Mental Health Panel in Math and Computer Science

SGI 2023

Time and place

The panel will be part of the Summer Geometry Initiative 2023, which was conducted completely virtual.

- **Day**: July 26th, 2023
- **Time**: 4:00pm EST
- **Moderator and transcription**: Erik Amézquita

Panelists

- Glencora Borradaile (CS, Oregon State University) `glencora** @ **eecs.orst.edu`
- Lauren Bricker (CS, University of Washington) `bricker** @ **cs.washington.edu`
- Emille Lawrence (Math, University of San Francisco) `edlawrence** @ **usfca.edu`
- Emily Winn-Nuñez (Math, Brown University) `emily_winn-nunez** @ **brown.edu`

Questions to start with

How do you keep a work-life balance?

- GB: A non-academic hobby was fundamental as a student. I ran and exercise quite a bit as a student. However when I started as a faculty, work and family responsibilities piled up and I burnt-out. Then I realized that by working less, you can produce more. I can produce much more whenever I am well-rested. I realized that key was to put limits: to look at my full schedule and say "This is work time and focus" and "This is not work time and go out for a run". I created boundaries between work and everything else.

- LB: I hate defining myself by my work, because I am much more than my work. I rather describe myself by what keeps me busy. Just like GB, I define physical barries between my work life and my personal life. I define from the get-go that one day a week I will do no work and instead spend it on the outdoors or on other hobbies.

- EL: I would not say I have balance myself, but I try my best to juggle all the work and family responsibilities. Finding balance is always an ongoing process. There was little balance when I was a grad student. I thought that by working super hard everything else would eventually fall into place. I was wrong. I later realized that I needed to block time slots: family, work, hobbies.

- EWN: I am a survivor of severe brain trauma and I still have lingering effects from it. I thought I could ignore my condition and simply grind through it. That meant that my first two years of grad school were miserable. I realized that I am not invincible. That I have to listen to my body: there is only so much I can work every day. Like everyone else already said, hobbies are crucial. Go for runs and walks.

All of you seem to have physical activity as your main hobby. Is there a specific reason why you choose exercise over any other activity?

- GB: Endorphins. The change of pace. The switch of scenery. I think it is safe to assume that most if not all of us in the panel and audience work sitting at a desk. Doing something completely different to sitting is an excellent way to tell myself that I am in a completely non-work mood and precisely set that work/life barrier.

- EWN: Completely agree with what GB said. You get a renewed blood flow to your brain. And this is not just feelings but there is a large body of serious research that establishes physiological links between physical activities and overall mood improvement.

- EL: Just to add a little more to what GB and ENW said: you don't have to run 5 miles a day to be healthy. Even going for a walk can clear your head. There is something in just moving and observing at your own pace that is really healing for the soul. I am an advocate for meditation exercises to reach a state of quietness. Even 10 minutes of this quietness mental state can make a huge difference.

- LB: Agree with all the above. Funny enough, you can also get work done while exercising outdoors. Many solutions to frustrating work problems have come to me while I am running.

Switching gears a bit now. Personally, a key moment in my junior year at college was knowing that Impostor Syndrome was a thing. I could finally name those feelings of inadequacy, of thinking I am not good enough for the institution I am at, or I aspire to be at. However, I still had to figure out how to *deal* with such negative feelings. Any pointers?

- LB: Dealing with the syndrome is a continuous process. At first I thought I was not good enough to be a faculty at the same place I did my PhD in. But here we are. Then you talk to your peers about the Impostor Syndrome and you realize they are in the same boat more often than not. So this means that it is not you who is inadequate but a larger system that makes everyone feel inadequate. I advocate that we have to look at the conditions that make people feel like impostors. What things have systematically eroded people's confidence?

- EWN: Ironically, covid helped me in that regard. My impostor syndrome went away when I started working from home. I was finally able to stay away from toxic peers. I realized that pre-covid, some jerks in my department would constantly remind me that "you need to work 12+ hours a day or else you won't make it". But now working from home I could go at my own pace and still get things done and be happy with my progress. There are some toxic people you cannot avoid indefinitely, but now I know how to limit their influence on my mood.

- EL: Reframe. The key word is "Reframe". Make sure you have a strong community that you can rely. A community of people that you can relate to. Be open with them about your inadequacy woes and other negative feelings. You will realize that you are not the only one that goes through the imposter syndrome, and that is extremely reassuring.

- GB: As others said, in my experience, 90% of the time, when you open up about feeling like an impostor, you realize that people feel the same as you. I don't think my Impostor Syndrome truly went away until I got tenured and got to be in appointment and tenureship committees. I finally realized how sausages are made, so to speak. I realized that plenty of candidates with stellar CVs had to be turned down simply because there is not enough budget and space to hire all of them. I realized that all my metrics were pretty much in line with the median in my department. I realized I was performing as my department expected, or even better. Now I see that most of our feelings of inadequacy stem from the fact that we tend to be evaluated with a black box. We don't know what is actually being measured, which pushes us to work harder than it is healthy.

