

The future of neuroscience research after COVID-19

18 June 2020

Summary

- The British Neuroscience Association conducted an online survey of over 400 neuroscience researchers in the UK to find out how the COVID-19 lockdown has affected their work and ways of working, in order to capture some of the immediate effects on the neuroscience research sector, and some of the likely efforts as the UK begins to move out of lockdown.
- Neuroscientists have told us that they have significant anxieties about how funding pressures will impact salvaging their research after the lockdown, with around 80% of respondents concerned that this will be hindered by insufficient funding.
- Over a quarter of respondents have asked for further support from their primary funder – however, 47% of these respondents were still waiting to hear if support such as costed or no-cost extensions to their grants would be offered to help them.
- At the time this survey was conducted, less than 3% of respondents said they are working at an onsite location – over 86% are working remotely or from home most or all of the time. The vast majority (around 88%) have seen a negative impact on the overall progress of their research as a result, 46% viewing the effects as strongly negative – with efforts to collect data particularly badly impacted, and mixed impacts on supervision & mentoring.
- Some researchers have, however, found some benefits from working remotely – around 40% have experienced positive impacts for writing related to their research, 35% were able to use the change in workplace for increasing knowledge, and over a quarter have been able to acquire new research skills or improve existing ones. Though individual respondents also indicated that their ability to devote extra attention to these areas of their research was not possible due to the increased childcare responsibilities brought about by the lockdown.
- At a time when the UK Government is increasingly encouraging businesses to reopen, there are substantial concerns among neuroscientists about their working environments, with 67% concerned about the lack of guidance from their employer about returning to work, and 77% concerned about the preparedness of their workplaces. There are also concerns that additional pressures, such as organisation of online teaching, and their mental and physical health, could hinder efforts to return their research to pre-lockdown levels.
- There are worrying signs on the impact COVID-19 will have on developing the next generation of neuroscientists, with 32% of respondents considering leaving neuroscience research as a result of COVID-19 – over a quarter are considering leaving research altogether. This impact on the neuroscience research sector could significantly hinder future efforts to further our understanding of disorders of the brain and develop new therapies.

Who responded to this survey?

- 410 neuroscience researchers from across the UK, representing a variety of research settings and career stages.
- Just under two-thirds (65%) of respondents were BNA members.
- UK responses for England and Wales were similar in proportion to relative population sizes, with Scotland slightly overrepresented. We received only 1 response from Northern Ireland. Around 35 responses were also received from outside the UK and have been filtered out of this analysis.
- Together Postgraduates and Early Career Researchers made up over half of the total (over 110 each), with good responses also from Lecturers (around 18%) and Senior Academics (around 16%).
- The most common types of research represented in this survey were: animal in vivo (43%), electrophysiology (35%); animal behaviour (31%); neuroimaging (30%); molecular biology (28%) and animal ex vivo (26%).
- We received very few responses from clinical or commercial neuroscience researchers.
- The survey was conducted online via SurveyMonkey from 19 May 2020 to 10 June 2020.

Current research status

- **Over 86% are working remotely or from home most or all of the time, with less than 3% working onsite. Over 6% are currently furloughed.**
- There was a broad range of primary funding sources, with Wellcome (18%), MRC (15%) and BBSRC (14%) expectedly the largest single funders
- Over a quarter (28%) have requested further funder support. Of these, around 37% have received some or all of the support they requested – most of which have been extensions to stipends or contracts (32 respondents) or no cost extensions (6 respondents).
- **Worryingly, however, funders are still yet to respond to around 47% of those that have requested this support.**
- Early Career Researcher working in human behaviour: “The Wellcome Trust have given a costed extension of contract (for 3 months). I feel like those with caring responsibilities should be granted extra extension. Before I heard about the extension, I reduced my days to 4 days a week to stretch my funding further (but this means a loss of income).”

