Stanford duck, projecting an outward appearance of calm when in reality, beneath the surface, one is paddling frantically
- Chasing “success” in a singular, unhealthy way at the expense of other more meaningful, healthy, and sustaining pursuits and goals

While a key to the success of our overall wellness initiative was viewing the medical student mental health problem primarily as an environmental one, we also addressed these potentially destructive mindsets by teaching cognitive behavioral techniques in a core-required curriculum of modest scope

**Table 4** USMLE Step 1 Examination performance

	Mean Score	Failure Rate
Classes of 2011 and 2012	224	4%
Class of 2018	228	2%

Fig. 1 Stress versus performance



that was supplemented with occasional reminders and reinforcers.

### Beyond Curriculum to Culture

The curricular changes and resilience training were critical to the success of our efforts, but another contributing factor was the culture that we created—specifically how we treated and engaged with our students. In the annual AAMC Graduation Questionnaire, students are asked to rate their satisfaction with the Office of the Dean for Curriculum on accessibility, awareness of student concerns, and responsiveness to student problems (on a 5-point Likert scale from very satisfied to very dissatisfied). In 2017, nationally, 32.8% were very satisfied; at SLU, 76.1% were very satisfied.

Viktor Frankl, the noted psychiatrist, neurologist, and writer said, “If we take man as he is, we make him worse, but if we take man as he should be, we make him capable of becoming what he can be.” Educators need to embrace this philosophy and need to avoid creating and implementing policies designed to keep students in line—to get them to “behave.”

A final element that I believe contributed to the success of the initiative was the creation of expanded opportunities for students to find meaning in their work. Frankl wrote, “There is nothing in the world, I venture to say, that would so effectively help one to survive even the worst conditions as the knowledge that there is a meaning in one’s life. There is much wisdom in the words of Nietzsche, ‘He who has a why to live for can bear almost any how.’” As medical educators, we have an obligation to help students find the why and to be sustained by the why, but that does not mean we cannot also change the how.

### Compliance with Ethical Standards

**Conflict of Interest** The author declares that he has no conflict of interest.

**Ethical Approval** This study was approved by the Saint Louis University Institutional Review Board.

**Informed Consent** Students who participated in the research signed consent forms that were approved by the SLU IRB.

### References

1. Rotenstein LS, Ramos MA, Torre M, Segal JB, Peluso MJ, Guille C, et al. Prevalence of depression, depressive symptoms, and suicidal ideation among medical students: a systematic review and meta-analysis. *JAMA*. 2016;316(21):2214–36.
2. Dyrbye LN, Thomas MR, Shanafelt TD. Systematic review of depression, anxiety, and other indicators of psychological distress among US and Canadian medical students. *Acad Med*. 2006;81(4):354–73.
3. Dyrbye L, Shanafelt T. A narrative review on burnout experienced by medical students and residents. *Med Educ*. 2016;50(1):132–49.
4. Mata DA, Ramos MA, Bansal N, Khan R, Guille C, Di Angelantonio E, et al. Prevalence of depression and depressive symptoms among resident physicians: a systematic review and meta-analysis. *JAMA*. 2015;314(22):2373–83.
5. Dyrbye LN, West CP, Satele D, Boone S, Tan L, Sloan J, et al. Burnout among US medical students, residents, and early career physicians relative to the general US population. *Acad Med*. 2014;89(3):443–51.
6. Shanafelt TD, Hasan O, Dyrbye LN, Sinsky C, Satele D, Sloan J, et al. Changes in burnout and satisfaction with work-life balance in physicians and the general US working population between 2011 and 2014. *Mayo Clin Proc*. 2015;90(12):1600–13. Elsevier.