

## Impact of the COVID-19 pandemic for PhD students at Health, Aarhus University

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### Summary

Many of PhD and research year students at Health, Aarhus University, have experienced challenges during the COVID-19 pandemic. This survey was answered by 160 students enrolled at the Graduate School of Health, distributed on 150 PhD students and 10 research year students. 150 participants completed the whole survey.

#### A negative impact on research activities and quality

- Students have experienced a lack of access to laboratories (40%) and field or clinical work (31%) hampering data collection, which 28% find will be of poorer quality.
- Research dissemination on an international level have suffered due to the cancellations or postponement of visits to other universities (52%) and conferences (68%).
- The COVID19 pandemic has also hindered collaboration with external partners (38%), the ability to stay in touch with scientific peers (34%), and access to supervision (28%).

*"... the quality of my work is lowered since some things might not be possible anymore [...] And by quality I mean the most exciting and new thing on my project, which we were planning on maybe do a post doc on and without the data that we wanted to obtain, funding etc. for future projects and my future career might be insecure."*

PhD-student, Health, AU

#### Challenges to students' well-being

- 29% of the respondents reported having mental or stress-related issues.
- 69% of the respondents have experienced difficulties working from home.

#### Delay of research projects

- At least, 62% of respondents reported being delayed in their project. At the same time, 58% of respondents have no available funding to secure an extension.

*"The work from home as a new PhD student is very challenging. I have good support from supervisors but need interaction with other PhD students and have no social access."*

PhD-student, Health, AU

The results of this survey point out that PhD students at Health have been negatively impacted during the COVID-19 pandemic and suggest that PhD and research year students need financial and other support to overcome the experienced difficulties.

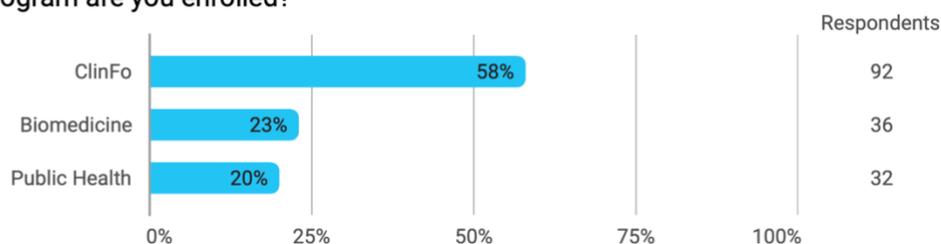
## Introduction

With this survey we, PhD Association Health, Aarhus University, wish to shed light on the consequences the corona virus pandemic has had on young researchers enrolled at the Graduation School of Health, Aarhus University. Participation in the survey has been anonymous, and all comments are non-edited responses directly from the participants.

The survey was performed between 5-11-2020 and 25-11-2020. The survey has been distributed in the Graduate School newsletter, on the PhD Association Health’s Facebook page, twitter, and through emails. In total, 150 PhD and research year students have answered the questionnaire. According to the key numbers<sup>1</sup> 594 PhD students were enrolled at the Graduate School of Health in 2019. Of the 160 students that answered the questionnaire, 150 completed the whole survey. Of the 160 participants 150 were PhD students and 10 research year students. This gives a response rate of 25% of all the PhD students at Health, Aarhus University.

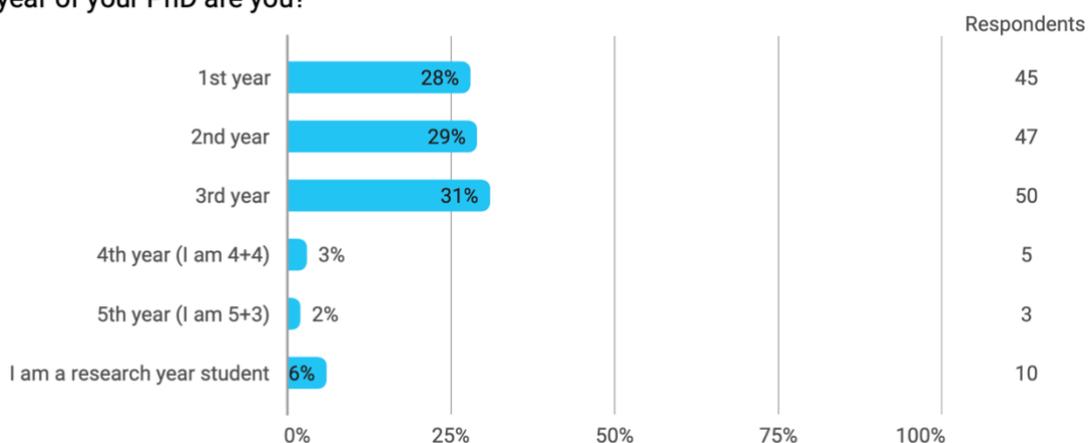
## Distribution of participants

In which graduate program are you enrolled?



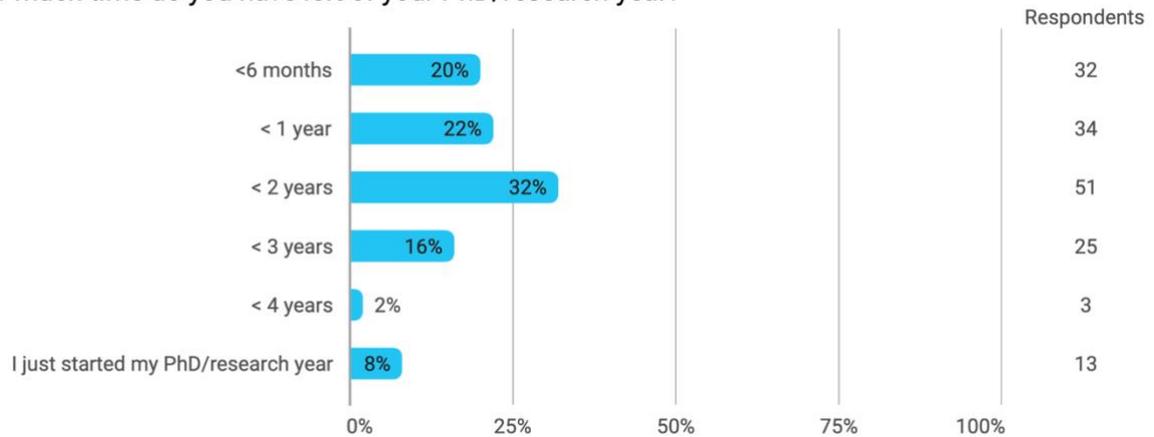
58% of the students are enrolled at ClinFO, 23% at Biomedicine and 20% at Public Health.

