

# Covid-19 impacts survey



## Findings

### March 2021

In November 2020, during the second national lockdown, the Royal Society of Chemistry (RSC) surveyed our UK-based members to understand the impact of Covid-19 on their work, education, and the future of the chemical sciences. Over 1,600 responded, and their responses paint a picture of the areas that chemical scientists are most concerned about as they face a second year of the impacts of a global pandemic.

Throughout 2020-21 we have been proud of the varied contributions from our community, and of chemistry's role in the global, multidisciplinary efforts to control and eradicate the virus. From a clean water supply to computer-aided drug design, chemical scientists of all kinds have worked hard to keep us healthy and safe.

Many in the chemistry community have been making their contribution to the global fight against coronavirus while staying safely at home, despite the new array of challenges, both short- and long-term, this presents. And many others – often those designated as key workers by governments – have been going into their laboratories, offices and other workplaces to carry on essential work, even as the pressures of the pandemic have caused disruption and a need to quickly adapt.

This document is a factual report of the results designed to set out the outcomes of the survey. An accompanying document is also available [from our website](#) that summarises the key findings and sets out how the RSC is using the survey results to progress our work supporting the chemical sciences community. We are grateful to all those who took the time to respond to this survey, providing us with valuable insight into how Covid-19 has and will continue to affect our community.

### About the survey

- Open to UK-based RSC members, excluding school teachers.
- Open for two weeks in November 2020.
- Survey aims:
  - To understand the longer-term impacts of Covid-19 on chemical sciences and on RSC members;
  - To obtain good quantitative data to prioritise and support RSC advocacy on their behalf;
  - To inform RSC support to members.

### Key findings

- **Widespread adaptation to a changed environment:** In a challenging year, RSC members have worked hard to continue and adapt the way they do their jobs, and to continue their learning, in more difficult circumstances.
- **Greater concern among academics:** Academics are consistently more pessimistic about the impacts of Covid-19 than their counterparts in industry and other sectors. Academics typically report having experienced worse impacts so far than people in industry, and generally predict worse impacts of Covid-19 on their work, lives and the chemical sciences.

- **Personal job insecurity:** There is significant concern about job loss, and those who expect to be seeking a new job in the coming year are very likely to expect the pandemic to have a negative impact on their ability to find one.
- **Negative impacts of lab access restrictions:** Restricted access to labs is having a negative impact on both research and education, and many in our community anticipate potential long-term impacts on the quality of scientific research and skills and career development for early career scientists.
- **New graduate job prospects:** Undergraduates and postgraduates (particularly those completing their studies in the next year) are very likely to expect Covid-19 to have a negative impact on their ability to find future employment, with many reporting that they have not been able to access suitable practical simulations effectively as a result of teaching moving online. Undergraduates in particular are concerned about developing the skills needed for future employment.
- **Developing international relationships:** Our community is concerned that Covid-19 may have a negative long-term impact on international scientific relationships, particularly when it comes to developing new relationships.

*Some of the information set out in this report includes analysis of responses from a sample size of less than 100. Where this is the case, chart data is shown in grey.*

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# Respondents

## 1649 total respondents

Career stage	No. respondents
Apprentice	4
Undergraduate	113
Postgraduate (including PhD students)	138
Early career	190
Mid-career	250
Established career	560
Not currently working or learning	38
Retired	356

Sector	No. respondents
Academia	551
Industry	514
Other (including government, not-for-profit, self-employed, public sector and others)	624

Gender	No. respondents
Female	550
Male	1055
Other/Prefer not to say	44

## Diversity monitoring

All respondents were asked if they would be willing to answer demographic questions as part of our diversity monitoring, and to help us understand the impact of Covid-19 on a range of different groups. Those who declined to answer this set of questions have been categorised as 'Prefer not to say', alongside those who agreed to answer demographic questions but selected 'Prefer not to say' in their response to individual demographic questions.

Ethnicity	No. respondents
Arab	5
Asian	46
Black/African/Caribbean	9
Hispanic	7
Other	2
Other mixed/multiple ethnic backgrounds	25
White	1250
Prefer not to say	305

<b>Nationality<sup>1</sup></b>	<b>No. respondents</b>
Germany	13
Ireland	19
Other countries (with fewer than 10 respondents)	119
Spain	13
United Kingdom	1206
Prefer not to say	303

<b>Disability?</b>	<b>No. respondents</b>
No	1164
Yes	168
Prefer not to say	317

<b>Sexuality</b>	<b>No. respondents</b>
Bisexual	42
Gay	36
Other	34
Straight	1184
Prefer not to say	353

<b>Working pattern</b>	<b>No. respondents</b>
Full time	823
Part time	133
Retired	259
Student	27
Unemployed	59
Other/Prefer not to say	348

<b>Flexible working available?</b>	<b>No. respondents</b>
No	318
Yes	869
Don't know	104
Prefer not to say	358

<b>Currently making use of flexible working?</b>	<b>No. respondents</b>
No	557
Yes	711
Prefer not to say	381

<sup>1</sup> When respondents answered this question, they were given the following context: "This question is about the country or nation that you belong to."

