

### Personal Well-being Among Medical Students: Findings from an AAMC Pilot Survey

A series of studies by Dyrbye and colleagues demonstrate a high prevalence of psychological distress among U.S. medical students, and nearly half of medical students experience symptoms of burnout at some time during medical school. The negative consequences of distress during medical training, such as reduced empathy, lower ethical conduct, substance abuse, and broken relationships, are problematic if they undermine the goal of graduating knowledgeable, effective, and professional physicians.<sup>a(1-2)</sup>

Further, the effects of distress during medical training might be more deleterious to the well-being of students from traditionally underrepresented groups.<sup>a(3-4)</sup> For example, while minority (non-white) students have a lower risk of burnout, experiences of discrimination and prejudice show that race contributes to the distress that non-white students experience.<sup>a(3)</sup> In a recent study, researchers found that non-white students were less likely to report positive mental health.<sup>a(4)</sup> To date, however, there is still limited research on other social group differences in student well-being. Little is known about the views of first generation college students of the medical school climate,<sup>a(5)</sup> and even less is known about the experiences of lesbian, gay, and bisexual (LGB) students.

In response to these concerns about the well-being of students during their medical training, a quality-of-life survey of second-year students was developed. This *Analysis in Brief* reports survey findings on medical student well-being and examines

whether or not specific populations of students are disproportionately vulnerable to distress.

#### Methods

Data come from the 2013 Medical Student Life Survey (MSLS), a pilot survey of second-year medical students designed to measure well-being, perceptions of the learning climate, and empathy. The MSLS, an anonymous survey, was sent to all active-status, second-year students from the 136 U.S. schools accredited by the Liaison Committee on Medical Education (as of 2013). The response rate for this pilot survey was 18 percent (3,466/19,555), reflecting a non-representative sample of second-year students.<sup>b</sup> Analyses were based on the 3,305 completed responses.

The MSLS included survey items validated by past research.<sup>b</sup> Students' self-perception of stress was measured by the short version of the Perceived Stress Scale (PSS). Four questions were summed to form a single perceived stress scale (Cronbach's alpha = .85). Measures of students' quality of life came from seven items from the Linear Analogue Self-Assessment (LASA) Scale. Four questions were summed to form a single Quality of Life (QOL) scale (Cronbach's alpha = .91). Three LASA questions regarding fatigue, social support, and financial concerns were examined separately. For all five items, the scale ranged from 0 to 10, with 10 indicating a positive outcome. Free-text responses provided by survey respondents were carefully reviewed. Stress and measures of QOL by demographic characteristics were examined, including first generation college status (yes or no), sexual

orientation (LGB or heterosexual), gender (female or male), and race/ethnicity (Asian students, students underrepresented in medicine [URiM], and white students).

#### Results

Results show that well-being measures vary by student subgroup, and most group differences across the well-being items are statistically significant (Table 1). For example, female respondents reported higher stress (a PSS score of 5.6) compared to male respondents (a PSS score of 6.0), reflecting a statistically significant difference. More important, though, based on effect size statistics (Cohen's *d*), these group differences can be described as "small."<sup>6</sup>

Results show that there are significant group differences across the five well-being measures, reflected in Table 2 (drawn from five multiple regression equations, one for each of the well-being measures, whereby all demographic characteristics were included in the equation). The labels HIGHER and LOWER are displayed only if the regression coefficients were statistically significant. Results reflect that levels of perceived stress distinguished respondents across all social group characteristics. A higher level of stress was reported among first generation college status, female, LGB, Asian (compared to white), and URiM (compared to white) respondents.

Further, results show that first generation college status respondents differed from all other respondents across all well-being measures, including higher stress, fatigue, and financial concerns, and lower QOL

a For references see *Supplemental Information*

b See supplemental for more details about the methods

Table 1: Mean Values for Perceived Stress and Quality-of-life Measures, by Demographic Group

