The background of the entire page is a solid dark blue. Scattered across this background are numerous stylized virus particles. These particles are depicted as circular shapes with multiple short, radiating lines extending from their perimeters, resembling coronaviruses. The particles vary in size and are colored in two shades: a light, muted blue and a golden-yellow. They are distributed across the page, with a higher concentration in the lower right quadrant and a few smaller ones in the upper left.

The impact of the COVID-19 pandemic first lockdown period on the work and well-being of academics in the Netherlands

November 2021

A research project carried out by The Young Academy | De Jonge Akademie
The Dutch Network of Women Professors | Het Landelijk Netwerk Vrouwelijke Hoogleraren



Sam Giles @GilesPalaeoLab

“The next person who tweets about how productive Isaac Newton was while working from home gets my three-year-old posted to them!”

Viral Twitter post, @GilesPalaeoLab, 2020

Authors

Thijs Bol, University of Amsterdam | The Young Academy

Belle Derks, Utrecht University | The Young Academy (Alumnus)

Lidwien Poorthuis | Dutch Network of Women Professors (LNVH)



de jonge akademie



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We are grateful to the large group of academics who took the time to complete the survey during a challenging period in which time was all the more scarce.

Of course, our thanks go to the research team that drafted this report: dr. Thijs Bol (UvA/The Young Academy), prof. dr. Belle Derks (UU/alumnus of The Young Academy), and drs. Lidwien Poorthuis (LNVH). We would like to thank prof. dr. Hester den Ruijter (UMCU/The Young Academy), prof. dr. Moniek Tromp (RUG/ LNVH) and prof. dr. Sandra Groeneveld (UL/ LNVH) for their contributions in setting up the research and critical feedback on the analyses, and Dominique Rijshouwer (UU) for her indispensable help with programming the questionnaire. We also thank all the proofreaders and reviewers for their advice on this report.

We would like to draw special attention to the conclusions and recommendations in this report, based on the findings of our study. The Young Academy and the Dutch Network of Women Professors will continue to draw attention to these matters in the near future. While the results of this study speak to the effects of the first lockdown, the COVID pandemic is far from over. We look forward to working collectively, with all stakeholders, to mitigate the impacts of the pandemic and to address the inequalities in the system, which the pandemic has amplified.

Thanks in advance to all who take the contents of this report to heart and are committed to an academic culture in which all talent can flourish.

On behalf of the board of The Young Academy and the Dutch Network of Women Professors,

Prof. dr. ir. Jeroen de Ridder, president of The Young Academy

Prof. dr. Hanneke Takkenberg, chair of The Dutch Network of Women Professors

Introduction

The COVID-19 pandemic has turned life upside down all around the world and the crisis has thrown up major challenges for academics (e.g., Andersen et al., 2020; Staniscuaski et al., 2020). But what impact did it have on academic work in the Netherlands?

In the summer of 2020, The Young Academy and The Dutch Network of Women Professors joined forces to develop a survey aimed at gaining insight into the impact of the first lockdown period (March – June 2020) on the work and well-being of academics.

Our aim was twofold. First, while most studies focused on just one domain of academic work: research, our aim was to take a broader look on the different tasks academic workers have, and study the amount of time they were able to spend on research, as well as teaching, leadership and impact during the first months of the 2020 lockdown. This allowed us to get an overview on which academic tasks suffered and/or strengthened most during the pandemic. Early on in the pandemic, some studies already reported a gap in academics' research productivity (Amano-Patiño et al., 2020; Andersen et al., 2020; Deryugina et al., 2021; Kibbe, 2020). In explaining this gap, care for children is often used as an explanation, but only few studies explicitly measured this factor (Krukowski et al., 2021; Minello et al., 2021). There are however clear signals that the effects of the pandemic differ across groups (e.g., early and advanced career, women and men, academics with and without children, academics with and without the Dutch nationality).

The second aim of this study was therefore to disentangle the effects of academic position, nationality, gender and parenthood and shed light on possible differences between subgroups of academics in how the COVID pandemic affected their academic work. This understanding is of importance to allow the development of more targeted policy interventions. Learning about the effects of the pandemic can facilitate in designing measures to mitigate potential adverse effects of the pandemic, and prevent the outflow of academics - especially from underrepresented groups.

We solicited information about academics' working hours, division of tasks and how their time allocations had changed since the onset of the pandemic. We also asked academics to report a wide range of individual demographic and family characteristics (for example, field of study, career stage, demographic information, presence of partners or dependents) and asked about the levels of experienced stress, exhaustion and work engagement. The Young Academy and The Dutch Network of Women Professors carried out this research in cooperation with all 14 Dutch universities¹. The research was conducted by means of a survey that was distributed amongst all academic staff² in the first weeks of the 2020-2021 academic year, between July 29 and September 21, 2020. 5,920 academic workers in different ranks and positions participated - a response rate of 17%.

In this report, we summarize the most important findings from this survey. The survey provides a snapshot of the immediate impacts of the first lockdown period at a single time-point.

During the pandemic, several individual universities monitored the impact of the crisis on their employees work and well-being through a wide variety of surveys and instruments. However, a general overview of the state of affairs in Dutch academia was still lacking. With this report, The Young Academy and The Dutch Network of Women Professors aim to provide a sector-wide picture of the impact of the pandemic on Dutch academia, propose recommendations for policies and facilitate discussion and action to mitigate the impact of the crisis on academics in the Netherlands, based on research data and results.

1. The survey was also distributed within the KNAW research institutes. See 'Overview of the data', p. 8.

2. Including academic staff at University Medical Centers would have been highly relevant. We recommend separate research to examine the experiences of academic staff at the UMCs during the pandemic.

Management summary

This survey was carried out by The Young Academy and the Dutch Network of Women Professors, in collaboration with the Universities of the Netherlands (VSNU | UNL). The goal was to monitor effects of the COVID pandemic and the lockdown measures taken in spring 2020 on academic staff at the 14 Dutch universities. In total 5,920 academic employees completed the survey (response rate 17%) which was administered between the end of July and end of September 2020. This management summary reports the most important findings and a short overview of the recommendations.

Findings:

1. During the first months of the pandemic, academics in the Netherlands spent significantly less time on research and impact activities, but more time on teaching

- Academics at all ranks reported significant decreases in actual time spent on research. 40% of all academics reported a loss in research time.
- Assistant, associate and full professors reported the largest reduction in actual time spent on impact activities. No mean differences in time expenditure were found between men and women, or between academics with and without the Dutch nationality.
- More than half of PhD-candidates, postdocs, and assistant professors in a tenure track reported COVID-related delays that they expect will prevent them from finishing their projects or meeting tenure track requirements in time.

2. Academics with children reported a much larger impact of the COVID pandemic on their work experiences

- Academics with care responsibilities saw the largest reduction in research time. The reduction in research time reported by academics with young children living at home was twice as large as the reduction in research time reported by academics without children at home.
- Academics with (young) children reported much higher work-family conflict during the lockdown than academics without children in the household. Care responsibilities prevented them from doing their work at the quality they were used to.
- Early career academics (postdocs, academics on a tenure track) with children at home were less likely to apply for research grants.

3. Female academics with children living at home reported stronger negative experiences in combining work with family

- Female academics with young children experienced the highest conflict in combining work with family obligations. They had most stress about having too much work, their research progress, and their future in academia.
- Female academics with children at home tended to be slightly earlier in their career and more often in temporary positions compared to male academics with children at home.

4. Academics reported high exhaustion and pandemic-related stress

- One quarter of the sample reported a high score on exhaustion, indicating that a substantial group of academics felt tired and drained in relation to their job after the first months of the pandemic.
- Academics without the Dutch nationality and early career scholars reported the highest levels of stress.
- Of early career scholars (PhD-candidates, postdocs, assistant professors), 45% reported that they experienced high levels of stress about their future in academia.

5. Leadership was reported more challenging than before the pandemic

- Supervisors and academics in leadership positions perceived their managerial task to be more difficult: 61.9% reported supervising as being more challenging than before the pandemic.
- Although supervisors and leaders indicated having received some tools and support for their task from their organization, a substantial group (32.4%) clearly saw room for improvement.

Recommendations:

To help inform leadership, policy makers, funders, umbrella organizations and the Dutch government, this report provides several recommendations and suggestions for further action that can be thematically summarized as follows:

1. Prevent brain drain: invest in talent retention, especially among precarious groups.
2. Adapt and reconsider criteria for promotion and career advancement in line with the developments of Recognition and Rewards.
3. Promote leadership development and make leadership a more explicitly recognized and rewarded part of an academic's job.
4. Continue to monitor and explore the critical uncertainties generated by the pandemic.

Overview of the data

At the end of August/beginning of September 2020, all academic staff (i.e., PhD-candidates, postdocs, lecturers, assistant, associate and full professors), from the 14 universities in the Netherlands were invited¹ to participate in an online survey on the impact of the COVID pandemic on their career paths. Both staff with temporary and permanent positions were invited. Academic staff at the University Medical Centers did not participate in this study². The survey was fielded between late July and late August. All universities sent one reminder to their staff about the survey. On September 22, 2020, the fieldwork ended.

Response and representativeness

Invitations were sent to 34,049 people at 14 universities and the research institutes of the Royal Netherlands Academy of Arts and Sciences (KNAW), out of which 5,920 completed the questionnaire. This means that the response rate of the survey is 17%. Table 1 shows the number of respondents and the response rate per university. The response rate at the two largest general universities (Utrecht University and University of Amsterdam) is relatively low.

TABLE 1

Response rate per university

Institute employed	Response (N)	Response rate (%)
UNIVERSITY OF AMSTERDAM (UVA)	445	8
VU AMSTERDAM (VU)	275	13
LEIDEN UNIVERSITY (UL)	620	14
ERASMUS UNIVERSITY ROTTERDAM (EUR)	314	25
UNIVERSITY OF GRONINGEN (RUG)	571	21
UNIVERSITY OF TWENTE (UT)	300	17
DELFT UNIVERSITY OF TECHNOLOGY (TUD)	630	18
EINDHOVEN UNIVERSITY OF TECHNOLOGY (TUE)	503	22
UTRECHT UNIVERSITY (UU)	322	9
WAGENINGEN UNIVERSITY AND RESEARCH (WUR)	339	54
MAASTRICHT UNIVERSITY (UM)	514	24
OPEN UNIVERSITY (OU)	85	28
RADBOD UNIVERSITY (RU)	357	21
TILBURG UNIVERSITY (TIU)	284	23
OTHER ^a OR DID NOT RESPOND	361	

^a Other answers include respondents who indicated to work at two institutes (e.g., two separate universities, combination of university and UMC), at KNAW and NWO institutes or other research institutes.