# Laboratory-based research

## Section summary

The vast majority of respondents, who work in a lab or work for an organisation that has labs, reported some restrictions on lab access as a result of Covid-19. Respondents in academia were much more likely than those in industry and other sectors to report significant restrictions on lab access. In industry, respondents at larger organisations were more likely to report restrictions on lab access.

More than four fifths of respondents affected by lab access restrictions said their administrative and planning burden had increased as a result. Nearly one third of those affected said they anticipate a longer-term shift to more scientific work being done outside the lab as a result of Covid-19. The majority of those who expected this long-term shift said this would have a negative impact on the research environment and would make it harder to do rigorous or robust scientific research.

More than half of those affected by lab access restrictions said they were experiencing potential delays to research delivery, while nearly a third said they were experiencing a need to invest in new digital tools/technologies.

## Restrictions on laboratory access

1. 86% of respondents, who work in a lab or work for an organisation that has labs, reported restrictions on lab access as a result of the Covid-19 pandemic. This included 37% who said there were significant restrictions on lab access.

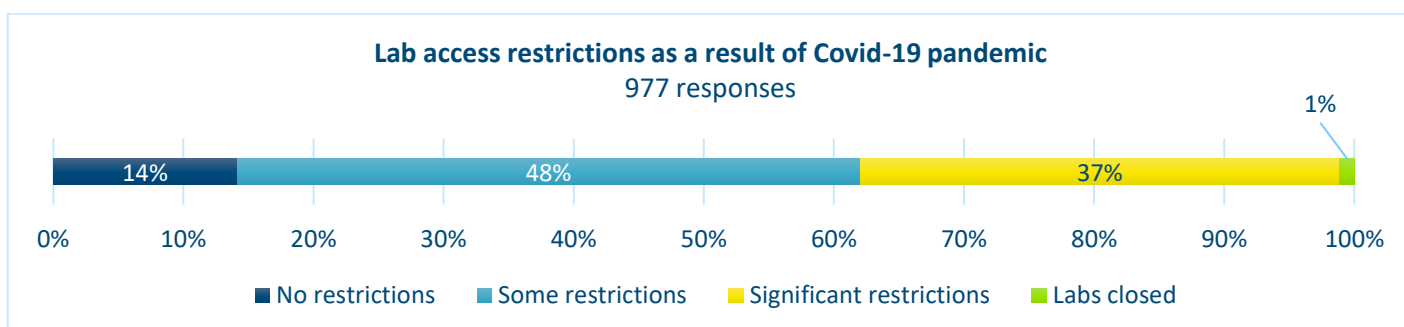


Fig. 1

2. 98% of respondents in academia had experienced restrictions on lab access, compared to 76% in industry and 84% in other sectors.
3. 64% of respondents in academia reported significant restrictions on lab access, compared to 17% of respondents in industry and 26% in other sectors.