In which year of your PhD are you?



10 of the students that completed the questionnaire are research year students. The resulting 140 are PhD students. 28% in the first year, 29% in the second year and 31% are in the third year of their PhD. Only 3% are fourth year (4+4) and 2% are fifth year (3+5).

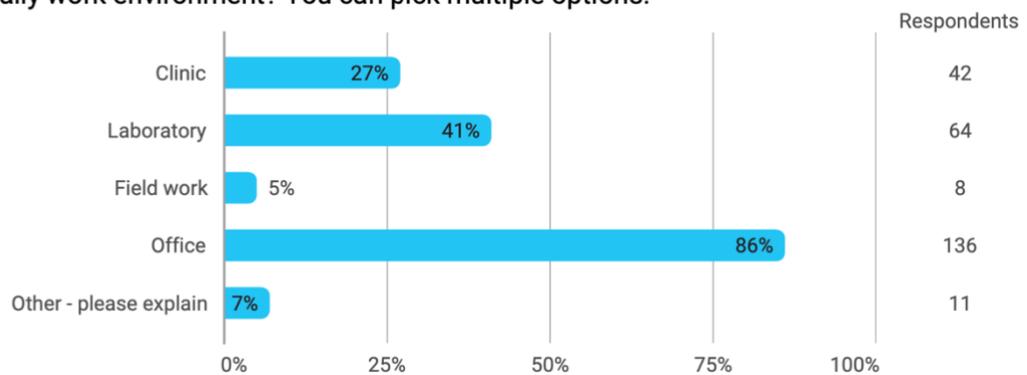
### How much time do you have left of your PhD/research year?



Of the students answering the questionnaire 42% have less than a year left of their PhD (20% 6 months or less, 22% 1 year or less).

### Working environment

What is your daily work environment? You can pick multiple options.



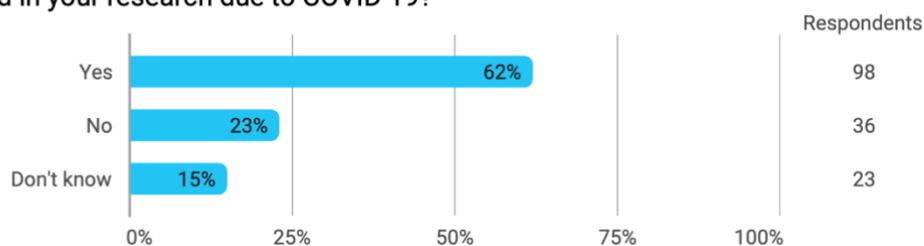
The majority of the students (86%) are working in a office. However, the majority have an additional working environment such as laboratory or clinical work.

Other working environments (students own comments):

- *Simulation training with laypersons*
- *Visiting multiple departments all over Denmark*
- *PET scanning*
- *Animal research and Laboratory work*
- *Mostly at home*
- *Homeoffice*
- *Home office*
- *Home office*
- *MRI scanner lab*
- *I have only till recently been able to work at home*
- *currently or "on average". Finishing off is a lot of office time, however have been "in the field" prior to this*

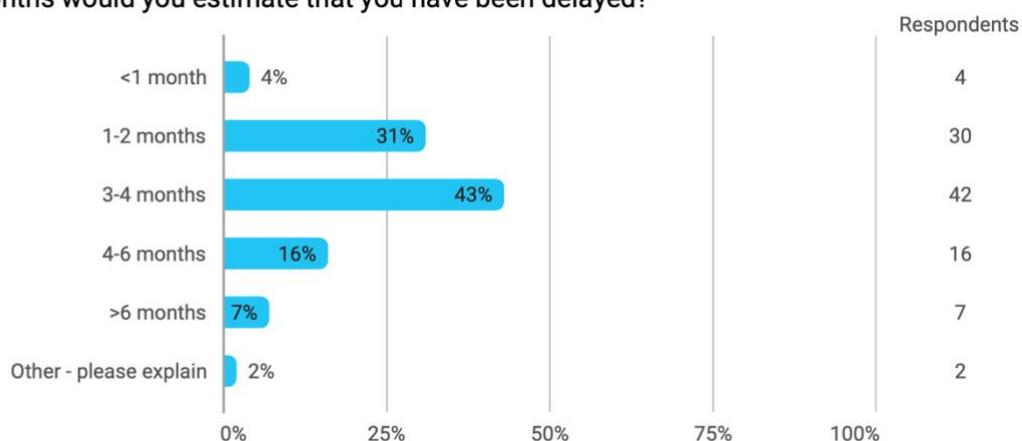
## Delay and estimations of delay

Have you been delayed in your research due to COVID-19?



More than 60% of the students answering the questionnaire have been delayed due to the corona virus situation. 15% of the students answering the questionnaire does not yet know if they will be delayed.

How many months would you estimate that you have been delayed?