1. All academic staff received an e-mail sent out and signed by the Executive Board of their institution, underlining the support of the Executive Boards for this research project and requesting the academic staff to participate. To be able to maintain uniformity across all participating institutions, the e-mail was drafted by The Young Academy and Dutch Network of Women Professors' research team.

2. Including academic staff at University Medical Centers would have been highly relevant. However, within the time frame we had to set up this study we were unable to mobilize all UMC's to participate. We therefore decided to focus the study on academic staff at the universities. Separate research is needed to examine the experiences of academic staff at the UMCs during the pandemic.

An important question is whether our sample is representative (Groves, 2006). In Table 2, we demonstrate how the sample is spread over different academic positions and find that there is sufficient response across the different academic positions. The comparison with population data (there is quite precise information for 2019 on all scientific employees at the 14 Dutch universities³) makes clear that, proportionally, our sample represents the full population quite well on a descriptive level⁴. In our survey, respondents were asked to classify themselves in one of the categories, whereas the population data comes from official titles. While we cannot account for selective nonresponse, descriptively our sample represents the general academic population of the Netherlands quite well, as is shown in Table 2.

TABLE 2

Academic ranks and sample

	Sample (%/N)	Population (%) ^a
PHD-CANDIDATE	31.9 (1,882)	29.5
ASSISTANT PROFESSOR	25.9 (1,529)	19.0
ASSOCIATE PROFESSOR	10.5 (621)	8.8
FULL PROFESSOR	12.5 (739)	10.9
POSTDOC	9.9 (586)	31.7
LECTURER	4.3 (253)	31.7
RESEARCHER	2.7 (157)	31.7
OTHER	2.0 (117)	31.7

^a See <https://www.vsnv.nl/personeel-in-dienst-van-universiteiten.html>, last visited September 6, 2021.

In Table 3, we present main demographic information about the respondents. Slightly over half of the respondents identified as female. Of the survey respondents, 43 respondents identified as non-binary, and while we acknowledge that, this group has a non-trivial size and is too small to produce reliable statistics. They were therefore not included in the remainder of the quantitative analysis.

About one third of the respondents (37%) had children who live at home. This percentage is almost similar for men and women in our sample, respectively 36 and 38% (not shown in Table 3). About two thirds of the individuals in our sample have the Dutch nationality (63.8%).

In our sample, women are overrepresented in every position, except for the two highest in the academic hierarchy. 48.6% of the associate professors and 35.7% of the full professors in our sample identifies as female, whereas ultimo 2019 29.4% of associate professors and 24.2% of full professors were identified as female (LNVH, 2020). This means that female associate and full professors are overrepresented in this sample.

All disciplines are well-represented in the survey, although gender differences can be found here as well: in Natural sciences and Technology and in Economics and Business there are more male than female respondents, whereas women are the majority of respondents in all other disciplines.

3. See <https://www.vsnv.nl/personeel-in-dienst-van-universiteiten.html>, last visited September 6, 2021.

4. Earlier research has showed that female academics are more likely to participate in studies, and that academics from higher ranks tend to have lower response rates (Smith, 2008). Moreover, it is likely that the non-response is selective on other, unobservable factors. This means that, just like in all surveys, selective nonresponse might affect the findings. We cannot solve this issue, but we can investigate whether employees across all scientific ranks and groups are, at least descriptively, represented.

TABLE 3.

Sample overview

	Total sample	% Women
	% of sample/N	within category
Gender (self-identified)		
FEMALE	52.6 (3,069)	
MALE	47.4 (2,766)	
CHILDREN AT HOME	36.8 (2,162)	
DUTCH NATIONALITY	63.8 (3,775)	
Position		
PHD	31.9 (1,882)	56.9
POSTDOC	9.9 (586)	50.3
ASSISTANT PROFESSOR	25.9 (1,529)	57.6
ASSOCIATE PROFESSOR	10.5 (621)	48.6
FULL PROFESSOR	12.5 (739)	35.7
RESEARCHER	2.7 (157)	55.5
LECTURER	4.3 (253)	53.2
OTHER ^a	2.0 (117)	56.0
Field of study^b		
NATURAL SCIENCES & TECHNOLOGY	31.7 (1,870)	33.8
LIFE SCIENCES	15.6 (925)	62.3
HUMANITIES	11.5 (680)	57.0
LAW AND ADMINISTRATION	7.7 (457)	63.6
BEHAVIOURAL SCIENCE AND EDUCATION	10.4 (610)	76.1
SOCIAL SCIENCES	10.8 (639)	66.6
ECONOMICS AND BUSINESS	9.6 (565)	42.9
OTHER	2.4 (146)	60.0

^a This category includes positions like scientific directors, guest researcher, or a combination of positions. None of the self-assigned "other" codes was reclassified into another code.

^b This classification was taken from https://www.narcis.nl/content/pdf/classification_nl.pdf. Appendix A describes which categories include which specific disciplines.

Data Analysis Methods

In this report we describe the results from the survey. Given the nature of the data, we are not able to make causal claims. We mostly describe our data by visualizing results. The analyses presented in this report are always based on two methods for description: 1) using sample means, 2) using predicted means from a regression model with control variables. In the footnote below each figure or table, you can find which of the two options was applied. The two options are described in more detail below.

Sample means

For some analyses we simply show the sample mean on a specific variable or scale. This is mostly used when describing the full sample, not zooming in on subgroups.

Predicted means from regression

In some analyses we focus on differences between subgroups in our sample, for example by academic position (i.e., whether they are PhD-candidate, postdoc, professor, and so on), nationality (Dutch vs. non-Dutch), gender (self-identified), or having children living at home (yes/no). Whenever we describe group differences, the results are based on regression analyses where we control for the variables mentioned above. We can define our general regression equation as follows:

$$y_i = \alpha + \beta X_i + \delta Z_i + \varepsilon_i \quad (1)$$

In Equation 1, the dependent variable of interest is y measured at the level of the respondent (i). In the figures, you see the predicted effects for the subgroup of interest in that figure (X). When predicting the mean score of each subgroup, we show these means controlled for potential confounders, captured by Z in Equation 1. In the report you will notice that the subgroups we are interested in differ: sometimes it is focused on academic positions, sometimes on gender or having children at home. In all analyses, the following variables are included in the regression equation: (1) a set of dummy variables for academic function, (2) a binary indicator measuring whether someone has the Dutch nationality, (3) self-identified gender of the respondent, (4) a binary indicator measuring whether the respondent has children living at home, and (5) an interaction term between (3) and (4).

In using this method, we are controlling the reported means for the other (potentially confounding) variables. For example, when we describe differences between men and women, or academics with or without children living at home, we control for their academic position and their nationality. This means that the reported means are not driven by the overrepresentation of men in higher academic positions or among international scholars. Whenever we speak of a significant difference, this means that in the regression model the difference was significant for the $p < 0.05$ threshold. The regressions are estimated using robust standard errors.

Variables and scales

Most variables that we analyze are measured on a Likert-scale ranging from 1-5. When not otherwise specific, the variables are not recoded and are analyzed in the way they are measured: ranging from 1-5.

When analyzing family-to-work conflict, work exhaustion, and work engagement, we do not analyze variables directly, but rely on scales consisting of several variables. More information about the items underlying these scales and the reliability of the scales, can be found in Appendix A. In constructing the scales, we took the weighted means over the items.

More information on all variables (e.g., exact questions that were asked and wording used), can be found in Appendix A.

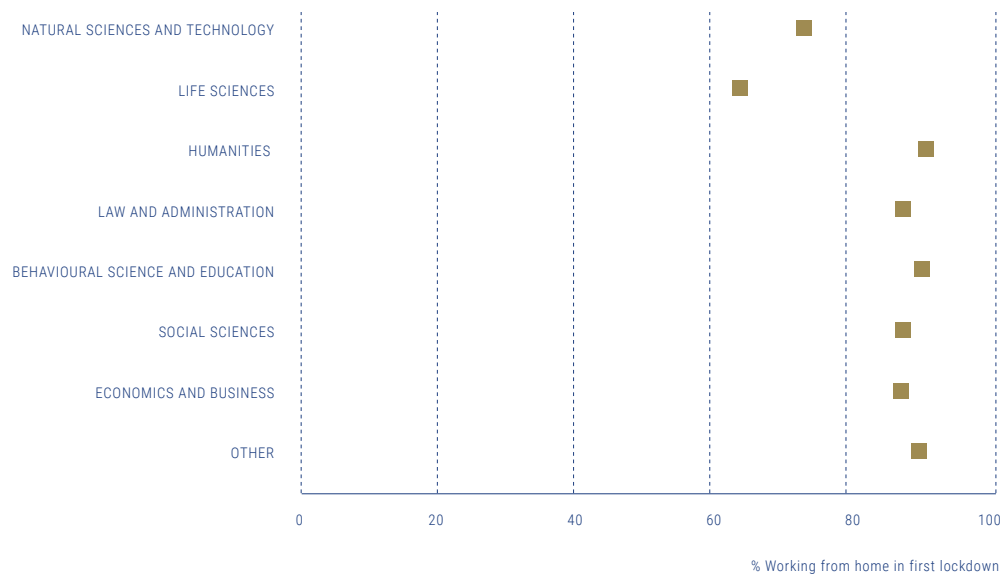
Results

The results presented below all refer to the first lockdown period (March-June, 2020). During this period, the majority of scientific employees in all academic fields worked from home (Figure 1). Moreover, schools and daycare facilities were closed while higher education and management/supervision had to move online rapidly.

As Figure 1 shows, academics from the Life Sciences and Natural Sciences & Technology reported that they worked from home slightly less than others. This finding might be explained by the fact that in those disciplines, necessity to run lab experiments required a higher presence at the workplace.

