

Wellbeing and satisfaction among PhD students from the Faculty of Science at the Vrije Universiteit Amsterdam

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Background and methods

Aim: explore the mental health of PhDs, what their contract circumstances are, and how they feel about their PhD content, teaching duties, supervision, personal development opportunities and COVID-19 related matters.

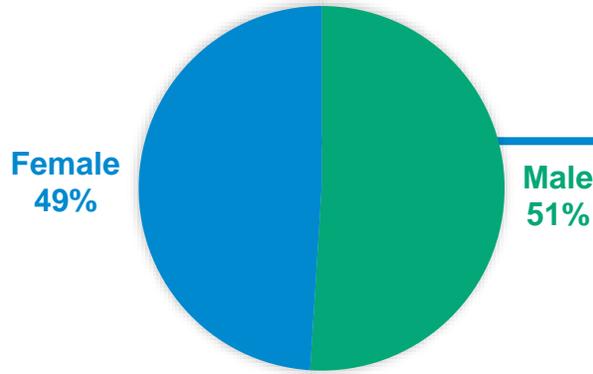
Rationale: over the past years several surveys have been implemented across the Netherlands and Belgium to investigate similar topics. These studies identified substantial mental health issues alongside other important factors related to PhD life (Levecque et al., 2017; van Rooij et al., 2019; van der Weijden et al., 2017; Daas et al., 2015). In the 2017 VU-wide survey among PhDs, the aspects of mental health were not assessed, and other issues were identified as more prevalent within the Faculty of Science, e.g. related to progress and lack of suitable courses (Onkenhout et al., 2016). It is therefore extremely relevant to provide insights on these matters within the Faculty of Science, in general as well as in the context of COVID-19.

Target group: PhDs within the Faculty of Science at the Vrije Universiteit Amsterdam.

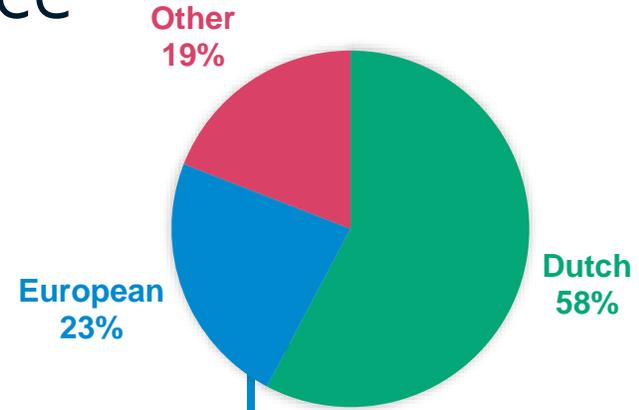
Method: Online surveys. Included questions are based on previous surveys on PhD matters (e.g. van Rooij et al., 2019) and the General Health Questionnaire (GHQ) which is used (e.g. Levecque et al., 2017) to investigate the mental health of PhDs. The full questionnaire is available upon request.

Sample: 174 respondents. Based on available numbers this represents a 34% response rate.

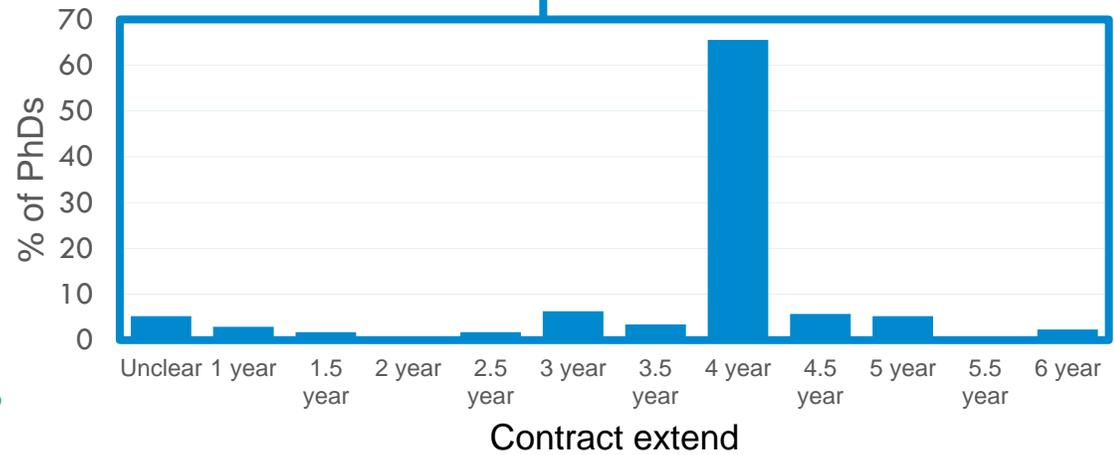
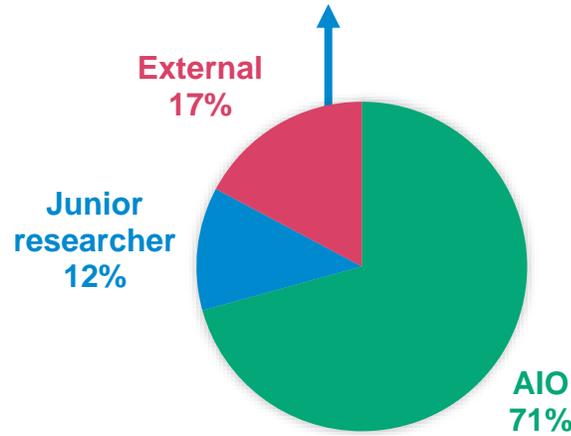
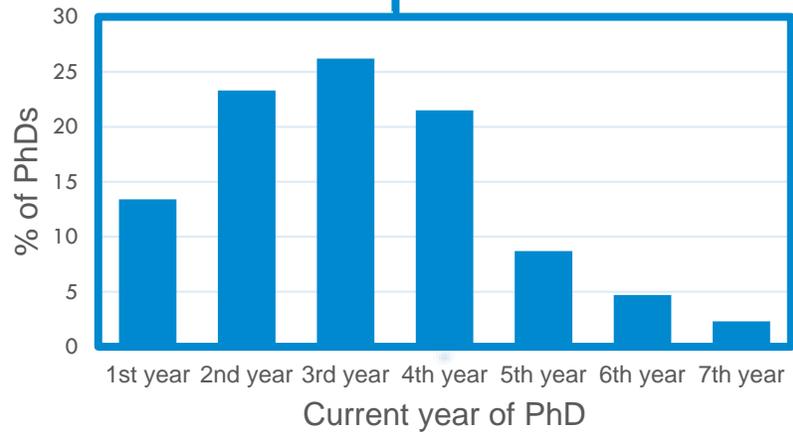
PhD Students at the Faculty of Science



