Current Directions in Medical Student Wellbeing: A Primer for Students

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"I will remember that there is art to medicine as well as science, and that warmth, sympathy, and understanding may outweigh the surgeon's knife or the chemist's drug."

These enchanting words, from the oath of Louis Lasagna, are read aloud every year by thousands of awestruck new medical students during their white coat ceremonies. The oath makes pledges to care for patients with the utmost sincerity, empathy, and kindness that all of us hope to receive from a physician. With these uplifting words, students enter medical school hoping to become the well-rounded physicians that the oath describes.

Troublingly, however, recent research suggests that medical education may actually impede learners from developing some of the humanistic qualities described in the oath, ultimately affecting the quality of future patient care. A 2006 study by Dyrbye et al. demonstrated that medical students enter training with a similar mental wellbeing profile as age-matched peers, but leave school with less empathy and humanitarianism than they entered with [1]. Of further concern, these medical students are also more depressed and report more suicidal ideation than their peers who did not go to medical school. Other studies have shown that the documented decrease in student empathy is associated with a decline in clinical performance [2] and that the disparities in wellbeing are amplified in women and groups traditionally underrepresented in medicine [16].

These findings are at odds with the medical community's goal of training caring, competent physicians who will provide excellent future care to a diverse population.

As more research comes to light concerning the changes in learner wellbeing associated with current training practices, the medical establishment is working vigorously to turn the dial for learners. Now, armed with self-awareness and documented studies, the medical community is working to improve the educational experience of future physicians so they can better care for their patients and for themselves.

PURPOSE

This document is intended as an overview of the current literature on medical student wellbeing and aims to address some of the innovations currently employed to improve wellness for medical students. We hope this document will help medical students to understand these relevant issues so they can better engage in important national conversations and initiate change at their own institutions. Although resident and faculty training contribute significantly to student and physician wellbeing, the scope of this document is limited to wellness in undergraduate medical education programs.

METHODS

A literature review was conducted using the following online platforms: PubMed, JAMA archives, and Academic Medicine archives. The terms "medical student wellness," "medical student AND mental health,"

"medical school AND mental health," "medical students AND work-life balance," and "medical student wellbeing" were used to generate relevant articles.

Because our initial review of the literature alluded to gender, racial, and sexual orientation disparities within medical student wellbeing [2], we chose to research diversity in medical education and its effects on wellness. To generate articles regarding diversity, the terms "medical student diversity," "minority medical student," and "minority faculty" were used. The titles and abstracts of the most applicable articles were read and further reviewed for relevance to undergraduate medical education.

According to this protocol, the search generated 27 articles through the wellness search terms and 7 through the diversity search terms. The selected articles were then logged in an Excel spreadsheet. The committee divided the papers into groups focused on mental health, diversity, and balance. Papers categorized into mental health dealt primarily with psychological and psychiatric sequelae of the student experience. Papers categorized into diversity dealt with race, gender, sexual orientation, and class issues of the student experience. Papers that described major curricular changes designed to address work-life balance were placed in the balance section. From each article, the following data were collected: study name, objectives, sample size and characteristics, type, results, and limitations.

MENTAL HEALTH

Undergraduate medical education has been linked to an erosion of the mental health of medical students. In a 2007 cross-sectional cohort study across 7 medical schools with 4,287 participating medical students, 49.6% of students reported burnout, a syndrome marked by emotional exhaustion, depersonalization, and a low sense of personal accomplishment [4]. Of further concern, 11.2% of respondents reported suicidal ideation in the past year [1, 4]. A decrease in empathy and humanitarianism was also documented in a web-based survey instituted by the University of Michigan in 2010, particularly as students entered their clinical clerkships [5].

These findings are associated with negative outcomes for medical students as they struggle to care for themselves and for their patients [2]. Burnout has been shown to be associated with higher levels of suicidal ideation, increased thoughts of dropping out of medical school, and unprofessional behavior [6]. Because empathy is a predictor of physician competency [2], the decreased capacity for empathy may imply that medical education is actually compromising future physicians' capabilities to provide high quality patient care.

