

“On the Decline”: A Look into the Impact of the COVID-19 Pandemic on Medical Student Wellness

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Abstract

Wellness is a multidimensional concept that includes the aspects of depression, burnout, anxiety, and stress. Compared to the general population, medical student wellness has been found to be significantly decreased in terms of these four aforementioned domains. Within the topic of medical student mental health, there are known at-risk groups, such as students in more junior class years and those who identify as female. However, the onset of the COVID-19 pandemic has brought about numerous stressors that have further decreased medical student wellness and slightly altered the at-risk groups. Additional research is needed to further understand the impact that COVID-19 has had on medical student wellbeing. Medical school administrators should consider this research and acknowledge these dynamics when designing and adjusting their medical schools' curricula in the post-COVID-19 era

What is wellness? From a mental health perspective, Corbin and Pangrazi (2001) suggest that a uniform definition of wellness is one where the concept is treated as a multidimensional state. Within the literature, the terminology commonly used to describe the multiple components of medical student wellness includes the dimensions of depression, burnout, anxiety, and stress. Unfortunately, negative affectors of student wellness, such as burnout, are more commonly seen in helping professions due to emotional exhaustion and the depersonalization of treating a large number of patients (Dyrbye et al., 2005). As such, student distress is now considered to be a substantial and normalized part of medical school (Dyrbye et al., 2005). One paper even

refers to burnout as being the same kind of occupational risk in medicine as an accidental needle-prick (Shanafelt et al., 2019).

What causes decreased medical student wellness? Dr. Liselotte N Dyrbye, a prominent scholar on this topic, suggests that decreased medical student wellness is caused by a mix of internal and external stressors (Dyrbye et al., 2006, 2019). The external stressors associated with medical school include extensive study hours, time constraints, frequent exams, and lack of personal time. The internal stressors associated with medical school include pressure to succeed, perfectionism, and competitiveness (Dyrbye et al., 2006). Furthermore, additional studies identified the causes of decreased medical student wellness in pre-clinical years as lack

of a pass/fail grading system, cadaver dissection, USMLE Step 1 Exam¹, frequent in-house exams, less funding to mental health programs, lack of accountability, and outside/personal factors (Dyrbye et al., 2019; Slavin, 2016).

Why is medical student wellness an important topic? Regardless of the cause, a decrease in medical student wellness results in negative consequences that extend into the trainees' careers. As physicians, this predisposition to decreased wellness from their school years leads to reduced productivity, increased job turnover, early retirement, medical errors, reduced quality of care, and lower patient satisfaction (Panagioti et al., 2017). Research indicates that physicians who are experiencing symptoms of burnout were likely operating at suboptimal levels even before the issue became fully apparent (Howe et al., 2012; LeBlanc, 2009). Thus, it becomes even more important to address wellness within medical students early-on to promote positive habits and coping skills. Lastly, it is critical to note that although this paper focuses specifically on medical students, this decrease in wellness occurs across many healthcare provider trainees, including nursing and dentistry students (Henning et al., 1998; Zhao et al., 2016).

Given the changes to medical education and student stressors from the Coronavirus 2019 (COVID-19) pandemic, medical student wellness is likely to have taken a turn for the worse. Two papers from each of the four aforementioned wellness

domains from both pre-COVID-19 and during COVID-19 will be discussed and compared to understand how medical student wellbeing has changed.

Medical Student Wellness: Pre- vs. Post-Pandemic

There is a significant body of research surrounding medical student wellness pre-COVID-19 with recent literature (as of August 2021) showing that there has been a decline in wellness due to the COVID-19 pandemic. Overall, there are four wellness dimensions often discussed in the literature that negatively impact student mental health due to their significant increase: depression, burnout, anxiety, and stress. Medical students demonstrate a similar baseline emotional status to that of the general population at the start of their first year but will experience increased rates of these four domains throughout their studies. This suggests that medical school is the indicative stressor causing this mental health decline among trainees (Smith et al., 2007).