Average age: 28 ($\sigma=4.5$)
11% has children



Faculty of Science

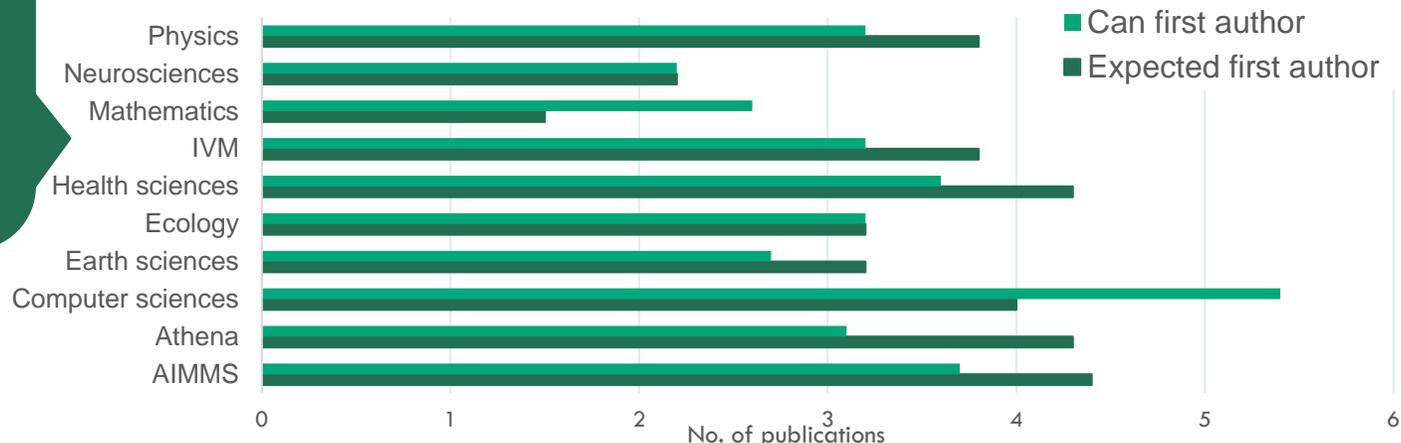


PhD content and workload

How satisfied are you about ... on a scale from 1 (very unsatisfied) to 5 (very satisfied)?



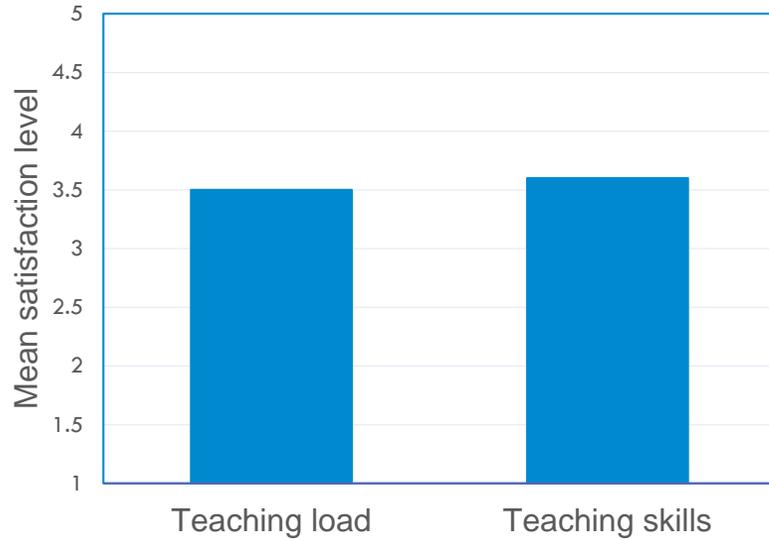
How many first author papers are you expected to publish & how many do you feel you can publish within your contract period?