Factors that affect the experience of medical students have been moderately studied. The heavy workload, high student debt, competitive academic environment, and exposure to human suffering have been implicated as elements contributing to student burnout. Further, students are also taught in clinical settings by doctors who may be struggling with depression, burnout and stress themselves, which may amplify these issues. The "hidden curriculum" of medicine, in which learners emulate the behaviors of their superiors, normalizes and may exacerbate these experiences of cynicism, stigma towards mental health care, and exhaustion [7, 8]. Furthermore, medical students commonly report experiencing verbal mistreatment by their superiors. This form of learner mistreatment has been shown to influence students' specialty choice, erode mental health, and adversely affect patient care.

Notably, some protective factors to stress have also been identified. Being married or partnered has been shown to be a protective factor for student mental health[1].

Most medical schools have taken steps to mitigate student distress, and a few institutions have comprehensively redesigned the entire medical school experience. Almost every medical school now has a center for student counseling, where initiatives primarily focus on improving access to mental health services,

educating students on mental illness, and reducing the stigma of struggling with mental health [9]. Most schools offer a certain number of complimentary therapy sessions, although according to a 2011 study published in JAMA, only 22% of schools offer an unlimited number of sessions [10]. Of note, federal law requires that student mental health documents remain confidential and that they do not influence medical student academics.

A report by Redwood et al. demonstrated that a "buddy" program at Oklahoma State University, where older medical students mentor entering students, decreased student stress by helping students process conflicts safely and increase their self-awareness [12]. Other peer-to-peer programs have been shown to be helpful in reducing the stigma associated with mental health concerns, in connecting students to resources, and in increasing class cohesion [13]. After the suicide of a physician at UC San Diego School of Medicine, UCSD launched the HEAR program, a self- and peer-referral mental health program. This program has also received positive reviews from the student body and has contributed to decreasing stigma regarding mental health care at UCSD [14].

DIVERSITY

Interestingly, diversity and cultivation of empathy may be related. Research has suggested that increasing minority representation may be protective against a decrease in empathy for all students, minorities or otherwise [15]. Greater diversity has also been shown to enrich classroom discussion, to better prepare all students to provide culturally competent care, and to strengthen support for healthcare equity [15]. However, despite the impressive benefits of diversity on medical education, racial/ethnic, class, gender and sexual orientation minorities are still underrepresented in medicine. Furthermore, the personal learning experience of students from diverse backgrounds in medical education tends to be quite different than that for other students [16].

The AAMC formally defines underrepresented minorities (URM) as "racial and ethnic populations that are underrepresented in the medical profession relative to their numbers in the general population." These groups, which include African Americans, Mexican Americans, Puerto Ricans, American Indians/Alaska Natives, and Pacific Islanders, make up more than 25% of the U.S. population but less than 13% of students enrolled in allopathic medical schools. A literature review on social and learning environments experienced by URMs in 2013 demonstrated that URMs who are enrolled in medical schools individually experience a more negative learning environment, receive less social support, are subject to discrimination and racial harassment, demonstrate poorer performance on standardized exams, and are ultimately less likely to remain in medical school when compared to non-minority peers [16].

In light of these troubling findings, several initiatives have been proposed to create a more supportive learning environment for URMs. These include large-scale endeavors, such as support for pipeline programs that increase the number of URM students entering medical school, and the incorporation of diversity into the core mission of the institution [16]. Other smaller-scale suggestions for improvement include creating mentoring programs for URMs, providing URMs with earlier exposure to career pathways in medicine, and the expansion of research fellowships and grants targeting minority medical students. For example, the Program in Medical Education (PRIME) program is a system-wide initiative at University of California medical schools that recruits medical students from diverse backgrounds and provides supplemental education for these students to become physician-leaders for underserved populations [17]. These programs are particularly critical in promoting careers in medical leadership and academic medicine, areas where URMs face even greater barriers [18]. Furthermore, a handful of schools nationwide have offered admission to undocumented students under the Deferred Action for Childhood Arrivals

(DACA) designation, which allows these students to stay in the United States up to two years for study without citizenship [19].