|  |              | N     | %    | Group's score on a scale of 0 to 10 |                                 |                           |  |                                       |
|--|--------------|-------|------|-------------------------------------|---------------------------------|---------------------------|--|---------------------------------------|
|  |              |       |      | Stress (10=No stress)               | QOL (10="As good as it can be") | Fatigue (10="No fatigue") | Social support (10="Highest level of support") | Financial concerns (10="No concerns") |
| First generation college status <sup>a</sup> | Yes          | 485   | 14.7 | 5.4* <sup>a</sup>                   | 5.9* <sup>a</sup>               | 4.0*                      | 7.3* <sup>a</sup>                              | 3.8* <sup>a</sup>                     |
|  | No           | 2,809 | 85.0 | 5.8                                 | 6.3                             | 4.4                       | 7.9  | 5.2                                   |
| Gender <sup>a</sup>                          | Female       | 1,725 | 52.2 | 5.6* <sup>a</sup>                   | 6.2                             | 4.1*                      | 8.0*   | 4.9                                   |
|  | Male         | 1,568 | 47.4 | 6.0                                 | 6.3                             | 4.6                       | 7.6  | 5.0                                   |
| Sexual orientation <sup>a</sup>              | LGB          | 196   | 5.9  | 5.4* <sup>a</sup>                   | 6.0                             | 4.1                       | 7.3* <sup>a</sup>                              | 4.1* <sup>a</sup>                     |
|  | Heterosexual | 3,077 | 93.1 | 5.8                                 | 6.3                             | 4.4                       | 7.8  | 5.0                                   |
| Race/ethnicity <sup>a</sup>                  | Asian        | 389   | 11.8 | 5.6*                                | 6.2                             | 4.3                       | 7.6*   | 5.8* <sup>a</sup>                     |
|  | URiM         | 389   | 11.8 | 5.4* <sup>a</sup>                   | 6.0*                            | 4.1*                      | 7.7  | 4.6                                   |
|  | White        | 2,257 | 68.3 | 5.9                                 | 6.3                             | 4.4                       | 7.9  | 4.9                                   |
|  | Other        | 230   | 7.0  | 5.6*                                | 6.1                             | 4.4                       | 7.6  | 5.1                                   |
| ALL  |              |       |      | 5.8                                 | 6.2                             | 4.3                       | 7.8  | 5.0                                   |

Notes: \* Indicates that difference between group means is statistically significant (P < .05). For race/ethnicity, white is the reference group.

<sup>a</sup> see Supplemental Information for full list of footnotes

Table 2: Summary of Statistically Significant Group Differences Across Perceived Stress and Quality-of-life Measures

|                                      | Stress | QOL   | Fatigue | Social support | Financial concerns |
|--------------------------------------|--------|-------|---------|----------------|--------------------|
| First generation college (vs. other) | HIGHER | LOWER | HIGHER  | LOWER          | HIGHER             |
| Female (vs. male)                    | HIGHER |       | HIGHER  | HIGHER         |                    |
| LGB (vs. heterosexual)               | HIGHER |       |         | LOWER          | HIGHER             |
| Asian (vs. white)                    | HIGHER |       |         | LOWER          | LOWER              |
| URiM (vs. white)                     | HIGHER | LOWER |         |                |                    |

Note: Statistically significant (.05 level) group differences for each of the five measures of well-being were obtained from multiple regression models whereby all four demographic characteristics were included in each equation.

and social support. LGB respondents differed from heterosexual respondents for three of the five measures of well-being, having higher stress and financial concerns, and lower social support. While female respondents experienced higher stress and fatigue than male respondents, they also reported higher social support. Compared to white respondents, Asian respondents reported high stress and lower social support, but lower concerns over finances, and traditionally URiM respondents reported higher stress and lower QOL. Additionally, these findings support the notion that measures of well-being are associated with students' QOL (see Supplemental Table 2).

Distress was articulated by respondents in some of their free-text responses. For example, one respondent noted, "The constant pressure/anxiety that a medical student faces on daily basis is detrimental to an individual's mental, emotional, and physical well-being." Another commented, "I wish there was a way to make medical school better. I understand it's a difficult training process, but there's so much negativity and dread that surround it." Another student respondent

reflected, "This survey really made me reflect on how preclinical medical education has changed me. I used to spend more time taking care of myself, and I used to be much more relaxed. I do not like how anxious medical school has made me become."

**Discussion**

Results show that measures of well-being are associated with students' QOL and the means for these measures vary by student subgroup, particularly students with first-generation college status. Future work can explore the relationships that measures of well-being have with perceptions of the learning environment, as well as with student outcomes (e.g., changes in empathy, academic achievement, and attrition). Future research can verify the extent to which demographic characteristics affects the direction and strength of the relationship between measures of well-being and the aforementioned student outcomes.

Over the past decade, schools have become more aware of the high stress level among their students. Many schools have wellness initiatives in

place for their students and other schools are considering them. It will be critically important, going forward, to see if these interventions reduce the perceived stress of medical students and, specifically, if they are helpful for the student subgroups identified in this work, as they are the ones negatively affected by the medical school experience. This pilot survey demonstrates the potential this research has, and future iterations of this survey will provide the opportunity for medical schools to establish the prevalence of student stress over time, benchmark themselves against national level or peer group data, and identify populations that might be more vulnerable to stress.

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