FIGURE 1

Percentage of academics who only/mainly worked from home^a



^a The markers depict simple means across all respondents.

1. Spending time on research, teaching, management and impact before and during the first lockdown period

Respondents were asked to indicate how much time they spent on research, teaching, management and impact in the months before the pandemic, and during the first months of the pandemic. We then compared how time expenditure had changed in the first months of the pandemic, and examined whether this change was different for various groups of academics.

As depicted in the top panel of Figure 2, across all respondents we find stability in time spent on management. However, compared to the time before the lockdown, respondents reported spending slightly more time on teaching, and less on impact during the lockdown.

The largest loss in time was reported in the research domain: about 40% of the respondents indicated to have less time to spend on research during the lockdown than before. For the whole sample we saw a decrease from 3.57 to 3.16 on a 5-point scale (0.39*sd* - a medium effect size; see text box below for more information on how to interpret effect sizes).

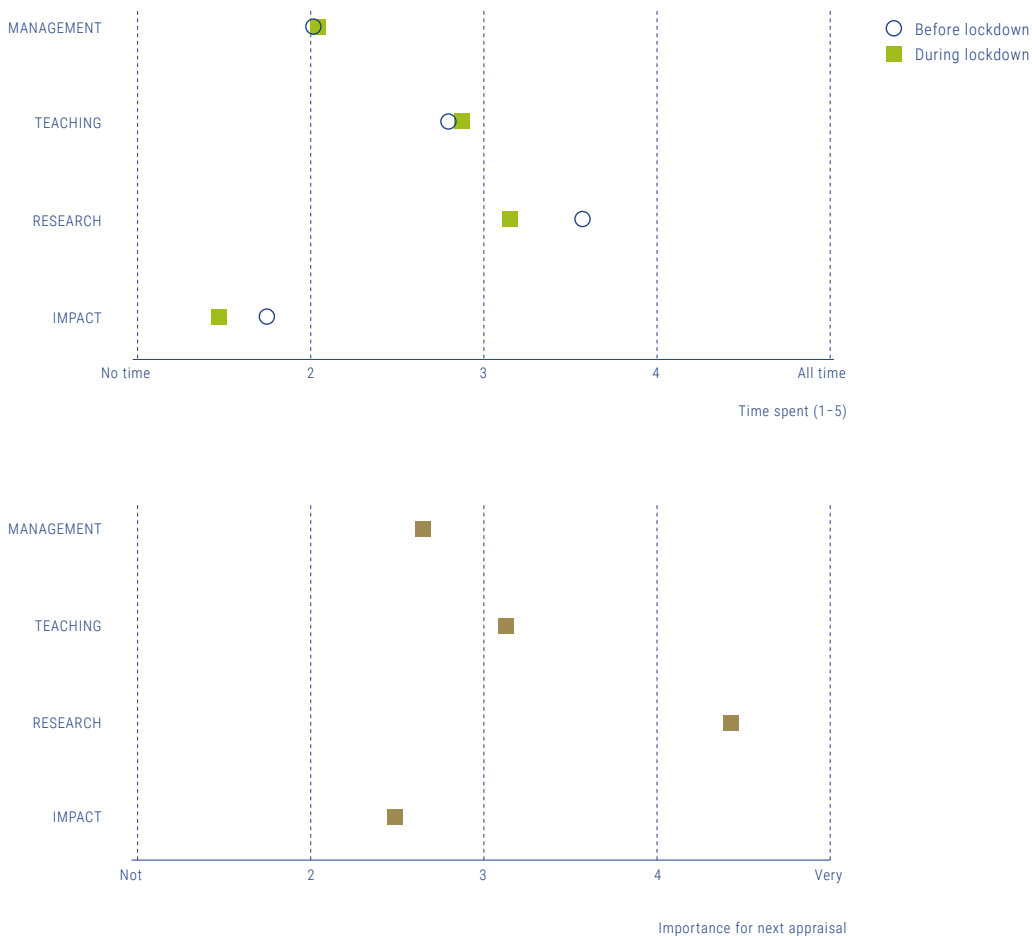
Text box 1. How to interpret the size of effects?

When is a reported difference small or large? In discussing the magnitude of differences, we sometimes talk about a difference expressed in standard deviations (*sd*). The reason for this is that while a variable is measured from 1-5, respondents often do not use the full range. When respondents answer a question very similarly, a mean difference of 0.5 scale point can be a lot. When respondents give very different answers to a question, a mean difference of 0.5 scale point can be very small. How then to determine whether a difference is small or large? This problem is solved by expressing a difference in the number of standard deviations (Cohen, 1988). While interpretation of whether a difference is small or large depends on the question that is asked (Lakens, 2013), an often-used benchmark is that 0.2*sd* is seen as small, 0.4*sd* as medium, and 0.8*sd* as large. For example, in the report we find that academics with children score 1.3*sd* higher on having a conflict between family and work. This can be interpreted as a very large effect.

We also asked academics to consider the various tasks that they performed during the first lockdown period of the pandemic, and asked them which tasks they expected their supervisor to assess them on at a later stage. Interestingly, the right panel of Figure 2 shows that the domain that suffered most - research - was also seen as the most important domain on which respondents were expecting to be assessed by their supervisors. Teaching, management and impact were seen as much less important for how they would be evaluated.

FIGURE 2

Time spent before/during lockdown on research, teaching, management and impact, and expected importance of these domains for next performance appraisal^a



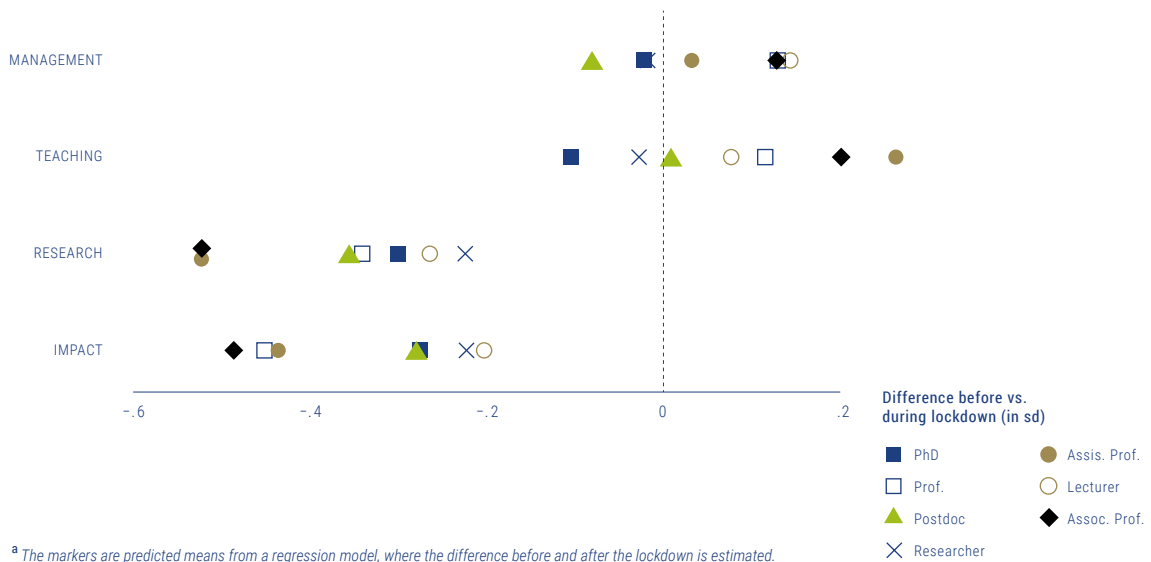
^a The markers depict simple means of the survey items across all respondents.

No mean differences in time expenditure were found between men and women, or between academics with and without the Dutch nationality. However, the experienced losses in time spent did differ depending on the position that respondents held. As depicted in Figure 3, the least change in time spent on research *during* compared to *before* the lockdown was reported by PhD-candidates, post-docs, full professors, lecturers and researchers. The experienced loss of research time was most strongly found among assistant and associate professors: 54% of both groups report a loss in research time, compared to, for example, 39% of the full professors and 27% of the PhD-candidates.

Assistant and associate professors are also the two groups that spent significantly more time on teaching during than before the lockdown (respectively 0.26sd and 0.20sd). Time spent on impact activities was most strongly reduced among assistant, associate and full professors with much smaller changes among the other groups. With regard to management, we observe some small increases for lecturers, associate and full professors, but none of these changes were statistically significantly different from zero.

FIGURE 3

Difference in time spent before/during lockdown for academics across academic positions^a

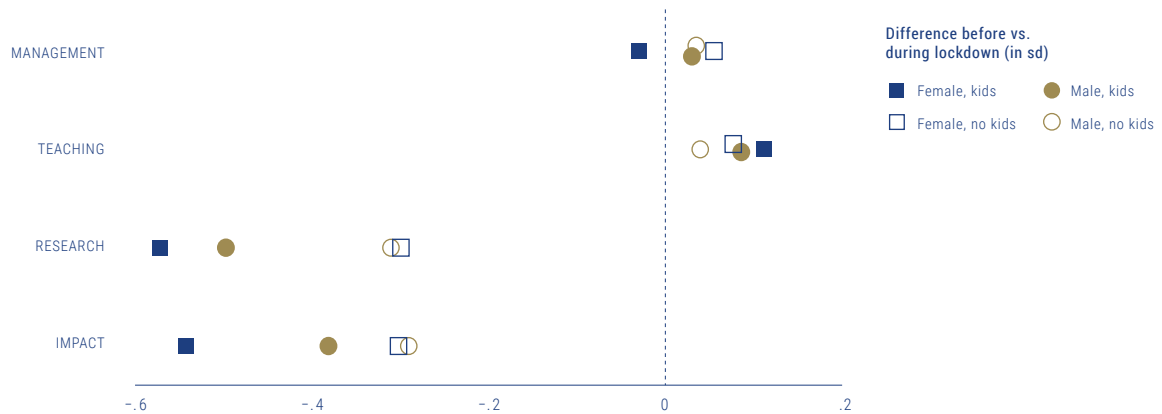


The most important factor that was associated with perceived loss in research time was whether academics had children living at home (Figure 4). The research time of both men and women with children at home (36% of men and 38% of women in our sample) showed the largest decrease. Of academics with children at home, 51% reported that the pandemic decreased their research time, compared to 32% of academics without children. Moreover, the reported losses were twice as large as those of academics without children in their household (Figure 4).