In addition to racial/ethnic minorities, women also face barriers to medical education. Although nearly 50% of U.S. medical students are women, female medical students continue to face gender stereotyping and discrimination. Female medical students have higher attrition rates than male medical students and are also more likely to doubt whether they should have chosen the field of medicine [22].

In a highly cited 2002 cross-sectional study conducted at 14 US medical schools, 83% of female medical students reported experiencing gender discrimination and sexual harassment, especially on core clerkships [20]. Of the female medical students who experienced discrimination, 45% reported that it affected their future specialty choice, and 25% reported that it affected their residency rankings. A 2009 qualitative study suggested that female medical students felt unprepared to handle uncomfortable situations they encountered on wards and believed the training environment to value masculine traits over feminine traits. They also believed that male medical students formed more consequential and career-advancing bonds with attending physicians [22]. In another study, female medical students' perceived discrimination or harassment was associated with increased cynicism, poor self-esteem, and higher rates of depression [21].

Many existing initiatives supporting gender diversity in medicine have focused on developing policies regarding sexual harassment or increasing recruitment of female faculty. However, data suggests that gender discrimination extends beyond sexual harassment and stems from a "hidden curriculum" of distinct male and female roles and expectations [22]. Proposed solutions to these ingrained stereotypes include mentoring programs between female medical students and faculty members, frequent "check-ins" to encourage students to speak to administrators about gender discrimination, and development of 360-degree evaluations, allowing medical student performances to be assessed by multiple members of the team, including patients, nurses, and support staff [22].

More recently, diversity research has focused on sexual and gender minorities (SGMs). SGMs include non-heterosexual and transgender individuals, including those who identify as LGBT. An estimated 15.8% of medical students identify as SGMs [23], although it should be noted that survey response rates in this domain are very low. Of the surveyed SGMs, 30% report that they concealed their sexual identity during medical school and cited this concealment as stemming from fear of discrimination and limitations in residency and career options. This concern negatively impacts both physical and mental wellbeing, and has been attributed to increased rates of depression, anxiety, eating disorders, and substance abuse for SGMs. Proposed strategies for limiting SGM discrimination include institutional policies, such as same-sex partner benefits and designated gender-neutral restrooms, as well as curricular changes, such as cultural competency and competency-based evaluation [23]. Other strategies, such as the recent addition of sexual orientation and gender identification questions to the AAMC student questionnaires, serve to increase SGM recognition and provide much-needed data on the SGM experience during medical school [24].

To better guide continuing changes, more research is needed on the precise ways URMs and disadvantaged students contribute to the educational environment. Additionally, more research is needed on the impact of socioeconomic diversity on medical education, as the research collected for this paper did not address this important issue. The medical community would benefit from additional efforts to increase diversity in medical education, especially sexual, gender, and socioeconomic.

BALANCE

As an increasing body of research documents the deleterious effects of the

current medical training environment on learners, medical schools nationwide have produced major cultural and curricular changes to mitigate these effects on multiple levels.

One notable example is Vanderbilt University, which has instituted a longitudinal program over the course of the four-year curriculum. The Vanderbilt Medical Student Wellness Program comprises three components: advising and mentoring, leadership and peer-to-peer programming, and personal growth of doctors-in-training. Students are assigned to advisory colleges that not only serve as a network for peer-to-peer advising, but also as a venue for non-academic activities that promote a more balanced lifestyle for participants. This program has been remarkably successful in engaging the student body and has enjoyed considerable student satisfaction and ratings [9].

Instead of instituting a multi-year program, many schools have expanded their student counseling centers to offer student wellness and balance services. These centers may offer services from counseling to meditation, cooking, and massage sessions [29]. In particular, some institutions offer mindfulness-based stress reduction programs, which teach a type of modified meditation that has been shown to reduce anxiety and overall distress in students and physicians [11]. These programs are usually voluntary, though one program, at St. Louis University, mandates participation in a resilience and mindfulness program as part of the curriculum. Exit surveys at the school indicate that this change has been positively evaluated and has contributed to decreased rates of depression in the medical student body [9].