Insights

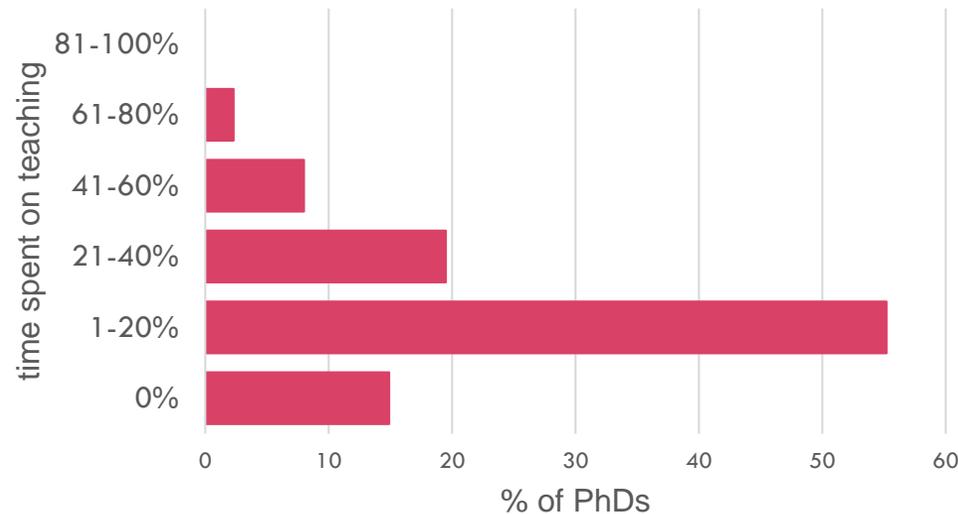
- PhDs are generally satisfied with their PhD content and personal development opportunities. The lowest scores are assigned to courses provided by the VU and their overall progress.
- Satisfaction on workload also ranks lower. 50% of PhDs work more hours than the contract states, and more overtime is related to lower satisfaction on the workload (Spearman's $Rho=-0.191$, $p=0.013$).
- More overtime is also related to higher publishing requirements (Spearman's $Rho=0.202$, $p=0.015$), a lack of support from supervisors in a good work-life balance (Spearman's $Rho=-0.249$, $p=0.001$), and more work pressure from the supervisor (Spearman's $Rho=0.153$, $p=0.046$). 