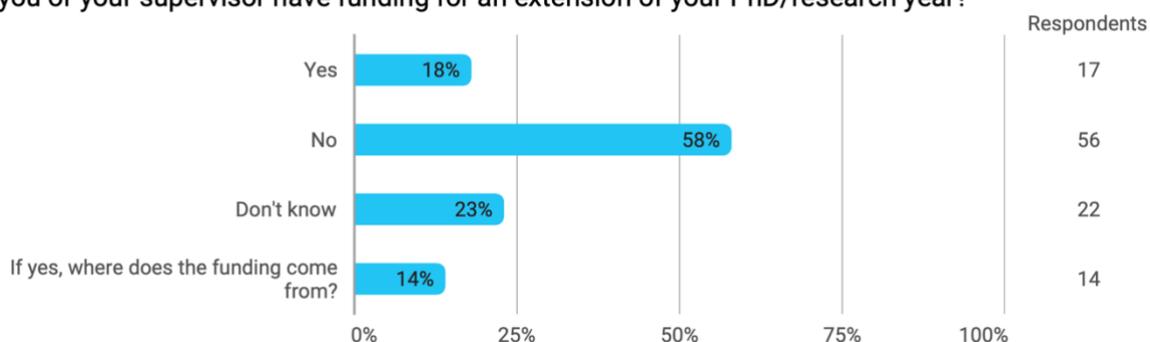
Of the 62% (98 students) who answered that they have been delayed due to the corona virus situation, 68% estimates that they are more than 3 months delayed.

From other these comments have been reported:

- *And I will probably be delayed more or have to change my phd projects due to busy department during COVID.*
- *My project is a clinical study and due to covid19 i have not been able to recruit the same of patients as before. Also my patients are reluctant to come to the hospital*

## Funding of a possible extension

Do you or your supervisor have funding for an extension of your PhD/research year?



Only 18% of the students who report to have a delay have funding for an extension of their project. The majority (58%) does not have any funding for an extension, and 23% simply does not know if there will be any funding for an extension.

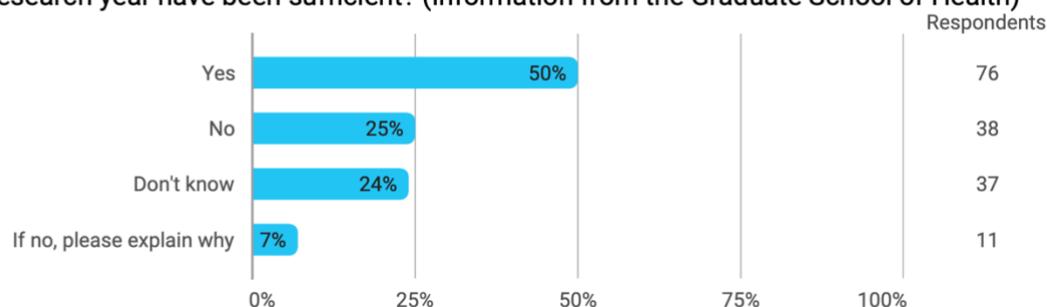
From the 18% that does have funding for an extension comes from (students own comments):

- *Converting funds from additional clinical examinations we originally wished to do to salary for me.*

- *I have some funding, not for all that I need. But signed the paper that we will get the funding as I was forced to.*
- *Industry*
- *I went on leave*
- *We agreed that I should work as a clinicians. Hence, I took a leave of absence. Did not impact funding.*
- *Balanced means from the psychiatric department and from clinical work*
- *DFF*
- *Grants*
- *Grants*
- *Funding*
- *Novo Nordisk Fonden*
- *RM*
- *Affiliated institute*
- *The Tryg Foundation have funded a 3 month-extension*

### Information about the corona virus situation

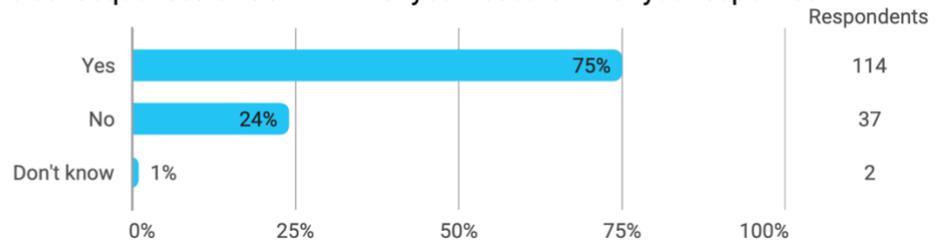
Do you feel that the amount of information you have received in relation to your PhD education/research year have been sufficient? (Information from the Graduate School of Health)



50% of the students participating feel they have had sufficient information on how to handle the corona virus situation. 24% does not know and 25% does not feel that information has been sufficient, of these 11 comments on why are listed below (students own comments):

- *I am missing some guidance on how to handle requirements of teaching, course and going abroad.*
- *It has been hard to find the needed information.*
- *No information regarding change of research environment which has been difficult during corona*
- *In my opinion, the Graduate School at Health have not taken enough responsibility for at least trying to help their young researchers. Instead, each individual Research Year or PhD student has had to find their own solution or give up on their plans, as no one could get any questions answered, advice, or help. While I understand that this has been and still is a very difficult situation for everyone, including the Graduate School, it simply hasn't been and isn't good enough.*
- *How will we be compensated? Has the university put any pressure to have a "hjælpepakke" to the PhD students?*
- *The possibility for extension has not been described sufficiently*
- *Supervisor was not available*
- *At least it is not flexible to do research exchange environment*
- *in relation to my education in general, or Covid-19 or?*
- *Jeg er på barsel og har derfor ikke holdt mig særligt orienteret*
- *I don't no if I can postpone my PhD due to COVID*