There were no significant differences between men and women with and without children at home when it comes to management or teaching. For impact we do find that women with children reported a larger decrease in time spent than the other groups.

FIGURE 4

Difference in time spent before/during lockdown for academics (m/f) with/without children^a



The extent of this “child-effect” was different depending on the age of the children at home (Figure 5). The total loss of research time was observed in the group of respondents¹ who had at least one child between ages 0-3 at home. For men and women with children in primary education, the decrease in research time was still large but slightly smaller. For women however, the decrease in research time was about 33% larger when their youngest child at home was aged 0-3 compared to 9-12. For men with children aged 0-3 the research loss compared to men with their youngest child in the age 9-12 was slightly smaller: 24%.

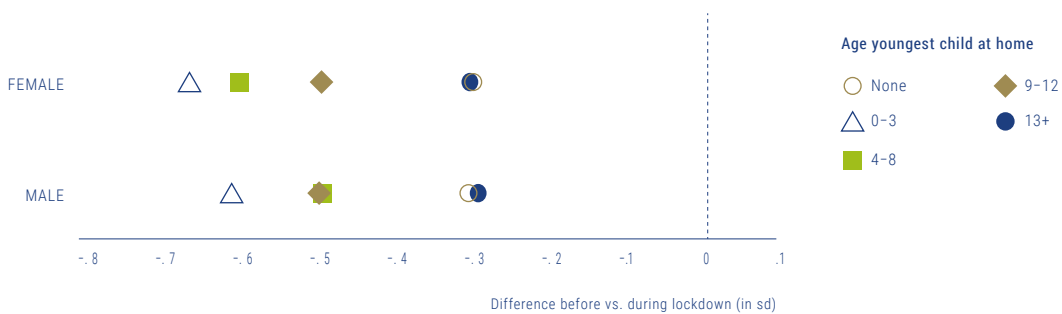
Figure 5 shows that there were no significant differences in the perceived loss of research time between those where the youngest child was 13 or older and those who had no children at home.

After controlling for parental status, we did not find significant differences between male and female academics in the decline in research time, indicating that the association between children at home and perceived time expenditure was fairly similar for men and women working in universities.

The results of this survey show that everyone experienced a loss in research time - also those without children at home. However, the group of respondents with major care tasks during the first lockdown - in this case for young children - reported the strongest perceived loss of research time.

FIGURE 5

Difference in research time spent before/during lockdown with differently aged children at home^a



^a The markers are predicted means from a regression model, where the difference before and after the lockdown is estimated.

2. Combining work and family during the first lockdown period

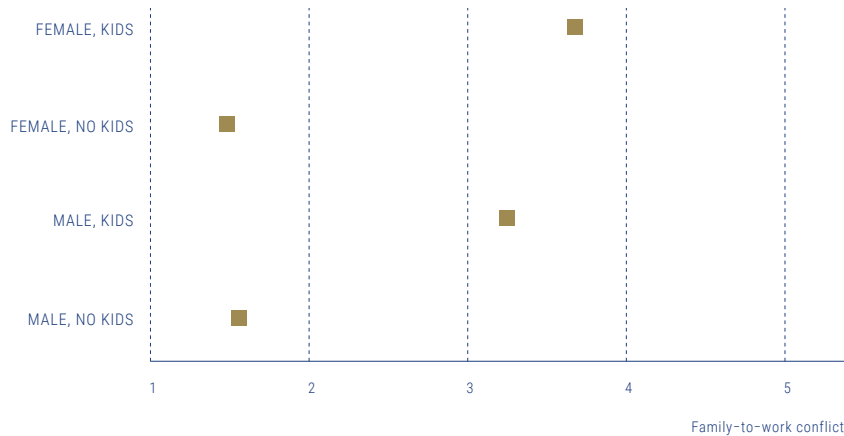
A big challenge of the lockdown for all workers - and therefore also those in academia - was to balance work and family lives and to deal with the conflict that arose between the work role and the family role during the lockdown. Our results indicate that the lockdown indeed created large conflicts between the two; the respondents reported high scores on the family-to-work conflict scale (see Figure 6). Respondents indicated that they did not manage to do all their (work related) tasks, and reported that the stress of taking care of their families prevented them to do their work at the standard they were used to.

1. When we speak of a decrease or loss in research time, it is a perceived decrease and a perceived loss as respondents were asked to estimate time spent on research before and during the first lockdown.

Again, we find differences between groups here, the most prominent one being between respondents with and without children at home². As depicted in Figure 6, respondents with children living with them reported much higher work-family conflict: the gap between respondents with and without children at home was about 1.8 on a 5-point scale, or a difference of about 1.3sd. There was no significant difference between men (1.49) and women (1.42) without children, but work-family conflict was significantly larger for female respondents with children at home (3.61) than male respondents with children at home (3.18).

FIGURE 6

Family conflicting with work^a



^a The markers are predicted means from a regression model.

If we take a closer look at the different age categories of the children at home, we see that particularly when the children at home were younger, the reported family-to-work conflict was larger. In Figure 7, we see that the largest conflict arises when at least one child in the household is under 4 or under 9 years old. Here female academics with children at home scored on average a 4 on work-family conflict (on a 5-point scale), this being slightly (but significantly) lower for men.

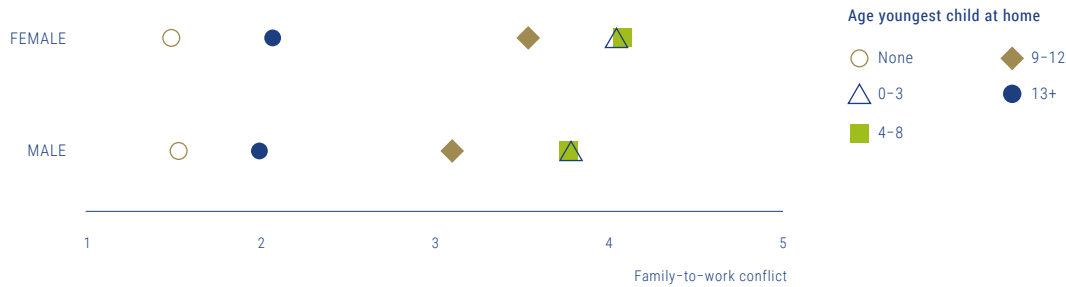
Parents of children in the ages 9-12 still reported high levels of conflict, and again female academics with children at home a bit higher than male academics with children at home. When the youngest child was 13 or older there was a large drop in the perceived conflict. When care tasks were scored high, the conflict with work was scored high too.

Please note that although in this report we only assessed the effects of parental status on the family-to-work conflict, it is likely that the negative effects of the COVID pandemic on the conflict between work and family life extends to everyone who had to deal with significant care responsibilities.

2. There was also a small but significant difference between academics with Dutch and non-Dutch nationality (the latter reporting 0.17 points higher work-family conflict on a 5-point scale). Moreover, on average full professors reported lower work-family conflict than academics in other positions (differences ranged between 0.35-0.55 on a 5-point scale).

FIGURE 7

Family conflicting with work by age of youngest child^a



^a The markers are predicted means from a regression model.

3. Differences in career stage between male and female academics with child care responsibilities

Our results show that male and female academics with children living at home reported that their research time was affected to the same degree. However, among academics with children, women reported to experience a higher conflict between work and family than men did. Another point to take into consideration is the career stage of male and female academics who have children at home. In the current sample we find that among the respondents with children living at home, women were in slightly earlier and more precarious career stages than men.

Among female academics with children at home, 58.4% was working in an early-career position (PhD-candidate, postdoc, or assistant professor) compared to 46.6% among male academics with children. Similarly, 23.4% of female academics with children at home had a temporary position, compared to 17.4% of male academics with children. Finally, among male academics with children, 26% had already made it to full professor, compared to 13.4% for female academics with children.

To conclude, although combining work with child care responsibilities during the first lockdown resulted in similar reports of decreased research time among women and men, these additional findings indicate that the possible negative effect on research output that may have developed in the year following the first lockdown may hit female academics at more precarious stages in their career.

4. Reported work engagement and levels of exhaustion during the first lockdown period

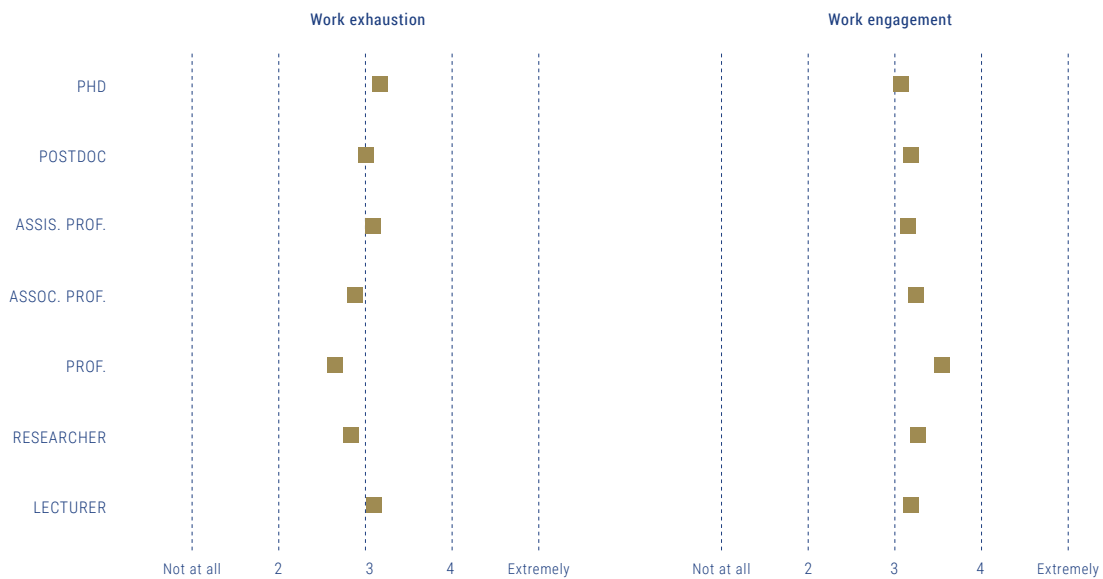
In the survey we assessed respondents' work-related engagement (i.e., how much energy and dedication they experienced at work), and the exhaustion they experienced related to work. On average the sample scored 3.19 on work engagement and 3.02 on work-related exhaustion. These means mask important variation. First, 25.3% of the sample reports a high score on exhaustion (4 or higher), indicating that a substantial group of the staff felt tired and drained in relation to their job after the first months of the pandemic. Moreover, we find disparities in work engagement and exhaustion among academics in different academic positions (Figure 8).