14% experience work pressure from their supervisor that is beyond motivational.
- In 6 out of 10 departments, PhDs feel they can publish less first author papers within their contract period than what is expected from them.
- Apart from a small group, the general consensus is that PhDs can publish 2 first author papers. 70% feels they can publish 3.

Teaching duties



How satisfied are you about ... on a scale from 1 (*very unsatisfied*) to 5 (*very satisfied*)?

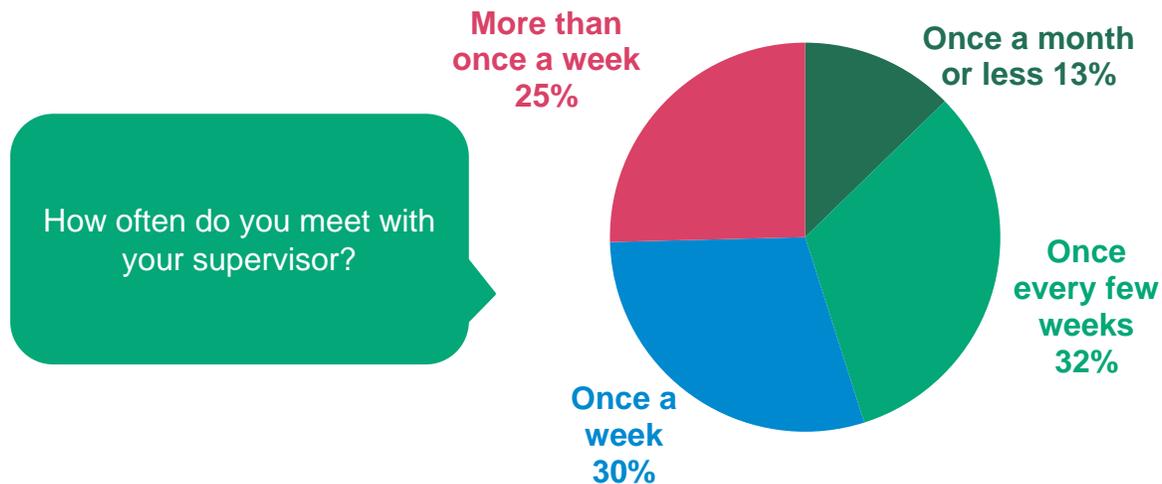
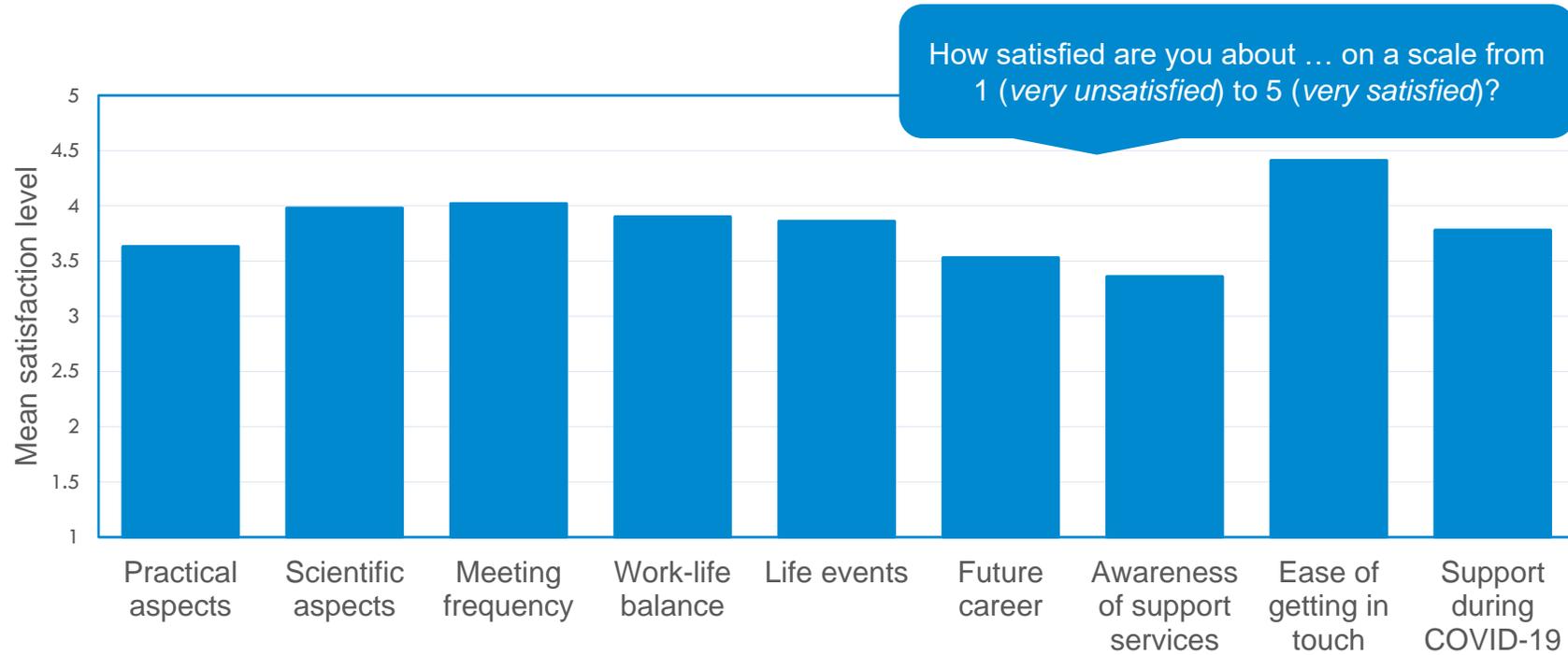
How much of your time do you spend on teaching?