Depression: Pre-COVID-19, medical students exhibited a depression rate four times higher than that of the general population. A systematic review found that 27% of medical students experience depression, while data from the National Survey on Drug Use and Health (2017) found a 7% depression rate within the general population (NIMH, 2019; Rotenstein et al., 2016). A similar study by Schwenk et al. (2010) surveyed medical students attending the University of Michigan Medical School

¹ Data from before the USMLE Step 1 Exam transitioned to pass/fail grading system in Spring 2022

and reported a severe depression rate of 14%. During the COVID-19 pandemic, the prevalence of depression among medical students increased significantly. A nationwide survey reported severe depression in 24% of medical students in April 2020, the peak of the pandemic's first wave (Halperin et al., 2021). When compared with the Schwenk et al (2010) paper, these results show a 70% increase of severe depression during the COVID-19 pandemic. Additionally, a study surveying medical students in New York reported that 56% of respondents screened positive for depression. These findings may indicate a difference in the prevalence of depression based on region (Gupta et al., 2021).

Burnout: Medical students also experience burnout at a more significant rate than the general population. Pre-COVID-19, a national study by Dyrbye et al. (2014) found that 56% of medical students identified with symptoms of burnout compared to a representative sample of United States college graduates of similar age who exhibited a burnout rate of 36%. Another study, Mazurkiewicz et al. (2012), at the Mount Sinai School of Medicine concluded that 71% of surveyed rising third-year medical students met the criteria to be categorized as having burnout. During the COVID-19 pandemic, Nikolis et al. (2021) surveyed mental health among medical students and found that students were 1.60 times more likely to report increased burnout compared to their pre-pandemic responses. No additional studies were found

quantifying the burnout among medical student during COVID-19.

Anxiety: Another reason for a decrease in overall medical student wellness is increased anxiety levels. Pre-COVID-19, Mousa et al. (2016) surveyed medical students and found that 20% screened positive for generalized anxiety disorder (GAD). This was found to be about a ten-fold increase compared to national estimates of the general population rate of about 2%. Similarly, a study by Powell (2004) states that medical student anxiety level is on average in the 85th percentile compared to the general population. During the COVID-19 pandemic, a national survey by Guo et al. (2021) reported that the prevalence of moderate to severe anxiety among medical students increased to 31%. Another study by Nikolis et al. (2021) compared anxiety levels in a group of students before the pandemic and during the pandemic. The results showed that medical students were 3.37 times more likely to report higher levels of anxiety during the pandemic when compared to pre-pandemic responses. Also, as was seen with depression, location may impact anxiety prevalence. Gupta et al. (2021) reported a significantly higher anxiety level of 54% for medical students in New York.

Stress: Finally, medical student stress is a prominent problem. Pre-COVID-19, Rahimi et al. (2014) studied medical students at the University of Saskatchewan and found that medical students had perceived stress scores 3 points higher than their similarly aged peers. A study by Melaku et al. (2015) on Ethiopian medical students found 52% of

students had chronic stress which was correlated with increased substance abuse and decreased academic performance. Since the pandemic, Nikolis et al. (2021) reported that medical students were 2.89 times more likely to report higher levels of stress. No additional studies were found quantifying the stress among medical student during COVID-19.

Even though medical students have higher rates of depression, burnout, anxiety and stress overall, studies report that they are reluctant to seek assistance. Dyrbye et al. (2015) found that medical students only pursue mental health support at a rate of 27%, while the rate is almost doubled in the general population at 44%. This difference was due to a number of perceived barriers such as supervisor stigma (reported by 10% of students with burnout), peer stigma (reported by 56% of students with burnout), and breaching of confidence (reported by 16% of students with burnout) (Dyrbye et al., 2015). A similar study supported these findings, reporting that depressed students were more likely to think that faculty and peers would not take them seriously if they discovered their mental health difficulties (Schwenk et al., 2010).

Discussion

Research on medical student wellness has shown a significant decrease during the pandemic from an already poor pre-COVID-19 status. There has been minimal research discussing possible reasons behind the decline in wellbeing across the various domains. Similarly to the general population,

one common determinant to wellbeing medical students experience is stress due to self-isolation and concern for the health of family members (Seetan et al., 2021). However, medical students across class years have also reported factors unique to them that have increased stress levels during COVID-19, such as transitioning to remote learning, not being able to acquire additional clinical skills, delays and cancelations of licensing exams, and concern about placement in a suitable program for residency (Guo et al. 2021; Seetan et al., 2021).