Speaking of black boxes and arbitrary measurements, there is the idea of "productivity metrics". GPA, exam scores, number of publications, h-index, etc. Should we use the term "productivity" in the first place? If not, how can we tell ourselves that we are on the right path?

- EL: Like I mentioned earlier, "reframing" is the key word. Productivity should be measured by how you feel by the end of the day. I will not prove 20 theorems every week. It is simply not possible. But I know that I will work the best I can every day. If you know you put the work and you are satisfied with it, then I say it was a very productive day.

- LB: Any of these metrics are useless taken at face value. If anything, they should always be accompanied by a thoughtful discussion regarding the context and the person being evaluated.

Every individual is different and no size fits all. People should be cognisant about barriers that are faced by different people. Asking the same productivity level to someone who lives next to campus versus someone who commutes 2h a day makes little sense. Sometimes reaching campus is already hard enough. We should then think "productivity" as what challenges you had and/or have to overcome to be here.

- EWN: During classes, it is easy to keep track of progress. You have to read these books, study these chapters, do these many exams. When it comes to research, everything gets fuzzier as it is not clear what your next step should be. You realize that research is a hundred-headed beast that can easily overwhelm you. I keep a whiteboard with small to-do notes: send an email, grade some homeworks, etc. That way, by the end of my work day, I know that I have achieved something and I am one step closer to finishing a large task, a tiny step but a step nonetheless.

- GB: Just one caveat to what EWN said: A work day should not be 16h long.

Expanding on that caveat, how do you define the number of hours in a work day?

- LB: I prefer to think the other way around. Since all of us here are mathematically oriented people, keep in mind that a week has 168 hours. How many of those do you need just to properly sleep and eat? And then there is time you have to take for family and personal needs. So by the end of the day you have a bottom line and that's about it.

- GB: I like to think in terms of creative bursts. You have to realize that life changes constantly and it is hard to stick to a fixed number of working hours. Sometimes I have bursts to work 8h a day, but I also know that I cannot work consistently 8h a day for 20 days in a row. Someone once argued that instead of thinking "work-life balance" we should think of a "work-life flow management". Things can go awry at any given time and you have to flow with that. You have to build resilience in your flow management so you have breathing time in your schedule despite unforseen hiccups.

- EWN: I listen to my body, especially as a TBI survivor. If I start pushing myself too hard, my body will warn me, so I stop. Else, if I work 12 hours one day, I know that I will be unable to work the next 3 days, so in the long-run, working long hours makes no sense. Slow and steady is the way to go.

- EL: And let's be honest, when we say 8h, we don't really mean 8h. There is actual research on what are the physical limitations to prolong concentration. Some suggest that we cannot deeply concentrate beyond 45 mins straight. It is ok and actually necessary to take small breaks in between to work better.

- LB: I'll add that the Pomodoros technique is precisely that: small breaks in between small tasks and concentration bursts.

Staying focused (pun intended) on time management, how do you deal with rabbit holes? How do you avoid being engulfed into, say, a never ending series of wikipedia links?

- GB: Pomodoros, like LB said. It is hard to break a big research project, like a dissertation, into small daily chunks. It can be overwhelming. Personally, I need some indirect social pressure to take a stab and keep at it. As a grad student this indirect pressure came from sharing an office with peers. But when I transitioned to faculty with an office of my own, I also transitioned to work in coffee shops. I needed people around me to feel socially pressured to work.

- EWN: I have fell into a rabbit hole of shiny paper after shiny paper. If I recognize that the rabbit hole is enjoyable, I will schedule a limit. I tell myself "I will devote just 1h and that's it." I think that is a balance between remaining focused for the day and exploring what is out there. I won't discourage rabbit hole exploration though: many of my research endeavors were inspired by unexpected rabbit holes.

Switching gears now. Current research reveals that mental health issues are commonplace in academia. More than 75% of grad students worldwide work more than 40 hours a week, and more than 40% of grad students are unsatisfied with their work-life balance. If mental health issues are so commonplace, why is it hard to discuss them openly? Is there anything we can do, especially as students?

- GB: Much of the faculty wrongly assumes that anybody who goes to grad school wants to continue in academia. And with that wrong assumption, they want to force you like them. The reality is that just a tiny percentage of grad students become faculty. That being said, I would not dismiss recent advances. The talk of "old guard" versus "new guard" is becoming more prevalent, which can bring a change of the status quo. Join student unions and unify your voice. Pinpoint what toxic attitudes are detrimental to your mental health. That gives hard evidence to people like me from the new guard to confront the old guard.