Insights

- Most PhDs spent 1-20% of their time on teaching.
- 30% spends more than 1-20% of their time on teaching, of which 60% is on an AIO contract.
- An increase in the time spent on teaching is related to lower levels of satisfaction on teaching load (Spearman's $Rho = -0.181$, $p = 0.030$) but a higher level of satisfaction on teaching skills (Spearman's $Rho = 0.154$, $p = 0.068$).
- PhDs that spent 1-20% of their time on teaching have the highest scores for satisfaction in regards to teaching load, confirming that PhDs do like to contribute a part of their time to teaching activities.
- There is no relation between contract extend and time spent on teaching, indicating that more time spent on teaching likely means less time for research.

Supervision

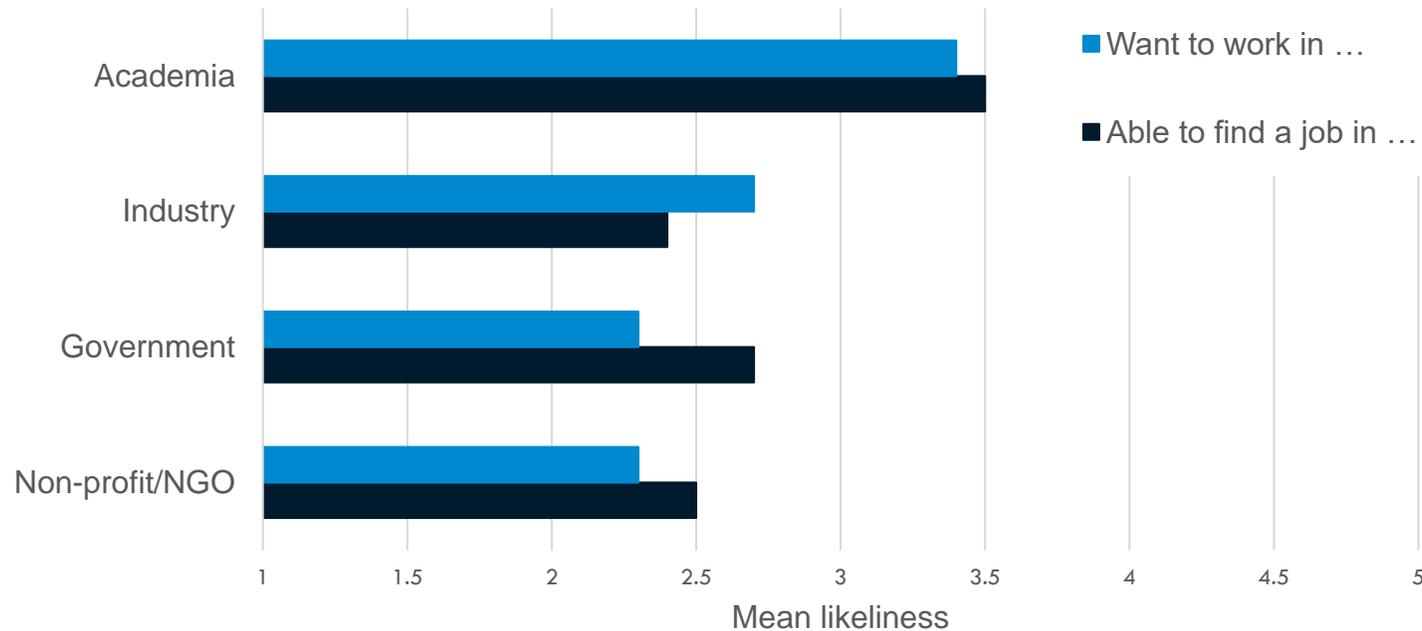


Insights

- 45% meets less than once a week with their supervisor. PhDs tend to meet less frequent with their supervisors when they are further in their PhD trajectory (Spearman's $Rho=-0.259$, $p=0.001$).
- A higher meeting frequency is related to higher levels of overall satisfaction on supervision (Spearman's $Rho=0.375$, $p=0.000$) which is in turn related to how many papers a PhD feels he/she can publish within the contract period (Spearman's $Rho=0.343$, $p=0.000$).
- Although the score for the support in work-life balance from supervisor is relatively high, we find that the average perception of the quality of work-life balance is lower (3.2 out of 5), indicating room for improving the work-life balance of PhDs.
- Over 50% of PhDs choose not to discuss topics with their supervisor that they would actually like to discuss. Main reasons for this are: 1) feeling uncomfortable, 2) feeling supervisors do not have time, 3) feeling supervisors would not understand. This could be related to the lower scores on the supervision aspects discussion of life events and support during COVID-19.
- Further improvements in supervision could come from increased awareness of support services, practical aspects and guidance on future careers.

Future career

How likely do you perceive that you would want to work in one of the following four sectors & how likely do you think it is that you can find a job in these sectors?

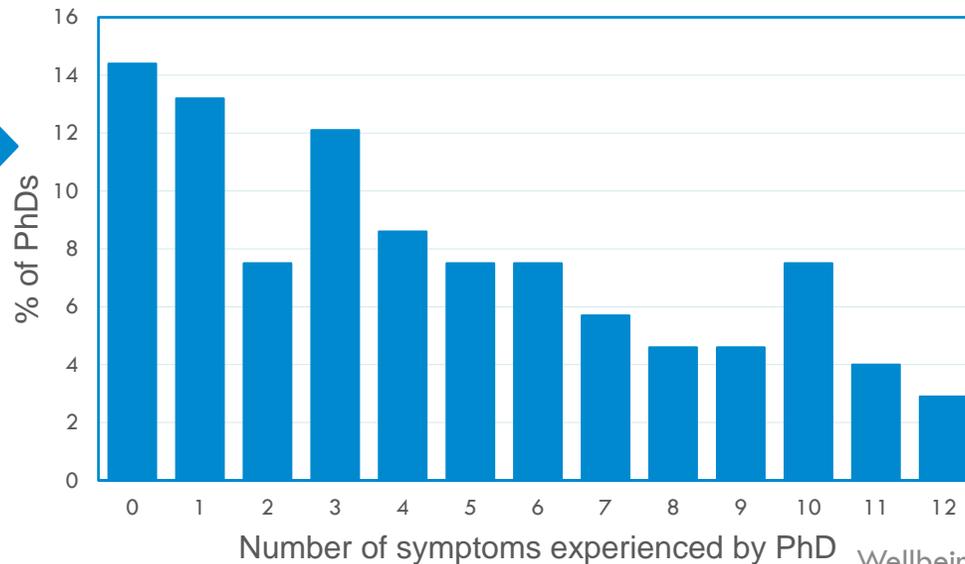


Insights

- Generally PhDs are less satisfied with the support they receive on their future career (see previous page).
- PhDs feel most confident in their own desire and their opportunities to work in academia.
- All other sectors score on average below 3 out of 5, indicating low confidence and desire to work in other sectors.
- This result is concerning since there simply are not enough jobs available in academia for all PhDs. Potentially PhDs do not desire to work in other sectors due to limited knowledge on what is possible in these sectors.
- Positive relations are identified within the sectors, i.e. those that would like to work in industry also feel more confident in getting a job in industry.

Mental health (1)

Symptom	% of PhDs experiencing the symptom
1 Losing sleep over worry	40.8
2 Felt under constant strain	48.9
3 Not been able to concentrate on work	62.6
4 Feeling that I am not playing an useful part in things	40.2
5 Not been able to face my problems	24.7
6 Feeling incapable to make decisions	28.2
7 Feeling I cannot overcome my difficulties	31.0
8 Not feeling reasonably happy all things considered	34.5
9 Not been able to enjoy day-to-day activities	39.7
10 Been feeling unhappy and depressed	40.8
11 Losing confidence in myself	43.7
12 Thinking of myself as a worthless person	17.8



Measured based on Likert scale questions and composed according to standard procedures related to the commonly applied GHQ (e.g. Levecque et al., 2017)