As the means reported in the left panel in Figure 8 show, exhaustion-related complaints were particularly high among early career scholars (PhD, postdoc, and assistant professors), and lower among associate and full professors. 28.7% of the PhD-candidates reported a score of 4 or higher on the exhaustion scale, and a similarly high percentage was found for postdocs (26.8%), assistant professors (27.9%) and lecturers (28.4%). Conversely, only 14.6% of full professors reported a score of 4 or higher.

For work engagement (Figure 8, right panel), this image is mirrored. Here the full professors reported feeling most engaged, enthusiastic and energetic at work, compared to academics in other positions.

FIGURE 8

Experienced exhaustion and work engagement^a



^a The markers are predicted means from a regression model.

Apart from differences between academics in different positions, there were some more minor differences found between subgroups. First, academics with children at home scored slightly higher on work engagement (both men and women) than those without children (a small difference of 0.10, or 0.11sd). Although surprising at first, previous studies (e.g. Van Steenbergen et al. 2007) have found that work and family roles can actually benefit each other, for example when positive experiences at home facilitate keeping up engagement at work. Moreover, women reported a slightly higher score on work exhaustion than men (a minor difference of 0.10 or 0.09sd). Academics without the Dutch nationality reported higher exhaustion scores, (a difference of 0.17 or 0.16sd) and lower work engagement scores (a difference of 0.11 or 0.13sd) compared to academics with a Dutch nationality.

Please note that we cannot isolate whether differences between subgroups in the scores on work engagement and exhaustion are caused by the lockdown - it might very well be the case that different groups of academics scored differently on work engagement and exhaustion even before the pandemic. A second wave of the current questionnaire would be helpful to test whether differential experiences during the lockdown predict changes in work engagement and exhaustion over time (e.g., whether experiences of hardship during the lockdown predict reduced work engagement and increased exhaustion over time).

5. Experienced levels of stress and anxiety during the first lockdown period

Respondents were asked to rate the amount of stress and anxiety they had experienced in the first months of the pandemic with regard to several domains, such as stress about mental and physical health, progress of research projects, lack of contact with colleagues and stress concerning ones' future in academia. Across the board, academics from different ranks experienced stress about the lack of contact they had with colleagues, their research progress and the health of relatives (Figure 9). We found that some concerns were larger for specific subgroups.

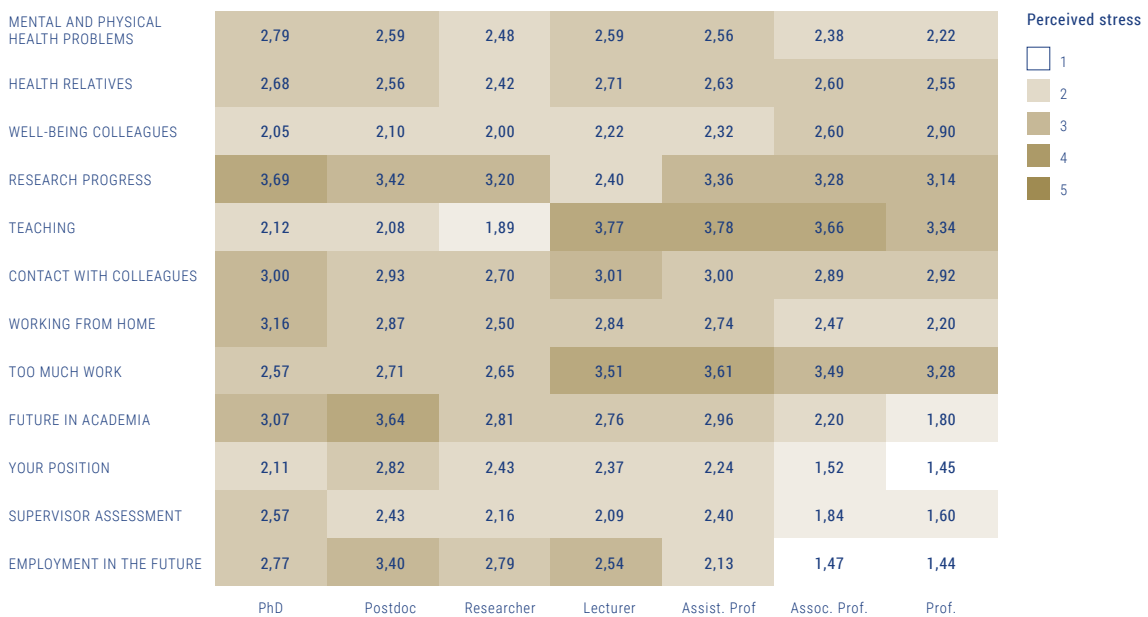
Figure 9 shows that academic staff working in temporary positions experienced the highest levels of stress in the first months of the pandemic. Although stress related to the progress of research projects was high for academics in all positions, PhD-candidates and postdoctoral researchers scored highest in this regard. On other factors we also find a clear difference in the stress experienced between academics in more established versus more early career positions. Mental and physical health problems were largest among PhD-candidates - compared to, for example, associate and full professors³. Academics in more junior positions also much more often reported stress about difficulties regarding working from home and how their supervisor would assess their performance.

Worrisome is the large number of PhD-candidates, postdoctoral scholars, and assistant professors who report high levels of stress about their future in academia. Particularly postdoctoral researchers reported relatively high levels of anxiety about whether they will have a job in the future or whether they have a future in academia at all. This stress is much lower amongst workers with permanent contracts, such as associate and full professors. This is not to say that more established academics did not report to be stressed and anxious in the first months of the pandemic. Academics at higher ranks (associate and full professors) reported a higher concern about the well-being of their colleagues and staff. Moreover, compared to PhD-candidates and postdocs, academics at assistant, associate and full professor levels reported more stress concerning matters of teaching and having too much work. A similar pattern was found for lecturers, who reported high levels of stress concerning their workload, matters related to teaching and difficulties related to working from home.

3. While this might seem like a small difference in the figure, it amounts to about 0.5*sd*.

FIGURE 9

Stress and anxiety experienced amongst academics in the lockdown^a

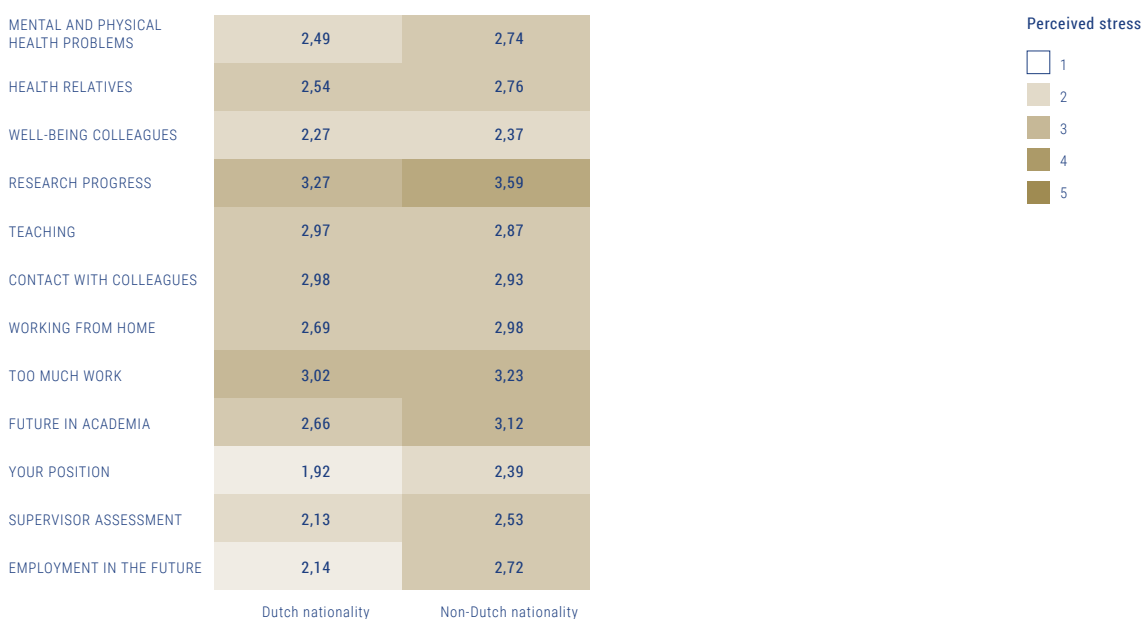


^a The numbers in the table are predicted means from a regression model.

In addition to differential levels of stress experienced by academics in different positions, we also found experiences to differ between international scholars and academics with a Dutch nationality (Figure 10). International scholars reported higher stress concerning their future in academia, the progress of their research projects, how their supervisor would assess their performance and whether they would have a job in the future. Smaller differences were found on stress related to their own mental and physical health and the health of people close to them, difficulties related to working from home, having too much work, and their position at the university.