Even within the medical student population itself, certain groups of students are at a higher risk for having decreased wellness. Pre-COVID-19, Melaku et al. (2015) observed that first year students had the highest prevalence of stress compared to their more senior peers (Schwenk et al., 2010). Similarly, Zhao et al. (2016) found that medical students in China who were in more junior class years (1st and 2nd year) had less “well-being” compared to the more senior class years (3rd and 4th). Another study by Ludwig et al. (2015) compared the risk for depression between first and third year medical students at Albert Einstein College of Medicine and found that 39% of first years and 28% of third years were at risk for depression. Junior medical students may experience decreased wellbeing due to the transition to medical school (first years) and STEP 1 Exam (second years). Female medical students were also seen to be at a greater risk for decreased wellbeing (Dyrbye et al., 2006; Rahimi et al., 2014; Schwenk et al., 2010).

Specifically, one study found that female students reported higher stress levels than their male peers and were using at least one mental health resource 45% of the time compared to 35% for male students (Merlo et al., 2017). Female medical students may experience decreased wellness due to a perceived lack of social support, decreased sense of coherence, and support.

Just as before the pandemic, certain groups of students have a higher risk for decreased wellness due to COVID-19. Factors such as class year and gender² have an impact on a student's risk for decreased wellness. Guo et al. (2021) found that third year students reported higher levels of stress than other years. However, students in pre-clinical years were still seen to experience higher levels of anxiety compared to students in their clinical years (Halperin et al., 2021). For first years, anxiety remained high due to the transition to medical school with the added complexity of online learning. Online learning may be a new experience for many students that makes classes focused on group case discussions more difficult and increases distractions associated with the home environment. Furthermore, online learning increases the isolation component associated with the pandemic. However, unique to the rising third years is the cancellation of board exams and uncertainty surrounding their clinical rotations. The wait for these external issues to resolve and the lack of power in their resolution may have resulted in the stress response seen from third year medical students. In terms of gender, female students

were more likely to have higher levels of depression and anxiety compared to male peers, which supports findings from the pre-pandemic literature (Halperin et al., 2021).

Although female medical students remained an at-risk group for decreased well-being, the pandemic may have created possible regional disparities, at least as described in New York where medical students' wellbeing seem to be significantly more negatively impacted by the pandemic. Reasons for such may include the travel quarantine rules placed on the tri-state area, making it difficult for students to visit home, and the high rate of COVID-19 transmission in the New York area (World Health Organization, 2021).

Conclusion

In summary, when comparing medical student wellness from pre-pandemic to during the pandemic, there is an overall increase across the four domains of depression, burnout, anxiety, and stress. The decline in mental wellness is not only detrimental to the student but also to patients. Neumann et al. (2011) found that a decline in mental wellness can lead to a decrease in clinical empathy. This calls for a change within medical school curriculum. Given the literature reviewed, future studies should assess how medical student resiliency programs may need to be changed to reflect new COVID-19 related problems, such as further decreased wellbeing and different at-risk groups. Studies have found that

² due to a lack of reporting on genders other than male or female, only these two are discussed here

incorporating regular wellness classes conducted by highly trained (master or Ph.D. in psychology) instructors can have a positive impact on the mental wellness of students (Cheung et al., 2021; Slavin et al., 2014). Furthermore, as it specifically pertains to the pandemic, it is important to have regular mandatory in-person sessions during preclinical years. This allows student to form relationships with their peers and increase their social support. Social isolation during the pandemic has made it hard for students to notice behavior or mood changes in peers that were struggling with mental wellness. As previously mentioned, medical students are also less likely to seek mental health help compared to the general population. However, although the pandemic has decreased medical student wellness overall, it has also furthered the advancement of telemedicine. As medical students frequently cite stigma as a reason for avoiding seeking help, the increased privacy of telemedicine may remove this barrier. As such, future studies should also analyze how telemedicine may have changed the frequency at which medical students seek mental health assistance.

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