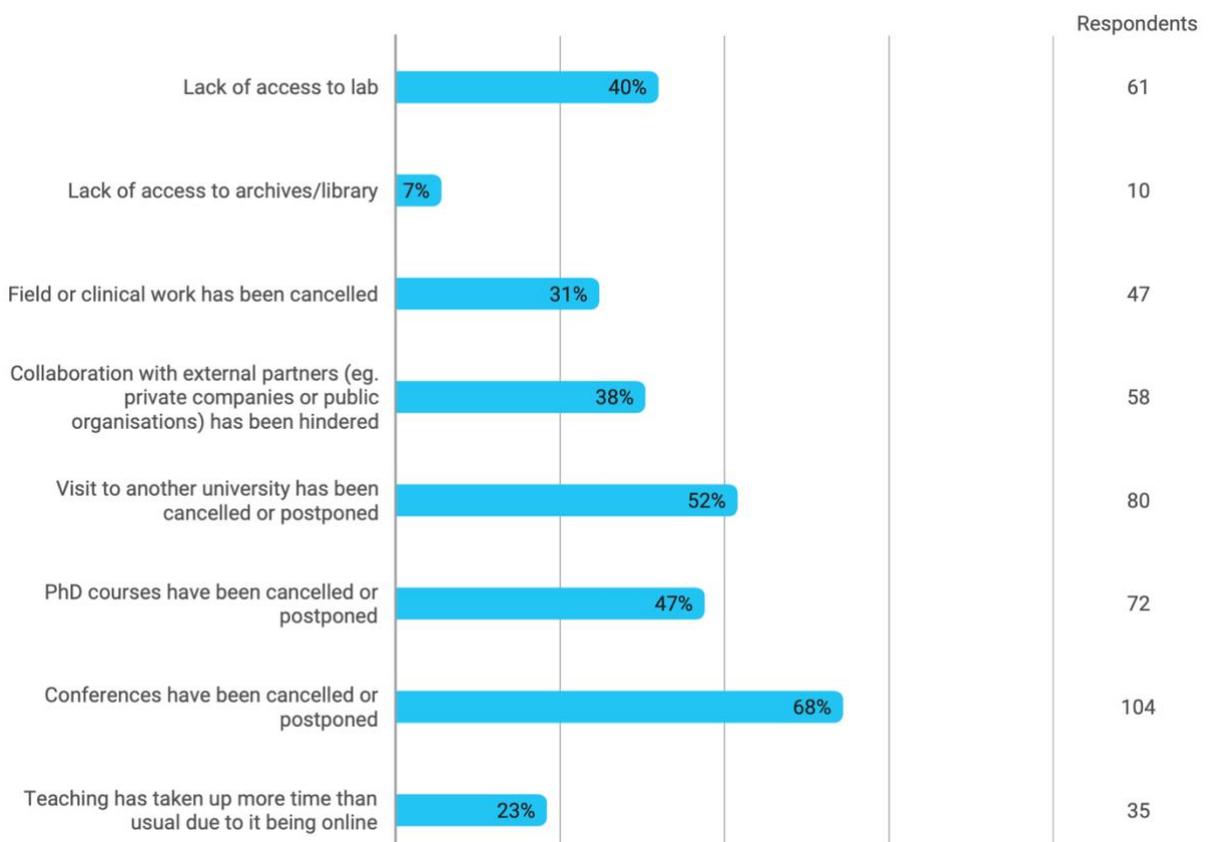
### Have you discussed the consequences of COVID-19 for your research with your supervisor?

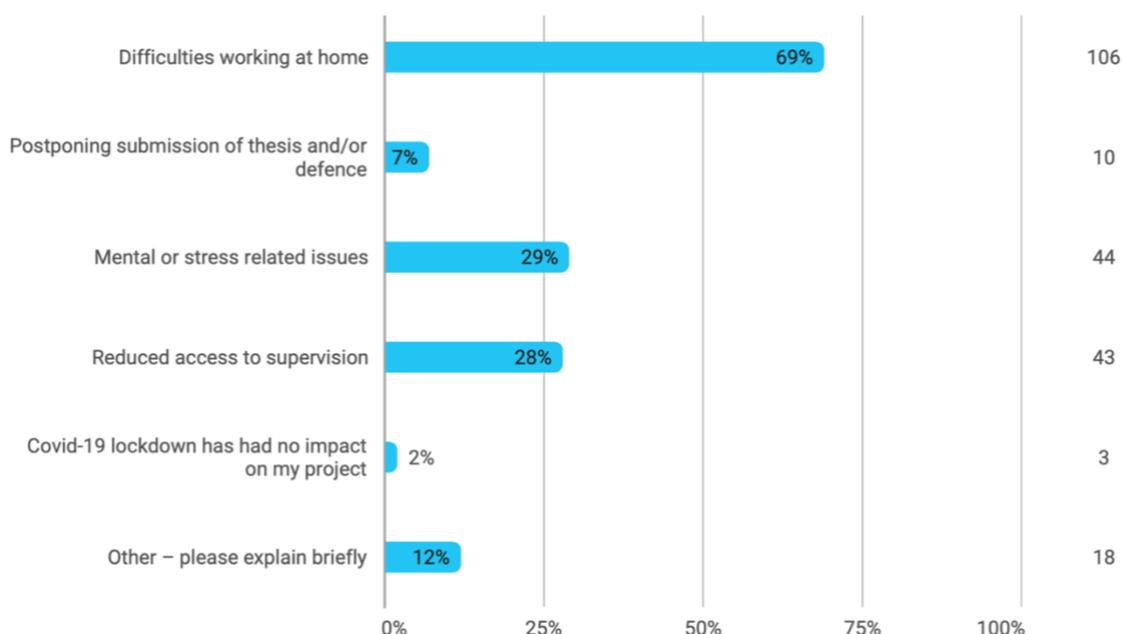


75% of the students have discussed the consequences of the situation with their supervisor. Unfortunately 24% of the students answering the questionnaire have not yet discussed the consequences with their daily supervisor.