Immediate COVID-19 impacts on current neuroscience research

- **The vast majority (around 88%) have seen a negative impact on the overall progress of their research, with 46% viewing this as strongly negative.**
- Over 91% have experienced a negative impact on data collection
- Over half (54%) indicated it has had a negative impact on discussing research and exchanging ideas, while over 55% feel it has negatively impacted on supervising and mentoring

- On other areas of research, the impacts were more mixed, with some finding positive impacts aspects of research able to continue remotely during lockdown. Around 40% considered it to have been positive for writing, 35% positive for increasing knowledge, and over a quarter (26%) have been able to acquire new research skills or improve existing ones.
- However, a majority (57%) found that it had no impact on them making research more open, or exploring [reproducible research practices](#) such as Registered Reports.

Comments

- Postgraduate researcher in human behaviour: “A lot of potential PhD studentship funding has been cut by the universities, attempting to mitigate the financial impact of COVID-19. As such, I know myself and many other students have missed out on potential places and will have to re-apply next year or find a research assistant job in the meantime.”
- Lecturer in animal behaviour: “I think the effect of school closure has been enormous on parents. Which increases the gap between researchers with or without kids. I think this should be taken into consideration in future grant calls, so parents recover a little bit from the disadvantage due to childcare.”

Returning neuroscience research to pre-lockdown levels

- Around half of respondents (51%) expect to be able to resume progress on their research at March 1st levels by the end of the year.
- **However, neuroscientists have told us that they worry about how funding pressures will impact restoring their research, with around 80% of respondents concerned that this will be hindered by insufficient funding.**
- Over half (53%) are concerned colleagues will leave their research group.
- Nearly half (49%) are concerned they will not be able to restore key resources for their research such as cell lines, animal strains or patient cohorts.
- **Over two-thirds (67%) are concerned about the lack of guidance from their employer about returning to work.**
- Over 55% are concerned about additional roles that they may need to now take on, such as contingency planning and admin.
- **For those with a teaching element to their role, around two-thirds (over 160 respondents) are concerned about how organising online teaching will affect them returning their research to pre-lockdown levels.**
- 77% are concerned about the research facilities they work in not being ready.
- **Nearly two thirds (over 250 respondents) are concerned about how their own mental wellbeing will affect returning research to pre-lockdown levels, with over half (56%) also concerned about their own physical health and safety.**

Comments

- Senior Academic Researcher in human behaviour: “I am concerned that in addition to difficulty resuming testing human subjects my research and career with very negatively impacted by my childcare duties. I am a research fellow and therefore am concerned it will be difficult to find a new contract.”
- Senior Academic Researcher in animal behaviour: “My fellowship is due to finish next year. We have received a 3-month salary extension and a 6-month extension to the end date. However, this year was the key year to be collecting the data after several years of training the animals and developing the new techniques to use in my lab. I am worried that there won't be enough time to re-train the animals and complete all the experiments in time. We have had to maintain the implants on the animals, which has been difficult as we continue to go into work and clean them but can't train them or collect any data from them.”
- Postgraduate researcher in electrophysiology: “Researchers with strict visa restrictions are now between hammer and anvil. We want to finish research and publish the results - for this we need flexible visa extensions, but we don't have any support...from the Home Office.”
- Lecturer in Animal ex vivo: “I have an industry funded project whose final months have been disrupted by COVID-19 - the staff contracts supporting this work will end before we can return to the lab so I am concerned that we can't complete the work satisfactorily. With this in mind it seems the situation could reduce my chances of securing further funding for the project.”

Long-term outlook for neuroscience research

- There is a great deal of concern among neuroscience researchers about the future. **Over 85% believe that COVID-19 will have a negative impact on the neuroscience research sector as a whole.** Only 2% believe that there will be an overall positive impact.
- The majority of neuroscience researchers (around 54%) don't expect to be able to start any new research projects until next year at the earliest.
- Over three-quarters (77%) are considering reducing travel to conferences/meetings.
- **Of particular concern, 32% are considering leaving neuroscience research as a result of COVID-19, with over a quarter of all respondents (27%) considering leaving research altogether.**

Comments

- Early Career Researcher in animal behaviour: “I think a lack of funding opportunities could make it very difficult for early career researchers to progress in academia. There will be less opportunities and if they are competing against labs which are already established it will be very difficult to win grants. The knock-on effect is that they stay in postdoc positions (which there will be less available of) and they may out-compete newer postdocs based on experience or they leave research. The government must increase funding to help mitigate the impact of COVID-19. If the pandemic has done nothing, it has highlighted how crucial scientists are and they must be supported during this difficult time.”