FIGURE 10

Stress and anxiety experienced by academics with Dutch versus other nationalities^a

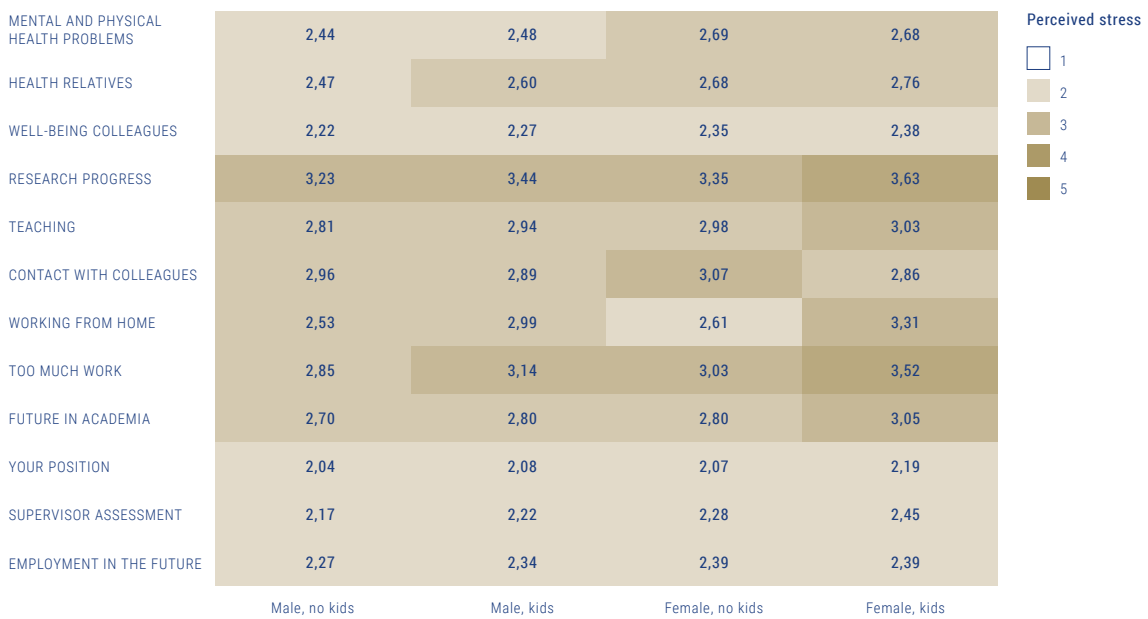


^a The numbers in the table are predicted means from a regression model.

There were some minor differences between men and women in the levels of the experienced stress and anxiety. On average women reported somewhat higher stress than men about their own and others' health, and the well-being of colleagues. In line with the results found for work-family conflict, some stressors were particularly high for women with children (Figure 11). Compared to women without children and men with and without children, women with children reported higher stress and anxiety about working from home, and having too much work. Similar but smaller effects were found for the stress and anxiety that women with children reported about their research progress, future in academia and how their supervisor would assess their performance. These results signify a particular vulnerability for women academics with children (i.e., at the intersection of parental and gender identity).

FIGURE 11

Stress and anxiety experienced amongst male and female academics with and without children at home^a



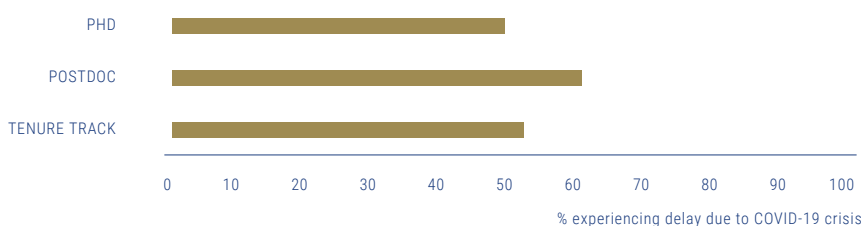
^a The numbers in the table are predicted means from a regression model.

6. Specific concerns of PhD-candidates, postdocs and tenure trackers

Figure 12 shows the experienced effects of the pandemic for three groups on fixed term contracts (PhD-candidates, postdocs and academics on a tenure track). The figure presents the percentage of academics that experienced a delay in their projects or tenure tracks which (in their perception) could mean that they would not finish their project in time or meet the original requirements of the tenure track. This percentage was highest for postdocs (60%) and about half of the PhD-candidates and academics on a tenure track were experiencing delays because of the lockdown. While large groups had experienced delays at the start of the 2020-2021 academic year, please note that during the time of the survey very few concrete arrangements had been made within universities on how to deal with the delays. This situation may have improved by now.

FIGURE 12

Percentage of junior academics experiencing delays due to the COVID-19 crisis^a



^a The bars are simple means for the three groups.

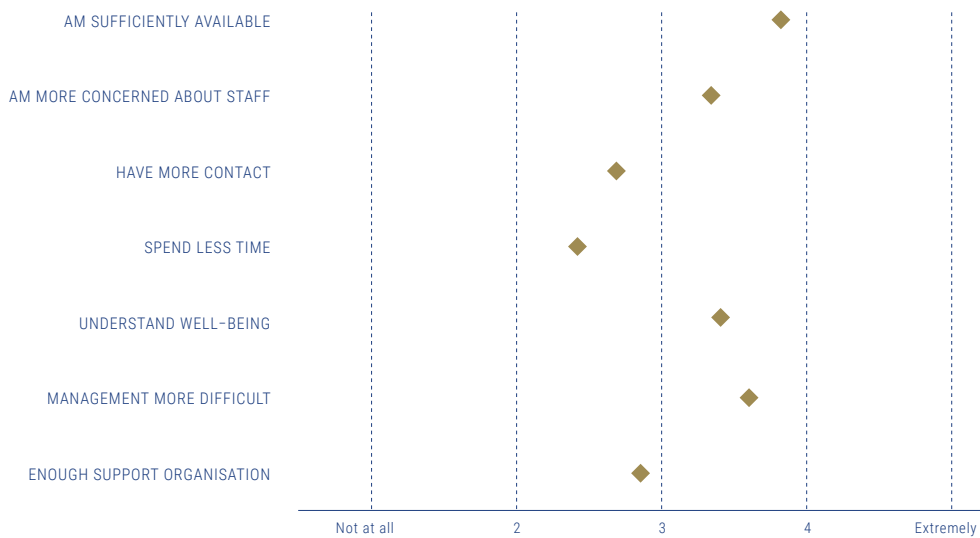
In the survey we also asked postdocs and academics on a tenure track whether the pandemic hindered them in applying for grants. For every scholar, yet specifically for early career scholars securing a grant can have large career effects (Bol et al., 2018). On the five-point scale, the average score was 2.98, and 38% indicated that the COVID pandemic hindered them to apply for grants (scoring a 4 or 5). We find substantial differences between subgroups in academia again. Early career scholars with young children at home felt significantly more hampered. The average difference between early career scholars with and without children is 0.16sd. This difference is mostly driven by men with young children (3.24 on the 5-point scale) feeling more hindered than men without children (2.98). The difference between women with children (3.02) and without children (2.80) is slightly smaller and does not reach statistical significance.

7. The first lockdown period from a leadership perspective

About 37% of the respondents in the sample reported being in a management role. In Figure 13, we show how supervisors experienced their tasks during the lockdown. On average, supervisors thought that they were sufficiently available and more concerned about their staff than before the pandemic, although they also indicated having less contact and spending less time with their staff than before the pandemic. Figure 13 also shows that academic staff in supervisory positions experienced management as more difficult than before the pandemic. Almost two thirds of the supervisors (61.9%) reported that their supervisory tasks became more difficult due to the COVID crisis, scoring a 4 or 5 on the 5-point scale. Finally, with regard to the tools and support provided by their organization for their managerial role, supervisors saw some room for improvement, with an average of 2.85 on a 5-point scale and 34.7% being not satisfied with organizational support (scoring a 1 or 2).

FIGURE 13

Experience of academics with management role during lockdown^a

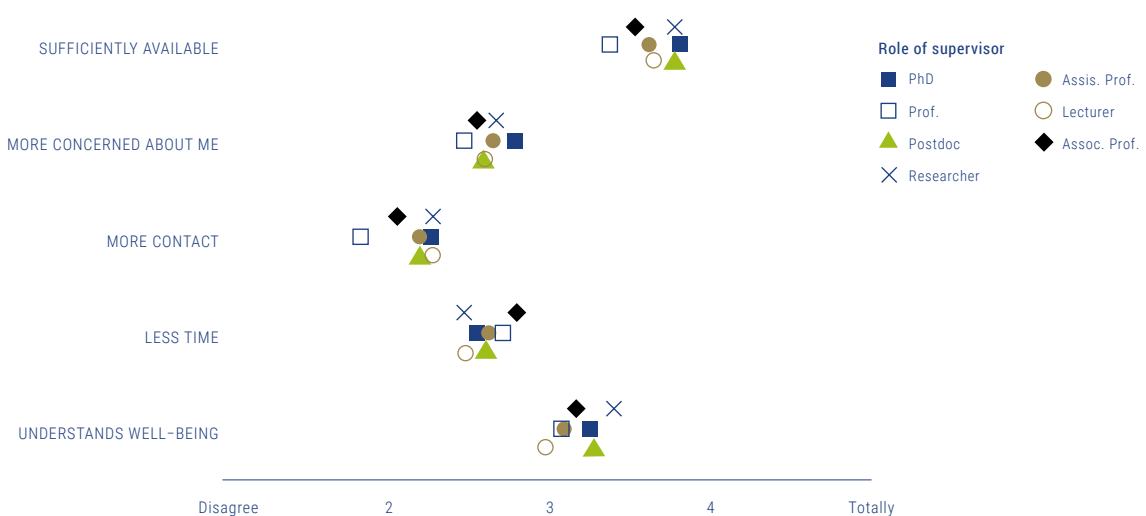


^a The markers represent simple means across all supervisors.

While many academics are supervisors, almost all have supervisors or superiors themselves. In Figure 14 we show the extent to which employees in different academic positions experienced their supervisors as being there for them. We find very little differences between academics in different positions, although full professors reported the lowest scores across the board. On average, academic workers reported that they did not receive more attention from their supervisor compared to before the pandemic but that they nevertheless felt that their supervisors were sufficiently available. This is quite in line with the experience of the supervisors. Also, when we look at the extent to which supervisees felt their supervisor to be concerned about them, or understood their well-being, the pattern in Figure 14 largely resembles the pattern in Figure 13. This suggests that, on average, the experiences of supervisors and supervisees were quite similar. There was a small effect of nationality on the different attitudes about the supervisor: International scholars were somewhat more positive about their supervisor than academics with a Dutch nationality (differences from 0.12-0.25 on 5-point scales).

FIGURE 14

Employees' opinion about their supervisor's role during the lockdown^a



^a The markers are predicted effects from a regression model.