### Impact of research and quality

In which ways has COVID-19 impacted your research? You can pick multiple options.





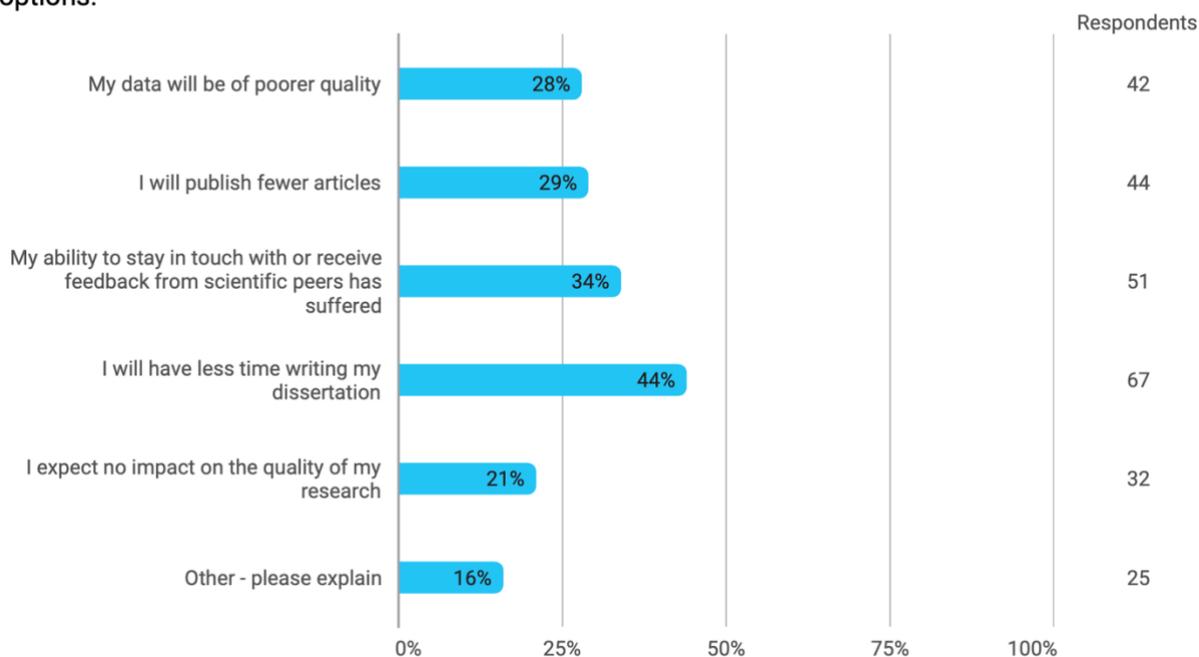
There are a variety of aspects that have been affected for the PhD students answering the questionnaire. 68% of the students have been affected by “Conferences have been cancelled or postponed”. The lack of access to a laboratory have affected 40% of the participants and 31% have been affected by cancellation of field or clinical work. 38% of the participants have experienced a hindering of collaboration and 52% have had to cancel or postpone visits at other universities. 47% of the students have had problems with canceled or postponed PhD courses. 23% of the students have had to spend more time on teaching, usually due to the fact that it is now mostly taking place online. 7% of the participants have had to postpone submitting or defending their PhD projects. 2% says that the lockdown have had no impact on their PhD studies.

69% of the PhD students have reported problems with working from home, which for many students has been a reality for more than 1 month in spring. And 29% of the students are having mental or stress related issues as a consequence of the corona virus situation. Of comments the students have reported (students own comments):

- *Project has been edited/cut down so it's feasible to finish within the research year.*
- *PhD courses have been online with reduced quality*
- *Material and mice delivery is delayed*
- *Halted animal experiments and breeding*
- *Lost access to patient recruitment*
- *Significant enrolment delay of large Pan-European multicenter study*
- *Teaching was cancelled, so I lack dissemination-hours*
- *Sick days – children at home because of restrictions on when they could go with cold symptoms and wait for covid-19 testing and results*
- *Clinical work has been postponed*
- *In my experiments I follow cells that grow several months. When we were sent home I had to throw everything out and start over. I lost 3 months worth of cell data + time lost in the months we were at home.*
- *Socially, it has been a downside that the rest of the team is not in the building (they work from home).*
- *Udenlandsophold er ikke hindret, men muligvis kan indholdet ændre sig. Vi forsøger at tage vores forhold, så det bliver godt og lærerigt.*
- *Ethical concerns over inviting high risk patients to the hospital for test.*
- *Lack of peer talks which is highly stimulating*

- *Slowed down all feedback (databehandlafter, samarbejdsaftaler, opkobling til dst, komme i kontakt med de rette folk, og få besvarelser på sine mails))*
- *Research stay abroad has been cancelled*
- *Lack of teaching hours do to cancellation of the teachin I should have done*
- *Collaboration with internal partners have been postponed*

How do you expect the pandemic to impact the quality of your research? You can pick multiple options.



In relation to how the pandemic has affected the students research, 44% of the students estimate that they will have less time to write their dissertation. 28% of the students will have poorer data quality. 29% will publish fewer articles. And the connection to scientific peers have suffered in 34% of the students who have answered the questionnaire.

21% of the students does not expect that the situation will have impact on the quality of their research.