- Postgraduate researcher in human behaviour: “[I’m considering] changing research type from face-to-face/neuroimaging to more distanced and qualitative work”
- Early Career Research in animal in vivo: “Clearly we are going to be operating at a tiny percentage of normal experiment capacity for some considerable time and so returning to work this month does not mean a return to normal. Projects are not going to move quickly enough to be completed before salary funds are exhausted for a lot of people, and it will be too competitive grant wise now for many of those individuals to stay afloat.”
- Senior Academic Researcher in human clinical trials: “I...was in the process of establishing their own research group. This will now no longer be permitted at my institution. I fear that all mid-level researchers will suffer in this period and will be culled by departments as they elect to support the most senior and junior members of departments.”
- Early Career Research in molecular biology: “I might be forced out of science. My fellowship was for 20 months, I was 5 months in when the labs were closed - I'm not sure I'm going to get enough data for papers and follow on funding.”
- Postgraduate researcher in neuroimaging: “My research involves addiction in the black community, especially migrant African community. Before all of this, it was hard to recruit and I had to travel to different cities to test. Now with Covid, many of participants who already come from low SES backgrounds may not feel safe or financially able to travel to the fMRI centre. I am trying to find a grant to support me with recruitment. But I think more importantly when there is limited research involving BAME groups. There is still no support in neuroscience for research in Non-western communities.”
- Lecturer in human experimental medicine: “The uncertainty about when we can return to testing human participants will almost certainly have some seriously negative consequences for me and my research, but I am more concerned about how it is going to affect my junior colleagues: to our knowledge our PhD students’ studentships are not going to be extended to compensate for time lost unable to collect data. This is a very significant weight to expect our junior colleagues to shoulder.”
- Lecturer in human clinical trials: “With all conferences going virtual I think that will have a negative impact on networking and ability to initiate new collaborations.”
- Early Career Researcher in molecular biology: “COVID-19 lock-down has meant that working from home has become the norm. I personally conduct better work from home, due to the noise from our open office space. I would hope working from home could become a feasible option for dry lab work/data analysis/writing in the future.”

Policy implications for neuroscience research

- The UK Government imposed the lockdown measures on the evening of 23 March. The BNA wrote to all major funders of neuroscience on 2 April urgently requesting costed extensions for all grants, studentships and fellowships. Nearly half of neuroscientists that have requested additional support from their funders are yet to receive reassurance on this. Taken together with the overwhelming majority feeling concern about funding

hindering their ability to restore their research to pre-lockdown levels and there is still a clear need for additional funding support to get neuroscience research back on track.

- At a time when the UK Government is increasingly encouraging businesses to reopen post-lockdown, there are substantial concerns among neuroscientists about their working environments – with a lack of guidance from employers, readiness of facilities, and additional pressures such as the need to organise online teaching. There is a need for improved guidance for neuroscience researchers, and better support from employers.
- Of particular concern is the potential effect that COVID-19 is having on developing the next generation of neuroscientists
- One major warning sign is the proportion considering leaving neuroscience as a result of COVID-19, which could significantly hinder efforts to further our understanding of disorders of the brain and develop new therapies.

Survey limitations

- Results are unweighted.
- Findings may not be applicable to Northern Ireland due to the very small number of respondents based there.
- Clinical and commercial settings are significant for neuroscience research but are underrepresented within this survey.
- While the overall sample size is strong, some individual questions conditional on prior answers (particularly on funding support) have low sample sizes.
- The results provide a snapshot of views in an environment where the advice and guidance of the UK and devolved governments on the lockdown has been updated over the course of the survey being conducted.

Survey Results

Q1. Are you a BNA member?

	Responses	
Yes	65.12%	267
No	34.88%	143
	Answered	410

Q2. What best describes your position?

