

CAREER FEATURE

Helping others enhances graduate student wellness and mental health

Actively engaging students in community-based educational outreach activities improves their mental health and will hopefully promote their retention and success in graduate school and beyond.

Over one-third of graduate students have been reported to experience symptoms consistent with anxiety and depression^{1,2}. Such findings have challenged the current model of graduate education and led to national calls for universities to develop effective interventions to help students manage their time and cope with stress³. Although universities and graduate programs recognize the importance of initiatives that nourish graduate student mental health, little progress has been made to develop effective, evidence-based strategies that meet this need, likely due in part to the diversity in the background, needs and interests of graduate students.

The COVID-19 pandemic has only exacerbated this fragile situation^{4,5}, forcing research universities to cease operations except for essential tasks and COVID-based research. The toll on graduate students has been immense: social isolation, lost research time, uncertainty, shift work and cultural crises all combined to ratchet up the already excessive anxiety, depression and post-traumatic stress disorder reported by graduate students. No less impact was felt by high schools and high school students, with underserved communities hit the hardest^{6,7}.

To engage PhD students in a meaningful extracurricular activity during the pandemic and to alleviate the effects of the brunt of the pandemic on high school students, especially those from underserved areas, we organized a free weekly tutoring program for St. Louis area high school students run largely by PhD students. We initiated the program in October 2020 and ran it through May 2021; it served over 50 high school students, most of whom were from underserved areas, and met four or five times a week for an hour and half each day. We held tutoring sessions via Zoom with one or two tutors working with each student on topics determined by the student, typically math and science. Tutoring was conducted by 20 PhD students in biomedical science graduate programs as well as 6 undergraduate and medical students at Washington University.

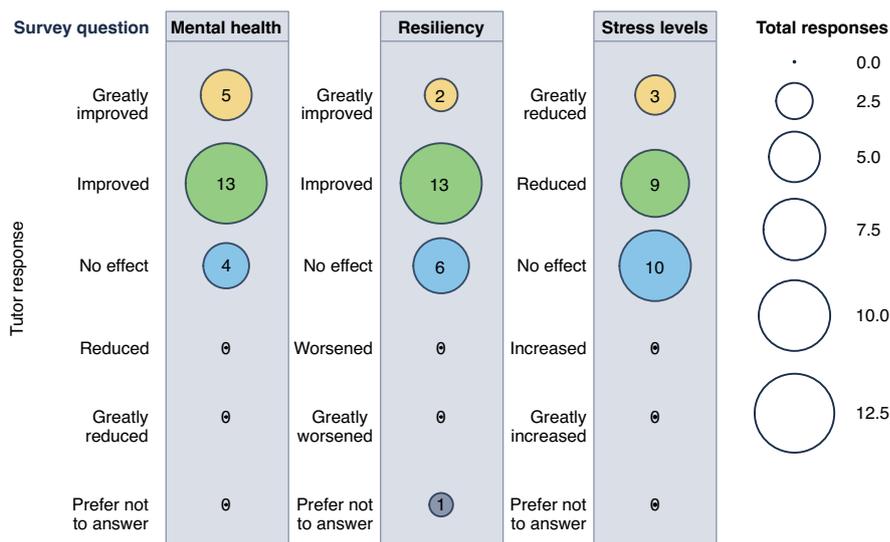


Fig. 1 | Impact of the tutoring program on the mental health, resiliency and stress levels of tutors.

The area of the circle is proportional to the number of people who gave the indicated response.

Positive impacts

We elicited regular feedback from tutors, high school students and parents to evolve the program to best meet the needs of students and tutors. We also received unprompted feedback from tutors on the positive impact the program was having on their state of mind during the pandemic. This feedback led us to query all tutors on the impact of the program on their wellness, resiliency in research and stress levels in an anonymous online survey toward the end of the spring 2021 semester, asking:

- What impact, if any, has participating in the high school tutoring program had on your mental health and wellness over the course of the pandemic?
- What impact, if any, has participating in the high school tutoring program had on your outlook or resiliency to the inevitable challenges of scientific research?
- What impact, if any, has participating in the high school tutoring program had on your level of stress over the course of the pandemic?

We received responses from 22 of the 26 tutors who participated in the program (85%), including 17 responses from PhD students. The responses to these queries (Fig. 1) revealed that participating in the program improved students' mental health and wellness, resiliency in research and stress levels. Tutors gave highest marks to the program's impact on their wellness and mental health, with 18 respondents saying it greatly improved or improved these traits and 4 saying it had no effect on them — an 82% positive response. Most tutors also said the program improved or greatly improved their resiliency in the face of scientific challenges (68%) and stress levels (55%), even though tutors had to devote extra time to the program to prep for tutoring. In fact, only a singular response could be viewed as negative — “Prefer not to answer” — on the resiliency question. Thus, in the face of an unusually stressful year, these responses support the idea that helping others through an educationally based outreach program had a clear positive impact on the wellness and mental health of the PhD

and undergraduate tutors. Representative feedback from PhD students highlights this point:

“It’s been so nice to have a way that I feel like I’m actually helping people in a year where it feels like all the problems are so big and out of control. I have to take time outside of tutoring to review topics so I’m prepared when I meet with my students, which sometimes adds some stress to my schedule, but tutoring has overall been incredibly rewarding and fun.”

“This past year, I have greatly questioned my abilities as a graduate student. Tutoring has given me purpose beyond my research and allows me the opportunity to help others in a very palpable way that has had a wonderful impact on my mental well-being.”

“During the pandemic, I have looked forward to tutoring sessions because they give me another activity outside of lab to look forward to, especially when experiments aren’t working. I feel a sense of accomplishment because students are receptive to the help I am able to provide, and they seem to enjoy and appreciate the sessions.”

Our experience with the tutoring program and its impact on tutors aligns with prior research showing that helping others reduces stress and enhances wellness and resiliency^{8–12}. It also reinforces calls by national agencies like the National Institute of General Medical Sciences and Howard Hughes Medical Institute to engage PhD and undergraduate students, especially those from under-represented backgrounds, in community-based projects to enhance the retention of under-represented students in science, technology, engineering and mathematics¹³. In this context, we note that about two-thirds of our tutors (and a greater fraction of high school students) were from groups historically under-represented in the sciences.

Thus, our program provides a concrete example of the power of outreach programs in not only helping the targeted population — here, high school students — but also the PhD and undergraduate tutors who power the program.

Conclusions

Supporting graduate student mental health is a complex issue; no one activity will be attractive or helpful to all or even most graduate students. For example, our educationally focused program had a positive impact on our tutors, but we solicited over 175 PhD and undergraduate students to identify a much smaller cohort of students who were interested in participating in the program. For students drawn to education, outreach programs like ours and those run by many other universities likely promote the wellness and resiliency of participating graduate (and undergraduate) students in the face of the inevitable challenges they will face in school. As such, these programs represent one tool or intervention to help address the high levels of anxiety and depression that many students experience during graduate school. To support the mental health of all graduate students, universities and graduate programs must, however, identify many other tools and interventions that complement educationally based outreach programs to engage other graduate students with distinct interests, goals and needs in meaningful, beneficial ways. □

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Competing interests

The authors declare no competing interests.