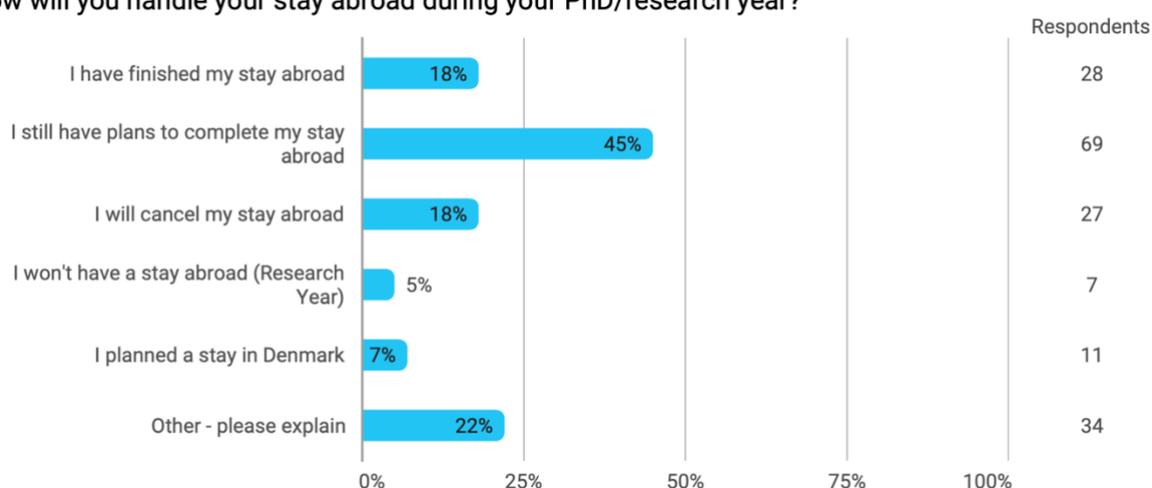
Of other comments the students have reported the following (students own comments):

- *It is to early to say*
- *poor training oppurtunities and supervision due to more people working from home*
- *The main studies have been written out of the ph.d. protocol and will have to be pursued parallel to the now-main study of the ph.d.*
- *I might not be able to go abroad (research stay + conferences)*
- *Lack of networking with colleagues in my field*
- *I am afraid i might not reach to recruit enough patients for my rct study*
- *I will have fewer data*
- *We had to cancel the intra- and interobserver part of the project.*
- *To say that i will publish fewer articles is a bit of a stretch, but its clear that the productivity went down. Less experiments means less substance and i find myself working more to compensate for the lack of laboratory access earlier this year*
- *I expect I will end up doing fever experiments because we struggle with supplies for the lab. Increased delevry time is hindering an effective flow in the lab work*
- *Delays in laboratory work due to shortage of materials may become a problem in terms of time available to carry out all planned experiments*
- *Maybe change of my last phd project*
- *Less structure regarding the initial phase of my PhD, which is pretty important*
- *Possibly less participants included in interventionstudy*

- *I will have fewer results – due to not being in the lab*
- *I expect it to be difficult to recruit participants as they might be afraid to be in the laboratory because of the risk of getting covid. I also fear another lockdown of the lab so I cannot carry out the experiments.*
- *The uncertainty in all aspects are troublesome. When will data be able to see on DST, when will the world be open for stat abroad. It is not possible to plan anything as everything is still very uncertain.*
- *Delay of publishing articles because data generation was delayed.*
- *My article will suffer as they will have to be written in haste*
- *To early in my PhD study to tell*
- *I am still early in my second year and I am not sure how much impact the lock-down will have on my final product.*
- *I had to stop my data collection due to the pandemic. Could have been nice to collect a little bit more than I did*
- *I will not be attending any conferences since they all have been cancelled*
- *The pandemic affects me mentally*
- *My planned stay abroad has been cancelled*

## Research stay abroad

How will you handle your stay abroad during your PhD/research year?



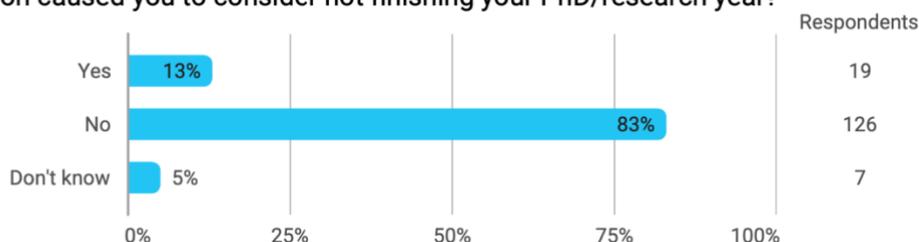
Only 18% of the students have finished their research stay abroad. 45% of the students still have plans to complete their stay. Whereas 18% will have to cancel their stay abroad, 7% have planned a stay in Denmark. Of other comments the students have reported the following (students own comments):

- *I have not decided yet. If possible I would go abroad, if not I will stay in Denmark*
- *I intend to cancel my stay in DK as restrictions make it difficult to travel between regions*
- *I still hope to have a much shorter stay abroad, only 7-14 days instead of the planned 30 days, but if traveling continues to be impossible, I will have to cancel it entirely.*
- *I HOPE to complete a stay abroad but have no idea as to whether it will be possible*
- *My stay abroad will most likely not be carried out in the country where I had intended it*
- *I have completed what was mandatory, but I have not completed the research abroad that was planned.*
- *I will see how it develops and hopefully I can go next year, but probably later than planned.*
- *I would like to do my stay abroad, but the timeframe is not decided yet*
- *I had to turn back to Denmark just when I was about to start the actual experiments at the host institute. Therefore, I lost the time that I spent to get used to the host lab and optimize assays for nothing. When I got back to Denmark, I had no animals ready for the planned experiments since I was supposed to be abroad. Due to this, I had to re-arrange my experimental plans multiple times.*