Other schools have made simple yet fundamental changes to their curriculum in the hopes of decreasing academic pressure on students to improve wellbeing. Specifically, studies have shown that pass/fail grading systems increases student satisfaction with their medical education and does not change student performance in comparison to letter-grading systems [27]. This grading model has now been adopted by many schools [27]. One small single-institution study demonstrated that the problem-based learning format, as opposed to the traditional lecture-based learning format, may result in less depression, anxiety, and hostility in medical students [28]. Furthermore, some institutions limit the amount of time that students spend in lectures during their preclinical years, or set aside days during clinical clerkships where students can take care of health appointments. These innovative changes to medical curriculum have proven impactful on student wellbeing [29].

DISCUSSION

Recent data on the wellbeing of medical students has revealed a startling picture of the modern medical learning environment. The impact on medical student mental health and balance, and the increased disparity that students of diverse backgrounds face in these arenas are undeniable. However, it is also clear that many medical schools and residency programs have risen to the challenge of addressing the current data and are looking for ways to better support students through the process of becoming a doctor. This review has explored the many avenues for concrete solutions and provided case examples of successful programs in the medical literature.

It is widely accepted by the medical community that much more could be done to improve the learning environment for future physicians. The current literature provides many case studies about school-specific programs targeting wellness, but a comprehensive analysis of effective practices in wellness has not been completed to date. A consensus has not been reached as to how to improve wellness in medical education effectively, and papers that analyze best practices are needed to direct medical schools' efforts for improvement. From our analysis of the literature, we will identify some areas of improvement for medical schools here.

The structure of medical education has largely been unchanged since the Flexner

report was originally published in the 20th century, and many speculate that a change from the standard two years of pre-clinical work followed by two years of clinical work would help more students thrive. Indeed, it has been shown that the decrease in empathy begins during the two years of clinical work in the standard curriculum [2]. Several medical schools are working to redesign the entire medical school experience by in an effort to produce better-prepared and empathetic physicians.

Furthermore, no papers regarding the psychology of medical student debt on wellbeing were found by our literature search using common wellbeing keywords. This finding may mean that our search methods could have been broadened to capture papers referencing student debt in particular. Our search terms were general enough, however, that a more likely conclusion is that the body of work regarding financial burden on student wellbeing needs to be further characterized. The median student debt of approximately $160,000 over the course of student's education may have a sizable impact on student wellbeing. The decline in wellbeing for medical students throughout their education is multifactorial, and a characterization of these factors is needed for medical schools to adequately address them.

Disparities regarding the experiences of women, URMs, and sexual and gender minorities in medical education are widely available in the literature. To better guide continuing medical school reform, more research is needed on the precise ways URMs and disadvantaged students contribute to the educational environment. Notably, none of the papers in our review addressed socioeconomic disparities in wellness. The medical community would benefit from additional efforts to increase diversity in medical education, especially sexual, gender, and socioeconomic, so that the healthcare workforce better reflects the population it is serving. Though current interventions include harassment prevention and increased recruitment of minority groups into medicine, many schools are including alternative approaches, such as mentoring and curricular changes to increase the visibility of minorities, culture competence, and resilience training [17, 19, 22]. Medical schools and residency programs around the country are experimenting with programs to address these issues in multifaceted ways.

CONCLUSION

The data regarding medical student wellness in the literature is disconcerting. Though medical schools have produced many innovative programs and curricular changes to improve the environment for future physicians, much more research and reform is suggested to mitigate the major effects on student wellbeing. To better assist institutions in their commendable pursuits, interventions should be monitored and their efficacy studied in order to develop better guidelines and best practices to direct future curricular changes. Student voices nationally and at their home institutions will become indispensable in these efforts, as they can play an invaluable part in suggesting and producing interventions that effectively help themselves and their colleagues.

Furthermore, the issue of student wellness is a nationally recognized topic. Organizations such as the AAMC have consistently addressed student wellbeing as an issue of utmost importance and have supported student involvement in conversations about medical education. National platforms for disseminating effective practices and fostering inter-institution collaboration will become central in developing a model for medical education that actively promotes student wellbeing and diversity. Although the current data and research reveal many areas for improvement, it is encouraging that the medical education community is already looking at innovation to more effectively produce the compassionate, caring physicians that the Oath of Louis Lasagna encourages medical students to be.

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