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Column Rianne takes her chance

Mental health and doing a PhD

Rianne de Heide regularly writes a column on everyday statistical topics in this magazine.

Is doing a PhD detrimental for your mental health? Is doing a PhD worse for your mental health than losing a parent? It appears so, one would conclude, if one read the many posts about this topic on social media in the past month, all linking to a *Nature* article [5] – that is, not a peer-reviewed publication, but an article in the magazine – titled *The huge toll of PhDs on mental health: data reveal stark effects*. The occasion for this article is a preprint about a longitudinal population study among Swedish PhD students [1].

I find it remarkable that such a magazine article with bold statements is written before the peer-review has been completed. As is often the case, the article itself is much more nuanced than the headline in the magazine, let alone the social media posts. Of course this is a topic that concerns us all in academia, many of us have some personal experience with it, we are all doing / have completed a PhD ourselves, and many of us are supervising students. While I see a lot of attention for this topic, it is mostly limited to accounts of personal experiences, which is of course valuable in itself, but I feel I am missing the bigger picture of whether it is just that, or a more pervasive problem. The preprint [1] provides a good attempt to investigate this (it is not the first one: see e.g. [2] and [3]).

The data included in the study by Bergvall et al. comprised all individuals enrolling in PhD education in Sweden between 2006 and 2017 – it seems therefore to

provide a more representative picture than many self-reporting surveys that have been performed previously (see [4] for a meta-analysis). They investigate the use of psychiatric prescription medication and hospitalisation among this population, compared with the general population, and compared with a matched sample of individuals with a corresponding master's degree who are not pursuing a PhD. The authors conclude: "*We provide evidence that PhD studies are associated with a substantial increase in mental health care uptake*". That sounds a lot more nuanced than the newspaper headlines! One observation that made the headlines too, is that this increase is bigger than the increase after the unexpected death of a parent.

Correlation or causation?

News articles are prone to confusing correlation with causation. I'm always suspicious when I read something about a causal effect, and if I'm really interested in the topic, I download the underlying paper. In their paper [1], the authors compare a number of different events in different groups to investigate confounding of the hypothesis that doing a PhD is *causing* the increase in mental health uptake. One confounding factor that I thought of right away, is that the typical age for starting a PhD is around 22, and a typical onset age for several (severe) psychiatric disorders is about the same. But in the paper, the authors compare the group doing a PhD to matched samples of persons with

the same master's degrees who are not pursuing a PhD, so that convinced me that there might be more going on (in the PhD, that is). One other hypothesis that I thought of is: but what if those who are inclined to start a PhD, are more predisposed for mental health issues than the population of those not wanting to do a PhD? The authors acknowledge that possibility in the paper: "our analysis cannot exclude that individuals who start PhD studies have, on average, a higher propensity for mental health problems than the control group". This thus remains a question.

Some personal experience

My reading about these topics is also coloured by personal experience. To start with, I see many neurodiverse people around me, I believe there is a higher prevalence among academics, than in the general population. I think academia can be a great place for them, if the conditions are right. There are many accounts of toxic working environments in academia – if one follows the university newspapers it seems to be endless – we all should take responsibility to change that, and to be kind and supportive to each other, and in particular to our PhD students. I was lucky to find a great place to do my PhD, despite my mental health problems, and I believe doing the PhD made it much better, not worse. I missed a role model though. I'm happy that I'm now mentoring several PhD students with similar issues. Feel free to reach out if you want to have a chat about it too.



Referenties

- 1 Bergvall, S., Fernström, C., Ranehill, E., & Sandberg, A. (2024). The Impact of PhD Studies on Mental Health-A Longitudinal Population Study. Available at SSRN 4920527.
- 2 Evans, T. M., Bira, L., Gastelum, J. B., Weiss, L. T., & Vanderford, N. L. (2018). Evidence for a mental health crisis in graduate education. *Nature biotechnology*, 36(3), 282-284.
- 3 Keloharju, M., Knüpfer, S., Müller, D., & Tåg, J. (2024). PhD studies hurt mental health, but less than previously feared. *Research Policy*, 53(8), 105078.
- 4 Satinsky, Emily N., Tomoki Kimura, Mathew V. Kiang, Rediet Abebe, Scott Cunningham, Hedwig Lee, Xiaofei Lin, et al. 2021. "Systematic Review and Meta-Analysis of Depression, Anxiety, and Suicidal Ideation among Ph.D. Students." *Scientific Reports* 11 (1): 14370. <https://doi.org/10.1038/s41598-021-93687-7>.
- 5 Schwaller, F. (2024). The huge toll of PhDs on mental health: data reveal stark effects. *Nature*, 634(8033), 277-278.