Research position	Responses	
Undergraduate/Student	2.93%	12
Postgraduate	27.07%	111
Early Career Researcher	27.80%	114
Senior Academic Researcher	16.34%	67
Senior Clinical Academic	1.95%	8
Lecturer	17.80%	73
Scientist/Researcher in Commercial Sector	0.98%	4
Other Role in Commercial Sector	0.49%	2
Early Career Clinical Researcher	0.73%	3
Clinical Researcher	0.98%	4
Other	2.93%	12
	Answered	410

Q3. Where are you based?*

Country	Responses	
England	83.41%	342
Scotland	12.20%	50
Wales	4.15%	17
N. Ireland	0.24%	1
	Answered	410

*35 responses from outside the UK filtered out of totals

Q4. What is the primary source of funding supporting your research?

Funder	Responses	
BBSRC	13.66%	56
MRC	15.12%	62
Other Research Council	4.63%	19
NIHR	1.71%	7
Wellcome	17.80%	73
Other charity	14.15%	58
UK Government	4.39%	18
EU programme	6.10%	25
Studentship	9.02%	37
Other	13.41%	55
	Answered	410

Q5. Which of the following describes your research? Tick all that apply.

Research discipline	Responses	
In vitro Primary tissue culture	20.00%	82
In vitro Secondary tissue culture	10.98%	45
Animal Ex vivo	26.10%	107
Animal In vivo	42.93%	176
Animal Behaviour	31.22%	128
Human Experimental medicine	11.22%	46
Human Behaviour	21.71%	89
Human Clinical trials	5.61%	23
Molecular biology	28.05%	115
Electrophysiology	35.12%	144
Neuroimaging	29.76%	122
Bioinformatics, Neuroinformatics	9.51%	39
Epidemiology	2.68%	11
Modelling	11.95%	49

Theoretical neuroscience	5.61%	23
Other (please specify)	5.85%	24
	Answered	410

Q6. Currently, what is your employment status?

Status	Responses	
Working at a work/onsite location most or all of the time	2.72%	11
Working remotely / from home most or all of the time	86.39%	349
Furloughed (you remain employed, but are not currently carrying out your role)	6.19%	25
No longer employed in the job I had prior to 1st March 2020 as a result of COVID-19; I intend to seek work and REMAIN in neuroscience research	0.74%	3
No longer employed in the job I had prior to 1st March 2020 as a result of COVID-19; I intend to LEAVE neuroscience research sector	0.25%	1
Other	3.71%	15
	Answered	404

Q7: Have you requested further support from your funders for your research as a result of COVID-19?

Requested support	Responses	
Yes	28.47%	115
No	55.94%	226
N/A	15.59%	63
	Answered	404

Q8. What has been the response to your request from funders?

Funder response	Responses	
Funders have provided ALL the support requested	12.93%	15
Funders have provided SOME of the support requested	23.28%	27
Funders have NOT been able to provide the support requested	16.38%	19
Still awaiting response	47.41%	55
	Answered	116

Q9. What support have funders provided?

Funder support	Responses	
Extended contracts/stipends	78.05%	32
Resources to replace lost research materials	7.32%	3
Alternative access to research facilities	0.00%	0
Other (please specify)	29.27%	12
	Answered	41

Q10. For each of the following, please rate the immediate effect COVID-19 has had on research you were carrying out prior to 1st March 2020.