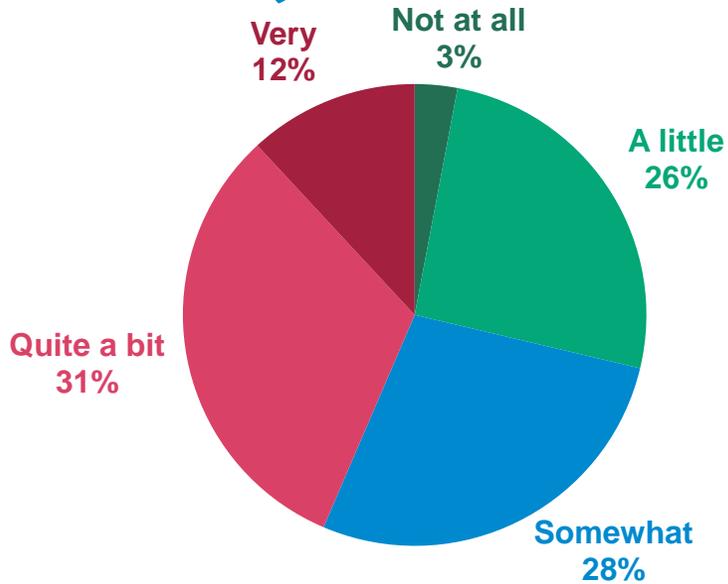
Insights

- 72% of PhDs experiences two or more symptoms and therefore according to the GHQ, is experiencing psychological distress.
- 52% of PhDs experiences four or more symptoms and therefore according to the GHQ, is at risk of having or developing a common psychiatric disorder such as depression.
- The mean number of symptoms among PhDs is 4.5. Although there are differences across the ten departments these are not significant, indicating that the problem does not appear to isolate to (a) certain department(s).
- A higher number of symptoms is related to lower levels of satisfaction on the ability to make a societal impact, the working environment, overall workload and perceptions on progress and performance.
- More symptoms is also related to lower satisfaction on supervision (Spearman's $Rho = -0.342, p = 0.000$), including a lower meeting frequency and higher work pressure from the supervisor.
- The number of symptoms increases sharply after the first year (from 1.8 in the first year to 4.9 in the second year).

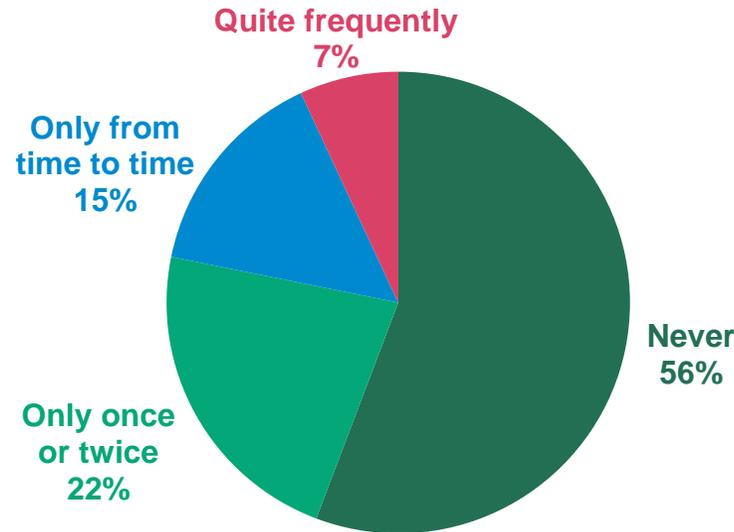
Mental health (2)

Insights

To what extent does doing a PhD makes you feel stressed?



Have you ever considered quitting your PhD?



Factors affecting mental health	Indicated by ...% of PhDs
The research does not progress enough	78
Feeling like it is never enough (work/publications)	44
Lack of publishable results	36
Hearing of accomplishments of others while struggling myself	27
Uncertainty around contract	24

Top 5 stress factors for PhDs

- Only 3% do not feel stressed about doing a PhD.
- A higher number of symptoms is related to how stressed people feel about their PhD (Spearman's Rho=0.484, $p=0.000$).
- 44% have considered quitting their PhD at some point.
- The top five reasons respondents gave for experiencing stress are included in the table. The first three relate to publishing requirements.
- A higher number of symptoms is related to a lower number of publications a person thinks to be able to publish within the contract period (Spearman's Rho=-0.245, $p=0.000$).
- The current COVID-19 crisis may have increased the number of symptoms experienced by PhDs: 64% indicated that COVID-19 had negatively impacted their mental health.
- 30% would not know who to talk to at the university when experiencing mental health issues.
- 48% would be willing to talk to a psychologist if they would experience mental health issues.