- *I will postpone my stay abroad and hope that things will be more normal, that the graduate school helps us, or maybe stay in Denmark*
- *Not yet solved. We also miss information about this from the PhD school. Is cancellation of stay abroad OK due to Covid-19?*
- *I have taken leave from my phd in order to take the first part of my clinical internship. Hopefully, a stay abroad will be possible on the other side.*
- *I do not know yet. I was in Australia during the lockdown in Denmark and went back the 20th of march. I finished the most critical of my work, but I did not finish all that would help me on my project. And so far I do not know what to do or if it will be possible to come back, since my field work is also postponed and I only have a certain amount of time to do everything in.*
- *I am awaiting the situation, but may stay in Denmark if going abroad will not be possible in the remaining time of my ph.d.*
- *I will have to see what happens. But I will not begin to plan jet – this might result in lack of money to go abroad and thus a change of research environment that is only for show!!*
- *Currently i dont know if i will have a research change of environment*
- *I don't know yet*
- *I planned to return to the same research lab for extra experiments, but they were cancelled due to covid*
- *I still have to figure out*
- *I had to cut my stay abroad short, as I was abroad in March*
- *Instead of going abroad I plan a stay in Denmark*
- *Virtual*
- *I have postponed my stay abroad hoping for the possibility to go to USA where our co-laboration with another group is.*
- *I still have more than 2 years left, But the plans might change:*
- *I am uncertain if I can plan a research stay abroad in these times, so a plan B is a stay in DK*
- *IDK if the stay will be possible.*
- *Very hard to make any real plans.*
- *My stay abroad will be postponed until the situations is more under control*
- *I wait and see*
- *I would to complete my stay abroad but I'm unsure about whether the host university will comply*
- *I am trying to have a "virtuel stay" and online collaboration with a professor in U.K.*
- *I have postponed my stay abroad. If I am not going to complete it, I will try to make a plan B*
- *If not Canada, I'll try to find a place in Denmark*
- *it has been postponed so far, pending now updates in the pandemic*

## Consequences and other comments

Has the current situation caused you to consider not finishing your PhD/research year?



13% of the students participating in the survey have considered not to finish their research projects due to the corona virus situation.

Many participants added additional comments to the questionnaire about how the pandemic has affected their research. All the comments are listed below and touch upon many other issues that were not covered by the survey. These are issues such as: being a new PhD student, coming from abroad, problems with teaching and finishing ECTS points in time, financial worries, having to take a leave, psychological and mental consequences. All very important factors that can have serious consequences for the individual student.

- *The work from home as a new PhD student is very challenging . I have good support from supervisors but need interaction with other PhD students and have no social access . It so frustrating to plan your own day and not knowing if you have been productive or not*
- *Despite Danish research institutions have been normal for quite some time. A large part of my study is abroad, so I have to follow the local rules and the laboratory was closed for research for more than 2 months in spring. This have caused a huge setback in my studies. Also, due to delays research samples are the last once in the row to be investigated.*
- *It's understandable but also frustrating, that Aus only solution for research year students was to reduce the size of the projects so it could be finished within the given year. I felt that this stated that the research wasn't of high importance and that the quality doesn't really matter. I would have liked more guidance and help to find a better solution than "that's too bad".*
- *My research stay has been cancelled twice due to the restrictions, which will influence my current research and future research projects*
- *I have a clinical study, which was cancelled in Spring and now it is more difficult to recruit participants. Patient living in care homes are not allowed to go to the hospital etc. Hopefully I can catch up during the next year.*
- *As an employee in the Region, it has been difficult to figure out if one should follow the rules from AU or from the Region.*
- *Lack of social gatherings and general social everyday interaction impact my motivation. Less motivated to get out the door because of that. Only when I have a full program in the lab all day I am fully motivated, partly because then I there is a bigger chance of talking to people.*
- *It has been a stressful factor that the university has been silent about possible aid for extension for so long. As my PhD was running out, I was forced to apply for extension and state that we will get the funding. But the fact is that I still need to finance that, and then afterwards opportunities for support came up from the university (but was unable to apply then).*
- *Oprindeligt var min plan at fuldføre alle tre år uden pause. Pga. Covid har jeg valgt at tage et års orlov efter 2. År af min PhD for at tage KBU. Dette gør at jeg forhåbentligt kan indhente det tabte data (patient inklusion)*
- *First, projekt activities / lab activities were postponed 2 mths due to lockdown, (and lockdown of childcares!!) The stay abroad Will also be postponed to who knows when It is super stressful not to be able to plan and coordinate the time for the last year of the study Besides, several courses have also been canceled. Consequently, everything (stay abroad,*

*courses, lab activity etc.) Is pushed towards the deadline for thesis, which makes the PhD study extremely stressful the remaining period*