Research activity	Strongly positive		Positive		No impact		Negative		Strongly negative		N/A		Total
Overall progress of research	1.32%	5	2.12%	8	7.94%	30	42.33%	160	45.77%	173	0.53%	2	378
Data collection	1.06%	4	1.06%	4	5.03%	19	15.08%	57	76.46%	289	1.32%	5	378
Data analysis	5.03%	19	23.28%	88	31.22%	118	28.84%	109	9.79%	37	1.85%	7	378
Writing (papers, chapters etc)	7.94%	30	32.28%	122	30.16%	114	22.49%	85	5.29%	20	1.85%	7	378
Preparing funding proposals/applications	2.91%	11	13.76%	52	31.75%	120	20.63%	78	10.32%	39	20.63%	78	378
Increasing knowledge	6.88%	26	28.57%	108	31.48%	119	23.28%	88	9.52%	36	0.26%	1	378
Acquiring new, or improving existing, research skills	3.17%	12	22.49%	85	24.87%	94	28.31%	107	19.58%	74	1.59%	6	378
Discussing research / exchanging ideas	3.17%	12	14.02%	53	28.04%	106	38.62%	146	15.61%	59	0.53%	2	378
Supervising and mentoring	1.06%	4	8.20%	31	26.72%	101	42.33%	160	13.23%	50	8.47%	32	378
Making research more open e.g. adding data to repositories	1.06%	4	6.35%	24	56.61%	214	11.90%	45	5.56%	21	18.52%	70	378
Exploring or using reproducible research practices e.g. Registered Reports	1.32%	5	6.88%	26	56.61%	214	7.67%	29	3.70%	14	23.81%	90	378

Q11. When is the earliest you expect to resume progress on CURRENT projects, at the same levels it was progressing prior to 1 March 2020?

Resume at pre-March level	Responses	
Prior to October 2020	21.16%	80
Oct -Dec 2020	29.63%	112

Jan-March 2021	20.37%	77
Apr-June 2021	7.94%	30
July-Sept 2021	2.91%	11
Later than October 2021	2.12%	8
Don't know	15.87%	60
	Answered	378

Q12. Please rate your concern about the following factors in context of resuming CURRENT research, at a level at or near that prior to 1 March 2020

Factor	Not concerned at all		Not very concerned		Slightly concerned		Very concerned		N/A		Total
Not having sufficient funding	6.08%	23	10.05%	38	31.48%	119	48.68%	184	3.70%	14	378
Colleagues leaving my research group	10.05%	38	23.81%	90	32.54%	123	20.90%	79	12.70%	48	378
Inability to restore cell lines / animal strains / patient cohorts etc	7.94%	30	16.40%	62	27.25%	103	21.69%	82	26.72%	101	378
Inability to obtain required reagents etc from suppliers	6.88%	26	22.49%	85	30.95%	117	11.38%	43	28.31%	107	378
Inability to recruit human subjects	6.08%	23	3.97%	15	13.23%	50	24.60%	93	52.12%	197	378
Unclear guidance from University/employer about resuming work	6.88%	26	21.69%	82	38.62%	146	28.84%	109	3.97%	15	378
Having to take on new tasks/roles e.g. contingency planning, admin	9.52%	36	23.28%	88	31.75%	120	23.81%	90	11.64%	44	378
Online teaching organisation	8.20%	31	14.02%	53	21.96%	83	20.63%	78	35.19%	133	378
Preparedness of research facilities	4.50%	17	13.49%	51	47.09%	178	30.16%	114	4.76%	18	378
My own mental wellbeing	10.58%	40	21.96%	83	42.33%	160	24.07%	91	1.06%	4	378
My own physical health and safety	15.08%	57	28.31%	107	38.89%	147	16.67%	63	1.06%	4	378

Q13. When is the earliest you think you could start NEW research projects?

Start new projects	Responses	
Prior to October 2020	7.20%	27

Oct -Dec 2020	19.20%	72
Jan-March 2021	32.00%	120
Apr-June 2021	11.73%	44
July-Sept 2021	6.13%	23
Later than October 2021	4.53%	17
Don't know	21.60%	81
	Answered	375

Q14. Are you considering any of the following as a direct result of COVID-19? Tick all that apply

Resulting from COVID-19	Responses	
Reducing travel to conferences/meetings	77.33%	290
Changing research field from neuroscience	9.87%	37
Leaving research	27.47%	103
None of these	13.87%	52
Other	10.13%	38
	Answered	375

Q15. What do you think the impact of COVID-19 will have on neuroscience research sector as a whole?

Impact on neuroscience research	Responses	
Very positive	0.27%	1
Positive	1.87%	7
Neutral	12.00%	45
Negative	61.07%	229
Very negative	24.80%	93
	Answered	375

The British Neuroscience Association is a registered charity.

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For further info on the BNA visit: www.bna.org.uk