International PhDs

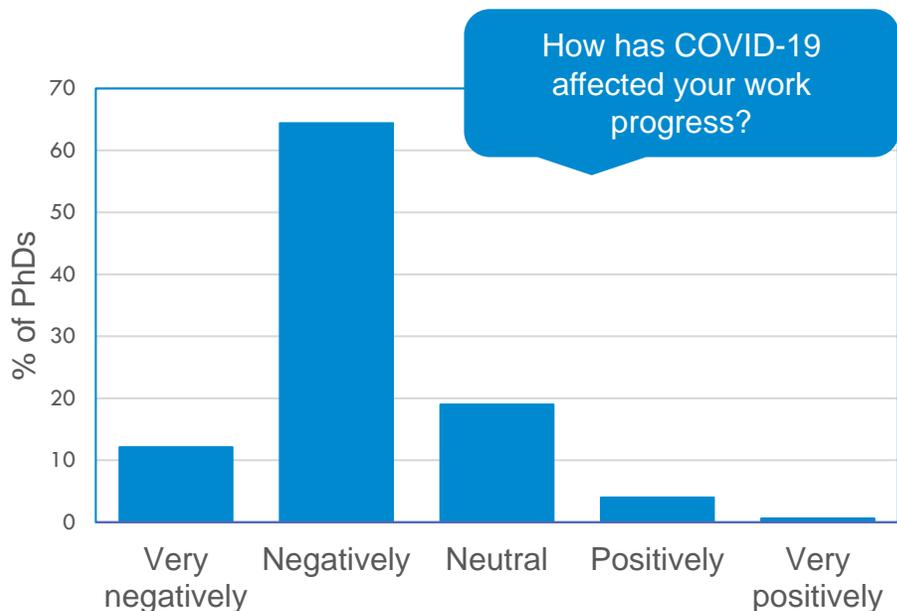
To what extent do you agree with the following statements on a scale from 1 (*completely disagree*) to 5 (*completely agree*)?



Insights

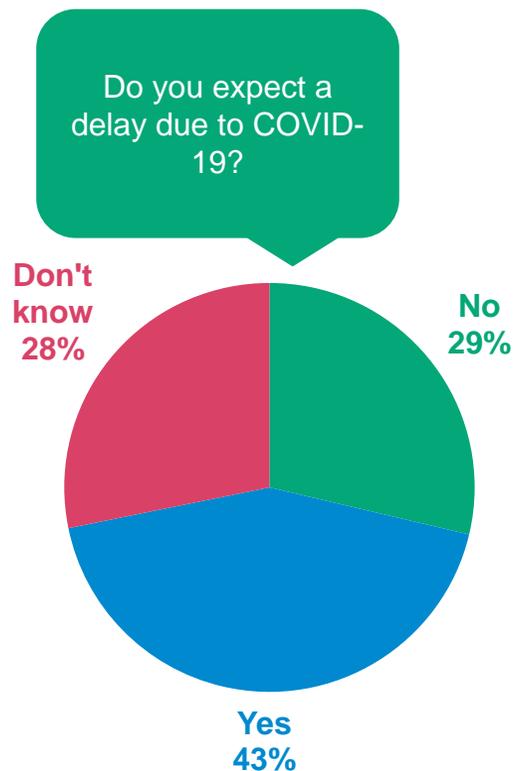
- International (i.e. non-Dutch) PhDs are generally confident in their communication with supervisors and colleagues.
- International students are however having a hard time finding suitable and affordable housing and feel like they lack opportunities to learn Dutch. All the responses from open questions in this category relate to these two topics.
- When international students arrive in the Netherlands it can be challenging and stressful to find acceptable, affordable housing in a suitable location. They need a house before they can get the basics, e.g. BSN, bank account, etcetera.
- Additionally, many international students mention the desire to learn Dutch but point out the high costs that are related to this and that they feel excluded from Dutch local life as a result.
- Compared to Dutch students, international PhDs are less satisfied with the societal impact they can make, their working environment and conference opportunities but they spent less of their time on teaching.

COVID-19



Please rank a top three of the following things that the VU could do for you as a PhD during COVID-19 (the question also included a “nothing” option).

Top 5 potential COVID-19 measures	1st	2nd	3rd	Total number of times selected
Extension of contract	85	21	13	119
More financial support for working at home	17	36	17	70
(more) Reoccupation of the office space	34	22	12	68
Improved communication	16	21	25	62
More technical support for working at home	7	32	20	59



Insights

- More than 75% of PhDs experiences a negative effect of COVID-19 on their progress. This results in that 43% expects a delay due to COVID-19.
- Increased stress about progress is also the most common mental health effect of COVID-19 (50%).
- This is followed by a lack of interaction with colleagues (43%) and social distancing from friends and family (31%).
- Working from home also causes increased loneliness (31%) as well as difficulties due to small living spaces and sharing of work and living spaces (35%).
- Extension of contract is the most desired response to COVID-19. Easing of publication requirements could serve as an alternative to this.
- Financial support for working from home is requested to improve their workplace, i.e. better desks and chairs.
- Improved communication could include 1) getting in touch more often, 2) actively check in on people’s wellbeing, 3) the option to contact a PhD psychologist when desired.
- Other suggestions include coverage of parking costs and extra support on future careers in an increasingly uncertain job market.

Discussion of the results (1)

The previous study conducted at the VU indicated that PhDs from the Faculty of Science were far less satisfied with their training and education (Onkenhout et al., 2016). In our study, we still find low satisfaction on courses provided by the VU among the PhDs within this faculty.

The study of Onkenhout et al. (2016) supports our findings on the relation between supervision, meeting frequency and being able to publish enough papers within the contract period. More specifically, Onkenhout et al. (2016) found that generally PhDs are happy with their supervision, but those that are not attribute that to a lack of time on the part of their supervisor, irregular meetings and less meaningful feedback. 37% indicates that they feel their delay is caused by a lack of supervision.

Finally, multiple previous studies confirm the need for increased focus on future career support (Onkenhout et al., 2016; van der Weijden et al., 2017; Levecque et al., 2017).