Conclusions and recommendations

It is clear that scientific research has played an essential role in guiding the approach to managing the impact of COVID-19. However, it is not yet clear how the COVID-19 pandemic has impacted and continues to impact academic work in the Netherlands, worker's performance and well-being, and their capacity to fulfill their academic responsibilities.

The current study is the first sector-wide survey with a large respondent group that examines the impact of the first lockdown period (Spring 2020) on academics in the Netherlands. In comparison to many existing studies based on survey data (see, for example, Krukowski et al., 2021), we analyze a large sample making it possible to focus on different subgroups (e.g., early and advanced career, women and men, academics with and without children, Dutch and non-Dutch), that were not analyzed in many other studies (e.g., Amano-Patiño et al., 2020; Andersen et al., 2020; Kibbe, 2020). Moreover, in the spirit of current modernization efforts of the system of Recognition and Rewards in Dutch academia, our study focused on the total width of academic work: not just research output, but also teaching, leadership, and impact.

The results presented above show the importance of looking at the effects of the COVID-19 pandemic on academia through this lens. We find that, on average, academics saw large decreases in the time they spent on research and impact, whereas time spent on teaching increased. At the same time, these effects differed across groups: the decrease in research was particularly large for academics with young children at home and thus large child care responsibilities. Early career academics were most worried and insecure about their future in academia and reported very high stress levels.

To help inform leadership, policy makers, funders, umbrella organizations and the Dutch government, we provide several recommendations and suggestions for further action based on the findings presented in this report. With these recommendations for concrete actions, we hope to boost the conversation on how to mitigate consequences of the pandemic for academia, such as the outflow of young academics – especially those of underrepresented groups or academics in precarious positions – this way contributing to the sustainability of Dutch academia.

Recommendations based on main findings:

1. Prevent brain drain: invest in talent retention, especially among precarious groups.

Given that the current survey revealed that the impact of the COVID pandemic was particularly large for certain groups, it is important that action is taken to provide additional support to these groups to prevent brain drain. First, academics who had to combine their work and childcare, especially for young children, experienced a much stronger conflict between work and family obligations (with women even slightly more so than men), and a larger reduction in their research time than academics without young children in their household. Second, academics at earlier career levels (PhD-candidates, Postdocs, and assistant professors in temporary positions) report largest delays in their research projects, high exhaustion, and high anxiety about their future in academia. Persistent experiences of high work-family conflict, stress, and exhaustion tend to erode key work outcomes like job satisfaction, work performance, and organizational commitment while at the same time increasing negative outcomes such as burnout, absenteeism and intention to leave the organization (Amstad, Meier, & Semmer, 2011). A risk is that as a result of the lockdown academics with children or other care duties and early career academics will more strongly consider to leave academia.

We recommend paying extra attention to these groups for two reasons. Firstly, it is unlikely that the degree to which academics experienced hardship during the first months of the pandemic is related to their academic talent and skills. A consequence would be that the pandemic results in a brain drain for Dutch academia. Second, women academics reported a somewhat higher impact of the pandemic compared to men (i.e., higher work-family conflict) and are slightly overrepresented in more precarious positions than men. When no countermeasures are taken, we risk a set-back on gender diversity in academia.

Different actors in higher education and research (the Ministry of Education, Science, and Culture (OCW), universities, science funders like NWO or ZonMW) could take different measures to prevent an outflow of overburdened but otherwise talented academics. If the Netherlands wants to continue to develop and position itself as a leading research country with global impact, the government should consider increasing the budget for higher education and research to avoid the risks of previous investments in talent retention being in vain. Many measures that we discuss below require investments from universities, and at the moment insufficient funds are available to make these investments (PwC, 2021; Van Saarloos, 2020).

Recommendations for policy

- When making promotion or hiring decisions, it is crucial that the inequalities reported in this study are taken into account and that committees explicitly discuss the consequences of this period rather than act as if its business as usual.
- Universities should allow academics with children (or other care responsibilities) to make up for their losses in research time.
- Young scholars in temporary positions (PhD-candidates, Postdocs) should be given more time to finish their projects. Given the highly competitive nature of the academic job market and the serious effects the crisis has on these groups, extra funding to extend contracts, provide job security and prevent outflow is necessary.
- Science funders need to take into account the differences in research time available to different subgroups of academics when determining who is eligible for grants. The effective months of research time used to define the academic quality of an applicant should take into account large care duties during COVID-19 (for an example in Canada, see Langin, 2021).
- The unequal loss in time for impact should be taken into account when science funders evaluate the extent to which candidates were able to utilize their knowledge.

2. Adapt and reconsider criteria for promotion and career advancement in line with the developments of Recognition and Rewards.

Time spent on research decreased, whereas teaching and leadership took more time. At the same time respondents reported that they expect to be primarily evaluated based on their research excellence. The pandemic thereby made it even clearer that we need to change how we recognize and reward the different aspects of academic work (VSNU, 2019). Instead of a one-dimensional focus on excellence in research, other core domains such as teaching, leadership, impact, team spirit, and professional performance should be recognized as well.

This means that universities need to pay explicit attention to performance in all of the above domains in evaluating their employees. For academics affected by the pandemic, time should not be used as a leading parameter in the assessment of research and teaching activities. When making promotion or hiring decisions, effective research time and time invested in teaching should be used. While extension of contracts is a measure that can be taken (and indeed, one that many universities are currently taking), we recommend that the impact of that extension on the career opportunities of the academics involved should be considered first. Extending a PhD-trajectory could be beneficial for a PhD-student. It will give the PhD more time before entering the labor market and/or finish a relatively demarcated project. However, extending a tenure track by a year could be unhelpful to career opportunities. Here an extension also means delay of financial security and career advancement. This is likely to keep these academics in precarity longer. Here women are affected most, as they often already have extended tenure track trajectories because of childbirth and maternity leave, and as a result may be more likely to leave academia when tenure tracks are further extended.

Instead of giving academics additional time to meet performance criteria that were decided on before the COVID-19 pandemic, we urge universities to reconsider tenure track, promotion, and hiring criteria, and communicate clearly on these matters. On the one hand, they should put a stronger emphasis on domains that required more time during the pandemic (such as teaching) and ease criteria related to research. On the other hand, it is crucial that effective work time is taken into consideration.

Recommendations for policy

- All promotion and hiring committees should explicitly ask and discuss the potential consequences of COVID-19 on all elements of academic work. Hereby there should not be a sole focus on what was not done (i.e., research loss), but also on domains where disproportionate efforts were made (i.e., teaching, leadership).
- Before giving extensions, think about whether changing evaluation criteria is an option. Tenure track decisions should not be extended, but instead criteria should be adjusted and evaluated using effective research time.

3. Promote leadership development and make leadership a recognized and rewarded part of an academic's job.

The crisis had a strong impact on higher education at all levels. Managing change in academia during COVID-19 became a profound challenge for leaders. In rethinking how we recognize and reward the different aspects of academic work, giving attention to leadership is crucial too. Our study indicates that the pandemic demanded a lot from those in supervisory and leadership positions. For this reason, it is important to take measures to retain those already working in leadership positions, and to prepare those who are willing to embark on that path.

One outcome of the current survey was that people in positions of leadership indicated that they could have used more resources (e.g., tools and support) to be a good leader or manager during the unusual circumstances of the COVID pandemic. In order to mitigate the impact of the pandemic on academic employees, it is crucial to invest in the capability of academic leaders to support their employees during the pandemic and its aftermath, by giving them resources such as time and knowledge to develop their leadership skills. Practically, this means that the pandemic makes it even clearer that universities should take leadership seriously, and provide time and training for those willing to take leadership positions.

Recommendations for policy

- Universities should invest in and more actively promote leadership development.
- Universities should provide academics in leadership positions with proper time, support and resources to perform their tasks, especially under unusually trying circumstances (such as the COVID pandemic).
- Leadership should be considered, recognized and rewarded as an integral part of an academic's job.

4. Continue to monitor and explore the critical uncertainties generated by the pandemic.

Many of the effects and risks we have described will only manifest themselves over time. For example, it is unknown to what extent the ongoing pandemic might lead to a (selective) outflow of academics from universities. Moreover, the pandemic is far from over, as the developments in the fall of 2021 show. Continuous monitoring of the effects of the pandemic is crucial, as well as monitoring potential differences between groups. Over the next years, a thorough monitoring of the developments and regular evaluation of the measures that were taken is crucial: the evidence gathered can provide solid foundations for further policy development.

The Young Academy and The Dutch Network of Women Professors will, in collaboration with the Universities of the Netherlands (VSNU | UNL), remain invested in monitoring this development and facilitating discussions on the response to the impact of the pandemic on the work and well-being of academics. However, monitoring and mitigating the effects of the pandemic over time should be taken up by all actors in the academic playing field, such as the government, universities and funding agencies. Only in a combined effort will we be able to mitigate the effects of this pandemic on Dutch academia.

Recommendations for policy

- Universities should invest in longitudinal monitoring of the effects of the pandemic.
- A second wave of this survey should be considered to provide a more substantial insight in the longer-term effects of the pandemic.
- Information sharing and combined effort between all stakeholders in academia are needed to mitigate the effect of the pandemic.