- *I have worries about getting sick by Corona-virus – or my family getting sick. That could mess up my plan about finishing my dissertation in time.*
- *Although I understand that these are unforeseen circumstances, which nobody was ready for, I don't think that PhD students were provided sufficient information or the problems faced by the PhD students were checked on. Accepting a lower quality of theses to help PhD students to finish cannot be justified in terms of the scientific contribution of PhD projects. Unfortunately, PhD students have fixed-term contracts and if the supervisor does not have extra funding, this may mean that a major work can be left unfinished or has to be scaled down. I am personally frustrated that I worked very hard until COVID-19 and now I had to scale down my experiments due to 3-4 months that I lost during the COVID-19 crisis. At the same time since I have enough data to finish the PhD, it does not seem like a problem. This feels neither right for science nor fair for myself and my future academic career.*
- *Just in relation to the final question: I am not concerned about whether I am able to finish and get a PhD, BUT the quality of my work is lowered since some things might not be possible anymore due to COVID-19 and the time pressure. And by quality I mean the most exciting and new thing on my project, which we were planning on maybe do a post doc on and without the data that we wanted to obtain, funding etc. for future projects and my future career might be insecure.*
- *Change of research environment: there is no research environment anywhere now – I have very little motivation to plan a change in environment now. I do not believe that I can go abroad in my Ph.d. time – however, it is too early to get dispensation so I still have to plan something that does not make sense for me...*
- *It can be difficult to have all the ECTS points or all the teaching hours completed before expected since a lot of courses have been cancelled or postponed and might overlap with other courses (that means taking less new courses to finish the unfinished ones) and maybe not having enough teaching hours since a lot of "practical" teaching (that teaching that can not be taught online) has been cancelled. Also, I feel that I am more stressed since I have to accomplish more things and since a lot of courses are online it seems like you do not work that much, and it is not true, it takes more time at the end since there is laboratory work, animal work, writing papers, reading papers, plus teaching, online courses, PhD day, planning a research abroad, etc. Everything is condensed all at once.*
- *1. It has been difficult to meet other PhD students (I am new) as most social events are at a hold and we are not encouraged to socialize. 2. It is difficult to obtain information about why some PhD courses have been cancelled and which courses will be offered in the spring. I find that most courses offered in the fall are generic instead of (research) area-specific, which I think is not optimal. Furthermore, I experience the teaching tasks are more time-consuming as usual, as my team, continuously, is forced to change the format of classes and lectures due to changes in covid-19 restrictions.*
- *I feel that many people (including my supervisors) "hide" behind covid to excuse their lack of involvement in usual responsibilities (such as supervision and communication with students).*
- *thank you for doing this survey : )*
- *Da jeg er i højrisikogruppe, har jeg valgt at arbejde hjemme mest muligt og kun dukke op på AUH, når det har været meget nødvendigt. Det betyder jeg ikke er en del af et kontormiljø, og det sociale der også kan følge med der, hvilket er ærgerligt, når jeg lige er startet og derfor ikke rigtigt kender folk. Men jeg må prioritere mig selv og mit helbred i denne situation.*
- *Mere information fra ph.d.-skolen ville have været værdsat, navnlig omkring muligheden for forlængelse og herunder særligt finansiering, som jo for os alle er det svage punkt. Jeg står pt. i en situation hvor jeg nok er nødsaget til at forlænge min ph.d. for egne midler (altså arbejde uden løn), hvilket vel ikke kan være en rimelig konsekvens af corona-pandemien.*

- *I might not be able to finish the project in time, since I wasn't able to include participants in the study for 3-4 months and therefore is 3-4 months behind the time plan..*
- *Covid19 has made my project halt in its progress. It has made it difficult to recruit participants since we depend on the GPs and spine units. We have had to cancel a lot of our activities due to the lockdown*
- *I was disappointed when I called the ph.d.-school, where they said that they do not acknowledge, that having to care for your children at home (I have three under the age of 6 years old) while working at home – is not a reason to get extension on your ph.d. So far, I have had children at home in a total of three months. I am also having a hard time finding a teaching assignment. I had to wait a long time to get legal agreements in place and data provided on DST.*
- *So far I have spent most of the time at home for 8 months and I feel isolated writing a PhD without any daily contact to colleagues or supervisors.*
- *I need my last course to obtain 30 ECTS. It was recently cancelled due to covid19. Am to turn in my thesis 11 December and grad school has been very reluctant to answer my application of exemption (approx 1.5 ECTS) and only to suggest "some online course". Does not seem to have any concern that the course should be relevant nor of sufficient quality. Feels like the bureaucracy is charging ahead not giving any thoughts to the fact that the covid19 created a situation where they cancelled a course leaving the phd student in the current situation.*
- *Taken into account that I have just started my PhD study, I do not know, if I am missing out on any information that usually is provided by the Graduate School of Health or the Department. Though, I believe, the normal amount of networking through attendance at the PhD courses has been comprised by teaching now being online.*
- *I have become more effective while working from home. Fewer distractions, able to spend concentrated hours on eg. Data management without interruptions. Supervisors and co-workers have been more accessible when all were working from home. Online meetings tend to be more focused and to the point than meeting in person.*

## Conclusion

Overall we have collected answers from a broad range of PhD and research year students distributed on all three programs, ClinFO, Biomedicine and Public Health. PhD students were distributed almost equally over 1,2 and 3<sup>rd</sup> year students.

62% of the participants estimate that they have been delayed due to the corona virus situation and 15% does not know if they have been delayed, most likely because they recently started their PhD projects. 68% estimate being more than 3 months delayed. Unfortunately, only 18% of the students who report to have a delay have funding for an extension of their project.

Regarding information provided to the students, 50% feel that they have had adequate information from the Graduate School of Health on how to handle the situation, and 25% did not feel that they had sufficient information. Participants who did not feel they have had enough information express worries about how to handle stay abroad, insufficient information about courses and teaching, and how to handle a possible extension both practically and financially. 75% of the participants have discussed the consequences with their supervisor, however, 24% have not.

A variety of factors have been affected for the students. 68% of the students report that conferences have been canceled. Cancellation of conferences are not only affecting the young researchers opportunities to present their work but will also reduce the chance of broadening their scientific network and establish international collaborations. The working environments have changed, also for the students, which causes great frustrations and 69% of the students have had difficulties working from home. This is likely to impact both the students research projects, and final product, the thesis, but also the students' psychological wellbeing. 29% of the students report that they have had mental or stress related issues as a consequence of the corona virus situation.

As a consequence of both the limited access, delayed research projects, and poorer working environments (difficulties working from home) 44% of the students estimate that they will have less time to write their dissertation. 1/3 of students also estimate that they will publish less and/or of poorer quality than they expected.

The majority of the students are worried about their research stay abroad which is not only important for their research projects, but also for personal development and broadening of the young scientist research network. The many frustrations have caused 13% of the participants to consider not finishing their PhD/research projects.

In conclusion, this report document that the lockdown of laboratories, libraries, clinical and field work etc. due to COVID-19 has had a huge impact on the PhD students' working environment and for some student's severe consequences for their research.

## References

<sup>1</sup> <https://international.au.dk/about/profile/keystatistics/>