Discussion of the results (2)

In regards to mental health, all previous studies indicate substantial mental health issues among PhD students (Levecque et al., 2017; van Rooij et al., 2019; Daas et al., 2015; van der Weijden et al., 2017).

Our numbers are higher than those reported in previous studies. We find that 52% of the PhDs experiences 4 or more symptoms compared to 42% in Groningen, 38% in Leiden, 37% at the UvA, and 32% in Flanders. These differences are likely to be, at least in part, the result of COVID-19.

As in our study, Daas et al. (2015) identify that mental health problems increase over the course of the PhD.

There is evidence that other groups in society, or academics/students at other educational stages, experience fewer mental health problems than PhDs (Levecque et al., 2017; van Rooij et al., 2019; van der Weijden et al., 2017). These results indicate the role of doing a PhD in mental health problems, as reflected in our study.

Conclusions and recommendations (1)

Conclusions regarding workload, content and supervision

1. Publication expectation is generally higher than what PhDs feel they can publish within their contract period.
2. PhDs are happiest with their teaching load when it equals between 1 and 20% of their time.
3. PhDs at the Faculty of Science are generally not that satisfied with the courses provided at the VU.
4. PhDs would prefer more support on their future career, support services and practical aspects.
5. Ongoing supervision support is necessary in relation to the work-life balance.
6. PhDs with a higher meeting frequency are more satisfied with their supervision.

Recommendations regarding workload, content and supervision

1. Ease publication requirements or improve supervision standards by (further) developing a training for new and old supervisors and guidelines for supervisors and PhDs.
2. PhDs should spend between 1-20% of their contracted time on teaching. Currently there are mixed strategies on this across departments, more clarity is needed on what is expected from PhDs and how this will be monitored.
3. More relevant courses could be provided by the VU, or communication on available courses could be improved.
4. See recommendation 1. Wider career support may furthermore be provided through the possibility to receive a few hours of free individual career counseling.
5. See recommendation 1.
6. See recommendation 1.

Conclusions and recommendations (2)

Conclusions regarding mental health

1. Many PhDs are suffering from a number of symptoms related to mental health issues.
2. Mental health issues are stimulated by bad supervision, high publication requirements, poor working environments, and a lack of (perceived) societal impact of the research.
3. Mental health issues increase substantially after the first year.

Recommendations regarding mental health

1. Install a (or multiple) PhD psychologist(s) to provide much needed support.
2. Improve supervision standards and/or ease publication requirements (see previous page), improve working environments, and emphasize or indicate available opportunities for societal impact.
3. Supervision in terms of meeting frequency and quality should not diminish after the first year; continued support is necessary throughout the trajectory. Soft skills on both the supervisor's and PhD's side become more important in the later years.

Conclusions and recommendations (3)

Conclusions regarding international students

1. International students struggle to find housing and thereby organize the basics (BSN, bank account, etc.).
2. International students have limited opportunities to learn Dutch.

Recommendations regarding international students

1. Support “first arrive” housing and/or adapt travel benefits to allow for traveling from other places.
2. Improve accessibility of Dutch courses, i.e. (larger) discounts. Alternatively other spaces and opportunities for language exchange could be facilitated (e.g. through a language café).

Conclusions and recommendations (4)

Conclusions regarding COVID-19

1. PhDs experience reductions in work progress and increased stress because of this.
2. PhDs often lack a good home office space.
3. The mental health of PhDs is negatively affected by COVID-19.
4. PhDs experience increased uncertainty about their future career because of COVID-19.

Recommendations regarding COVID-19

1. Extension of contracts or ease publication requirements.
2. Provide extra support in terms of desks and chairs and/or improve communication on what is available.
3. Install a (or multiple) PhD psychologist(s) (see previous page).
4. Support on future careers, by supervisors and through online individual career counseling, is of higher relevance.

References

- Daas, R., Munneke, G., Bray, H., Goswami, M. & ten Berg, J. (2015). **UvAPro PhD Survey 2015: Are UvA PhD candidates at risk of depression?** Available from <https://www.folia.nl/uploads/UvAPro%20Survey%202015%20-%20Depression.pdf>
- Levecque, K., Anseel, F., De Beuckelaer, A., Van der Heyden, J., & Gisle, L. (2017). **Work organization and mental health problems in PhD students.** *Research Policy*, 46(4), 868-879.
- Onkenhout, H., Worrell, L. & de Kruijk, T. (2016). **How satisfied are PhD candidates about their PhD programme? Quantitative survey among VU Amsterdam PhD candidates.** Available from <https://www.advalvas.vu.nl/sites/default/files/rapport%20ruigrok%20phd%20studenten%20vu.pdf>
- van Rooij, E., Fokkens-Bruinsma, M., Jansen, E. & van der Meer, Y. (2019). **Wellbeing Survey 2018. Aspects of University of Groningen PhD Students' wellbeing.** Available from [https://www.rug.nl/research/portal/publications/wellbeing-survey-2018\(b860ec51-b67a-42d5-ae44-fa98e0f93115\).html](https://www.rug.nl/research/portal/publications/wellbeing-survey-2018(b860ec51-b67a-42d5-ae44-fa98e0f93115).html)
- van der Weijden, I., Meijer, I., van der Ven, I., Beukman, J., Ali, R. F. & de Gelder, E. (2017). **The mental well-being of Leiden university PhD candidates.** Available from <https://openaccess.leidenuniv.nl/handle/1887/59445>