- EWN: Self-advocacy. Work with peers. Gather numbers and data and make a strong case with them. Hard data supporting your complaints can make more than one head turn. However, there is only so much you can do as a student alone. You do whatever little changes you can.

- LB: Academia as a system is like a large cargo ship: any turn will be very slow and very gradual. It's just the nature of the beast. However, as GB pointed out, there is a rising new guard. Change is happening, slowly but happening. That being said, a fundamental problem of the system is that historically it was built to exclude rather than to promote knowledge everywhere, regardless of their "Vision-Mission" wordings.

Following the fact that historically academia was built to exclude people, how do you deal when people make you feel you don't belong here? Did any of you have to go against people's opinions for pursuing your PhD? If so, how did you mute those voices?

- EL: I was explicitly told "You should consider a different career" after failing my qualifying exams the first time in grad school. I felt completely distraught that day. I had a network of people that had my back, nonetheless. As I mentioned before, having a community you can relate to is critical. Both my parents and my academic colleagues pushed me to keep going. Stand your ground and know your worth.

- EWN: I also struggled with the qualifying exams in grad school the first time. I was told that if I was physically not capable of working 10h every day, then I would not succeed in the program. That day was devastating. But just like EL said, I had a committed and supporting external network of family and friends. It was thanks to them that I continued in school despite some faculty explicitly not wanting me there.

The cynic inside me thinks that it is easier to discuss work-life balance when you already have a job and a few papers under your CV. Should I then just put 60-hour long weeks for the next few years, so then I can relax? Any final advice?

- LB: I don't want to be that person, but listen to us old people. Life only gets busier and busier: school, work, family, parents, etc. Research shows that it takes about 2 months of active regular work to develop a habit. That means time commitment, which means that you should develop healthy habits at an early stage. Don't rush. You might feel like drowning right now, but chances are that you will be much busier in the next 10 years and so on.

- GB: Less is more. If you are well rested you can do so much more with time at hand. Overworking is never healthy. Put hard limits on how much of your time goes into work.

- EL: Learn to say no. It can be pretty hard at first, but there is only so much you can focus at a time.

- EWN: Yes. Like EL says, learn to say no. Opportunities come and go. Set the boundaries of what you want in your life now. Those boundaries will take you to a place where such

boundaries are natural and you don't have to force them. If you work 60 hours a week, chances are that you will end up in a place where 60h work-weeks are the norm. If you truly enjoy that grind, then have at it. But if you don't, then there is no point in giving in.

Additional resources provided by panelists

- Living Proof Blog: A wonderful collection of bite-sized blog entries around Resilience in Math. Talented people can stem from any possible background. These blog entries were collected and curated by EL and others.

- A deeply personal account by EWN on overcoming a painful truck crash and later a questioning by a quote-on-quote "slimy dick lawyer". Remember that "your worth is inherent to your human dignity."

- A useful list of tips on how to survive Math Grad qualifier exams by EWT. The tips are based on the qualifiers for the Math Department at Brown, but they pretty much apply to plenty of US programs.

- There are plenty of insightful blog posts by GB in their personal website. This one on student depression, and on healthy group dynamics, and work expectations.

- Insightful blog posts by LB on self validation, self worth, reaction to people different to most of ourselves, among other topics.

Additional peer-reviewed research that supports claims made by panelists

This is just a small sample of all the serious research that is out there on these topics. Send an email to Erik (`eah4d **@** missouri.edu`) if you want to read a paper that is behind a paywall.

Physiological connection between exercise and improved mood

- Daley (2002) Exercise therapy and mental health in clinical populations: is exercise therapy a worthwhile intervention? DOI: 10.1192/apt.8.4.262

- Dinas et al (2011) Effects of exercise and physical activity on depression. DOI: 10.1007/s11845-010-0633-9

- Mikkelsen et al (2017) Exercise and mental health. DOI: 10.1016/j.maturitas.2017.09.003

- Paluska and Schwenk (2000) Physical Activity and Mental Health. DOI: 10.2165/00007256-200029030-00003

Physical limitations to prolonged concentration and importance of breaks

- Blasche et al (2017). Effects of Rest-Break Intention on Rest-Break Frequency and Work-Related Fatigue. DOI: 10.1177/0018720816671605

- Albulescu et al (2022) "Give me a break!" A systematic review and meta-analysis on the efficacy of micro-breaks for increasing well-being and performance. DOI: 10.1371/journal.pone.0272460

Formation of habits

- Carden and Wood (2018) Habit formation and change. DOI: 10.1016/j.cobeha.2017.12.009

- Neal et al (2011) The Pull of the Past: When Do Habits Persist Despite Conflict With Motives? DOI: 10.1177/0146167211419863