

# The Elephant in the Room: Where is the Empathy in Science?

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A recent international study indicated that graduate students in science, technology, engineering, and math (STEM) fields are six times more likely than the general population to experience clinical symptoms of anxiety and depression.<sup>1</sup> Additionally, it has been shown that individuals who identify as a member of an underrepresented minority (e.g., race, gender identity, sexual orientation) in a STEM field are more likely to be afflicted by imposter syndrome.<sup>2</sup> It is our opinion that these disturbing trends are equally prevalent in the postdoctoral researcher community, since they are more often unseen by the university-industrial complex and more exposed to the stress of the funding mechanisms. The struggle with mental health issues during the Ph.D. process is so pervasive that the long-running Ph.D. comic strip continues to ring true (see Figure 1).<sup>3</sup>

The literature indicates that the interactions between students and their principal investigators (PIs) have a dramatic effect on their mental health. The value of the PI/early-career researcher relationship is well-known and is the reason why many universities/departments have onsite visits with potential graduate students.

It is not enough for PIs to just “point”

early researchers to on-campus mental health services (many of which are maintained at a minimum of one certified staff member per 1,200 students). An overhaul in the tools and techniques at the disposal of the PI should have dramatic effects on the mental health of the students we teach and mentor. *Our goal with this article is to present tools and techniques that PIs (and their early-career researchers) can ask to implement at their institutions to promote an educational environment that enables both research advancements and the development of resilient individuals.*

## University

We can think of two things that universities should do to alleviate the mental health struggles of graduate students. First, they can provide effective methods for teaching faculty members how to mentor.<sup>4</sup> Most faculty did not go to graduate school or start their career with the objective of learning to mentor or teach. We also speculate that there is a large percentage of the faculty who potentially believe that mental health struggles are at best a taboo topic, or at worst are a generational product and not real ailments.

Universities need to change these mentalities by (1) allowing individuals to be vulnerable and forthright with their personal struggles, and (2) requiring consistent training to educate the educator. Mental health struggles are not a product of this generation, but being open about them is a healthy consequence of this generation.

Second, and more difficult, is that universities must acknowledge that the STEM graduate student population has changed dramatically, from predominantly single white male to a more diverse group of individuals. This diversity brings advantages for robust scientific discourse as well as a diverse set of challenges. For example,

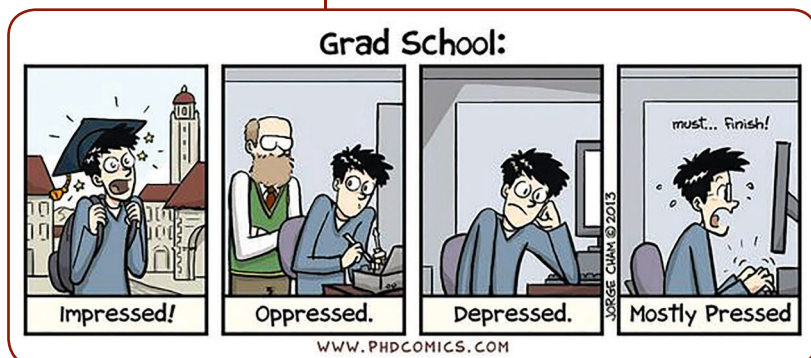


Figure 1. “Piled Higher and Deeper” by Jorge Cham (www.phdcomic.com) brings levity as it chronicles the universal struggles of graduate students and postdocs during their journey to become professionals in their field of choice.<sup>3</sup>

some international students begin a graduate student program with a spouse who, based on visa restrictions, cannot work. If the graduate student stipend is designed under the assumption that graduate students can find housing-mates, this puts an unexpected financial burden on those who cannot follow this model. Therefore, an assessment of living salary for a particular location is not something that can be overlooked. Addressing how one university might tackle the unique challenges faced by their student populations on the topics of housing, food, and childcare insecurities will not likely lead to a “one-size-fits-all” approach. One example is the operation of university-sponsored food pantries to assist students dealing with food insecurity issues.

### Departments

Departments should provide opportunities for early-career researchers to build a community during normal operating hours. A perceived healthy work-life balance promotes a more committed, healthy workforce.<sup>1</sup> The traditional method of hosting an after-hours happy hour is most accessible for conventional students (cis-gendered, white, single) and ignores the broader stressors on a diverse set of graduate students who are potentially struggling with housing/food insecurities, time commitments of parenthood, and/or have cultural issues surrounding alcohol consumption.

The Ohio State University’s Department of Materials Science and Engineering does this well; they still have a traditional happy hour, but the department sponsors a during-office-hours doughnut hour on Friday mornings. The time was strategically selected to not overlap with the graduate classes, and the faculty and educational support staff make an effort to regularly attend the event.

### Principal Investigator

The PI is at the front line of the professional and personal development of graduate students and other early-career professionals. While the PI cannot be expected to be a student’s only support person, they should seek opportunities for professional development that provide them with the skills to be a successful mentor. A successful mentor is accessible to discussing problems, listens to concerns, and provides

students with resources on mental health on campus without judgment.<sup>5</sup>

Faculty should also live a perceived healthy work-life balance. This could be as simple as adding the following statement to your e-mail signature: “My working week is likely different to yours. Please reply in your own time.” Faculty could also facilitate the formation of “mentoring constellations” for each student.<sup>4</sup> These groups give students access to a broader community that can help them on their journey to becoming respected professionals. PIs can help normalize conversations about mental health by sharing a particular study such as the one referenced at the beginning of this article (or even this article) to start the discussion. This alleviates the need for faculty to share any mental health concerns of their own.

### Students

To support your mental health needs, it is important to be honest with yourself. Find out what the university’s policies are on sick leave and vacation time, and how your mentor may be expecting you to act in your own best interest.<sup>6</sup> Find a strong community of other students to participate in your constellation of mentors. For example, start or join a graduate materials society chapter at your university or become active in the graduate student governing board at your university. These organizations provide safety in numbers when requesting changes in university policy.

You must also learn to have what can often be difficult conversations with your mentor about what the expectations are during the graduate school experience to make sure you both have similar expectations. Finally, remember that you are not alone; Ph.D. comics is one of many tools at your disposal to find support during the universal struggles of graduate school. Successfully completing your Ph.D. program doesn’t necessarily make you smarter than everyone else; it only means that you are more persistent in one aspect.

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### Endnotes

1. T.M. Evans, L. Bira, J.B. Gastelum, L.T. Weiss, and N.L. Vanderford, “Evidence for a Mental Health Crisis in Graduate Education,” *Nature Biotechnology*, 36, 282 (2018).
2. A. Parkman, “The Imposter Phenomenon in Higher Education: Incidence and Impact,” *Journal of Higher Education Theory & Practice*, 16, 51 (2016).
3. J. Cham, “Professed?” (Piled Higher and Deeper Publishing LLC, 2014), <http://phdcomics.com/comics/archive.php?comid=1672>. Accessed 22 May 2019.
4. W.B. Johnson, *On Being a Mentor: A Guide for Higher Education Faculty*, (Mahwah, NJ: Lawrence Erlbaum Associates Publishers, 2007).
5. Graduate Student Senate of Case Western Reserve University, “A Mentoring Guidebook for Faculty: Helping Graduate Students Grow into Respected Professionals and Trusted Colleagues,” 73, 2008.
6. Graduate Student Senate of Case Western Reserve University, “A Mentee Guidebook for Students: How Graduate Students Can Become Respected Professionals and Trusted Colleagues,” 85, 2008.