Literature and references

- Amano-Patiño, N., Faraglia, E., Giannitsarou, C., & Hasna, Z. (2020). *The Unequal Effects of Covid-19 on Economists' Research Productivity*. Working paper.
- Amstad, F., Meier, L.L., & Semmer, N.K. (2011). A meta-analysis of work-family conflict and various outcomes with a special emphasis on cross-domain versus matching-domain relations. *Journal of Occupational Health Psychology*, 16, 151-169.
- Andersen, J. P., Nielsen, M. W., Simone, N. L., Lewiss, R. E., & Jagsi, R. (2020). Meta-Research: COVID-19 medical papers have fewer women first authors than expected. *Elife*, 9, e58807.
- Bol, T., De Vaan, M., & Van de Rijt, A. (2018). The Matthew effect in science funding. *Proceedings of the National Academy of Sciences*, 115(19), 4887–4890.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences. Revised edition*. New York: Academic press.
- Deryugina, T., Shurchkov, O., & Stearns, J. (2021). Covid-19 disruptions disproportionately affect female academics. *AEA Papers and Proceedings*, 111, 164–168.
- Groves, R. M. (2006). Nonresponse Rates and Nonresponse Bias in Household Surveys. *Public Opinion Quarterly*, 70(5), 646–675.
- Kibbe, M. R. (2020). Consequences of the COVID-19 pandemic on manuscript submissions by women. *JAMA Surgery*, 155(9), 803–804.
- Krukowski, R. A., Jagsi, R., & Cardel, M. I. (2021). Academic productivity differences by gender and child age in science, technology, engineering, mathematics, and medicine faculty during the COVID-19 pandemic. *Journal of Women's Health*, 30(3), 341–347.
- Langin, K. (2021). Pandemic hit academic mothers hard, data show. *Science*, 371, 660.
- Lakens, D. (2013). Calculating and reporting effect sizes to facilitate cumulative science: A practical primer for t-tests and ANOVAs. *Frontiers in Psychology*, 4, 863.
- LNVH (2020). *Monitor Vrouwelijke Hoogleraren 2020*. Landelijk Netwerk Vrouwelijke Hoogleraren
- Netemeyer, R. G., Boles, J. S., & McMurrian, R. (1996). Development and validation of work-family conflict and family-work conflict scales. *Journal of Applied Psychology*, 81(4), 400–410. <https://doi.org/10.1037/0021-9010.81.4.400>
- Minello, A., Martucci, S., & Manzo, L. K. (2021). The pandemic and the academic mothers: Present hardships and future perspectives. *European Societies*, 23(sup1), S82–S94.
- PwC (2021). *Toereikendheid, doelmatigheid en kostentoerekening in het mbo, hbo en wo&o*.
- Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness studies*, 3(1), 71-92.
- Smith, G. (2008). Does gender influence online survey participation?: A record-linkage analysis of university faculty online survey response behavior. *ERIC Document Reproduction Service No. ED 501717*.
- Staniscuaski, F., Reichert, F., Werneck, F. P., de Oliveira, L., Mello-Carpes, P. B., Soletti, R. C., Almeida, C. I., Zandona, E., Ricachenevsky, F. K., & Neumann, A. (2020). Impact of COVID-19 on academic mothers. *Science*, 368(6492), 724–724.
- Van Saarloos, W. (2020). *Meer wetenschap in Nederland. Hoe we onze samenwerking, diversiteit en kracht verder kunnen versterken*. Amsterdam: KNAW.
- Van Steenbergen, E. F., Ellemers, N., & Mooijaart, A. (2007). How work and family can facilitate each other: Distinct types of work-family facilitation and outcomes for women and men. *Journal of Occupational Health Psychology*, 12(3), 279.

Appendix A

Survey (sent out in Dutch and English):

Measurements

In what discipline do you currently work most?

(N.B. this classification is based on the NARCIS classification)

- **Natural sciences and technology** (mathematics, physics, chemistry, engineering, earth sciences, astronomy/astrophysics, agriculture and management of the physical environment)
- **Life sciences, medicine and healthcare** (life sciences, biology, medicine, health sciences, movement science, veterinary medicine)
- **Humanities** (digital humanities, book and manuscript studies, information and communication studies, philosophy, theology and religious science, history, art and culture studies, language and literature studies, archaeology, area studies)
- **Law and administration** (law, political science and public administration, traffic and transport studies)
- **Behavioural science and education science** (psychology, education science, gerontology, pedagogics)
- **Social sciences** (sociology, social geography, cultural anthropology, demographics, land-use planning, communication science, leisure studies, social security studies, gender studies)
- **Economics and business studies** (including human resource studies)
- **Other**, namely...

Time spent on research, teaching, management and impact before and during the pandemic

Please indicate below how much time you actually spent on the various tasks in the months before the corona crisis.

	I did not spend any time on this	I spent some time on this	I spent quite a lot of time on this	I spent most of my time on this	I spent nearly all my time on this
	1	2	3	4	5
MANAGEMENT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
TEACHING	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
RESEARCH	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
IMPACT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The following questions are about your time use during the corona crisis.

Please note: consider here primarily the first months of the corona crisis, i.e. the period from mid- March (when the lockdown started) to early June (when there were various relaxations of rules, such as the reopening of primary and secondary schools and of the hospitality sector).

Please indicate below how much time you spent on the various tasks in the first months of the corona crisis.

	I did not spend any time on this	I spent some time on this	I spent quite a lot of time on this	I spent most of my time on this	I spent nearly all my time on this
	1	2	3	4	5
MANAGEMENT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
TEACHING	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
RESEARCH	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
IMPACT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Importance of domains for next performance appraisal

If you consider the various tasks that you performed during the corona crisis, on which tasks do you expect your supervisor to assess you at a later date?

Can you estimate for each task below how much weight your supervisor will give to your performance in this area in your next appraisal interview?

Please note: if a task is not part of your daily work, answer 'Not applicable'.

	Not applicable	Not at all important for appraisal			Very important for appraisal	
		1	2	3	4	5
MANAGEMENT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
TEACHING	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
RESEARCH	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
IMPACT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Work-family conflict

The scale is the mean of three items assessing family-to-work conflict (based on Netemeyer et al., 1996), and has a Cronbach's alpha of 0.93.

We are interested in your experiences during the first months of the corona crisis of combining work with any care-related tasks at home (e.g. care of partner, children, relatives or other informal care).

Please indicate the extent to which the statements below applied to you in the first months of the corona crisis.

	Not at all		To some extent		Very strongly
	1	2	3	4	5
My work activities were disrupted due to care related tasks at home	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I did not manage to do tasks for work because I had to/wanted to give priority to my care-related tasks at home	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Due to the stress that I experienced because of caring for my family, I was not able to do my work as well as usual	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Work engagement and exhaustion

Work engagement was measured with items 1-6 (Cronbach's alpha = 0.91), exhaustion was measured with items 7-9 (Cronbach's alpha of 0.81), all taken from Schaufeli, et al. (2002)

How do you experience your work at this moment?

(1 = disagree entirely to 5 = agree entirely).

1. At my work, I feel bursting with energy
2. At my job, I feel strong and vigorous
3. When I get up in the morning, I feel like getting to work
4. I am enthusiastic about my job
5. My job inspires me
6. I am proud of the work that I do
7. There are days when I feel tired before I arrive at work
8. During my work, I often feel emotionally drained
9. After my work, I usually feel worn out and weary

Experienced stress and anxiety

How much stress and anxiety have you experienced in the first months of the corona crisis due to:

	Not at all		Some		A lot
	1	2	3	4	5
Problems related to your own mental and physical health?	0	0	0	0	0
Problems related to the mental and physical health of people close to you?	0	0	0	0	0
The well-being of your colleagues/staff members?	0	0	0	0	0
The progress of research projects?	0	0	0	0	0
Matters related to teaching?	0	0	0	0	0
Lack of contact with your colleagues?	0	0	0	0	0
Difficulties related to working from home?	0	0	0	0	0
Having too much work? Your future in academia?	0	0	0	0	0
Your position at the university?	0	0	0	0	0
How your supervisor will assess your performance?	0	0	0	0	0
Whether you will have a job in the future	0	0	0	0	0

Specific concerns of postdocs and tenure trackers

We would be interested to know how you feel about your postdoc/tenure track position.

	Disagree entirely		Agree entirely		
	1	2	3	4	5
The corona crisis has hampered me in applying for academic grants.	0	0	0	0	0

Questions for PHDs:

You have indicated that you are a PhD student. The corona crisis can cause delays for PhD students. We would like to know about your situation.

Have you experienced delays as a result of the corona crisis which have prevented you from properly completing your thesis?

- No, I have not (yet) experienced any delays related to Covid-19.
- Yes, I have experienced delays due to Covid-19 and as a result I cannot or might not be able to complete my thesis properly.

Questions for Postdocs:

You have indicated that you are a post-doctoral researcher. The corona crisis can cause delays for postdocs. We would like to know about your situation.

Have you experienced delays as a result of the corona crisis which have prevented you from completing your project?

- No, I have not (yet) experienced any delays related to Covid-19.
- Yes, I have experienced delays due to Covid-19 and as a result I cannot or might not be able to complete my project properly.

Questions for Tenure trackers:

The corona crisis can cause delays for staff with a temporary appointment who have the prospect of a permanent contract (tenure track). We would like to know about your situation.

Have you experienced delays as a result of the corona crisis which will or could mean that you no longer meet the conditions laid down in the original agreements for your tenure track?

- No, I have not experienced any delays related to the corona crisis.
- Yes, I have experienced delays due to the corona crisis and as a result I cannot or might not be able to fulfil the original agreements.

Experiences of academics in a managerial role

In your current position, do you supervise (an)other staff member(s) at this time?

- Yes
- No

You have indicated that you have a management role. We would like to know how you are experiencing this management role during the corona crisis.

(1 = disagree entirely to 5 = agree entirely).

	Disagree entirely				Agree entirely
	1	2	3	4	5
I am sufficiently available to my staff during the corona crisis.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I currently feel more concerned about how my staff are doing than before the corona crisis.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
During the corona crisis I have more contact with my staff than previously (e.g. online).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I spend less time dealing with my staff during the corona crisis than previously.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think I have a good understanding of how my staff are doing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find management more difficult during the corona crisis than previously.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My organisation gives me sufficient tools and support to provide management during the corona crisis.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Attitudes about supervisor's role during pandemic

	Disagree entirely				Agree entirely
	1	2	3	4	5
My supervisor is sufficiently available to me during the corona crisis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My supervisor is now more concerned about how I am than before the corona crisis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
During the corona crisis I have more contact with my supervisor than previously (e.g. online)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My supervisor has less time for me during the corona crisis than previously	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think that my supervisor understands well enough how I am doing at the moment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Colophon

Authors

Thijs Bol, University of Amsterdam | De Jonge Akademie
Belle Derks, Utrecht University | Alumnus De Jonge Akademie
Lidwien Poorthuis, Dutch Network of Women Professors | LNVH

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Studio Lakmoes, Arnhem, the Netherlands

Contact details



LNVH – Dutch Network of Women Professors
PO Box 3021
3502 GA Utrecht
info@lnvh.nl
www.lnvh.nl



De Jonge Akademie | The Young Academy
PO Box 19121
1000 GC Amsterdam
dja@knaw.nl
www.dejongeakademie.nl

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