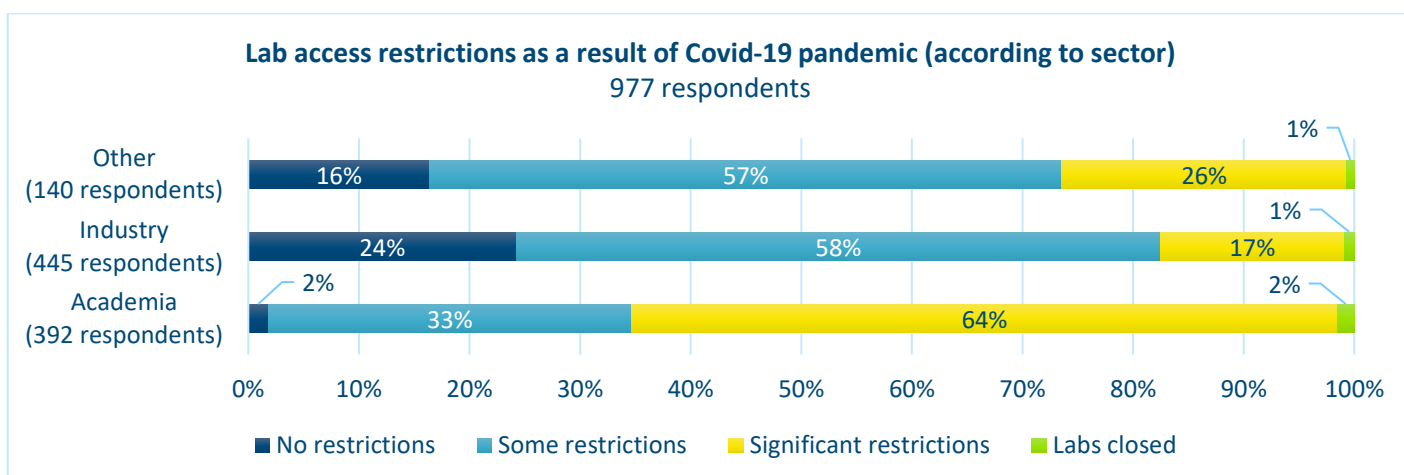


Fig. 2

4. In industry, there was a clear correlation between organisation size and lab access – respondents were more likely to report restrictions on lab access the larger their organisation.

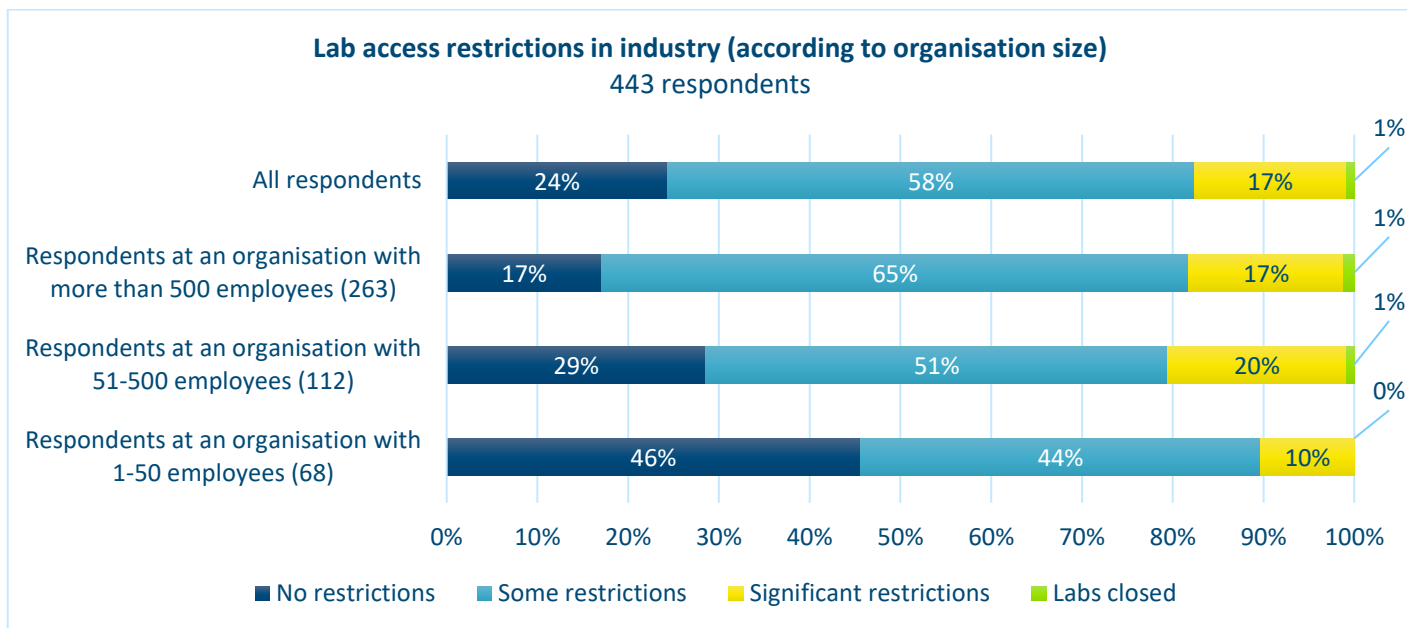


Fig. 3

### Impact on administrative and planning burden

5. Of the respondents who reported restrictions on lab access, 81% said changed access to research labs had increased their day-to-day administrative and planning burden. This number rose to 89% for those who normally do scientific work in a laboratory.

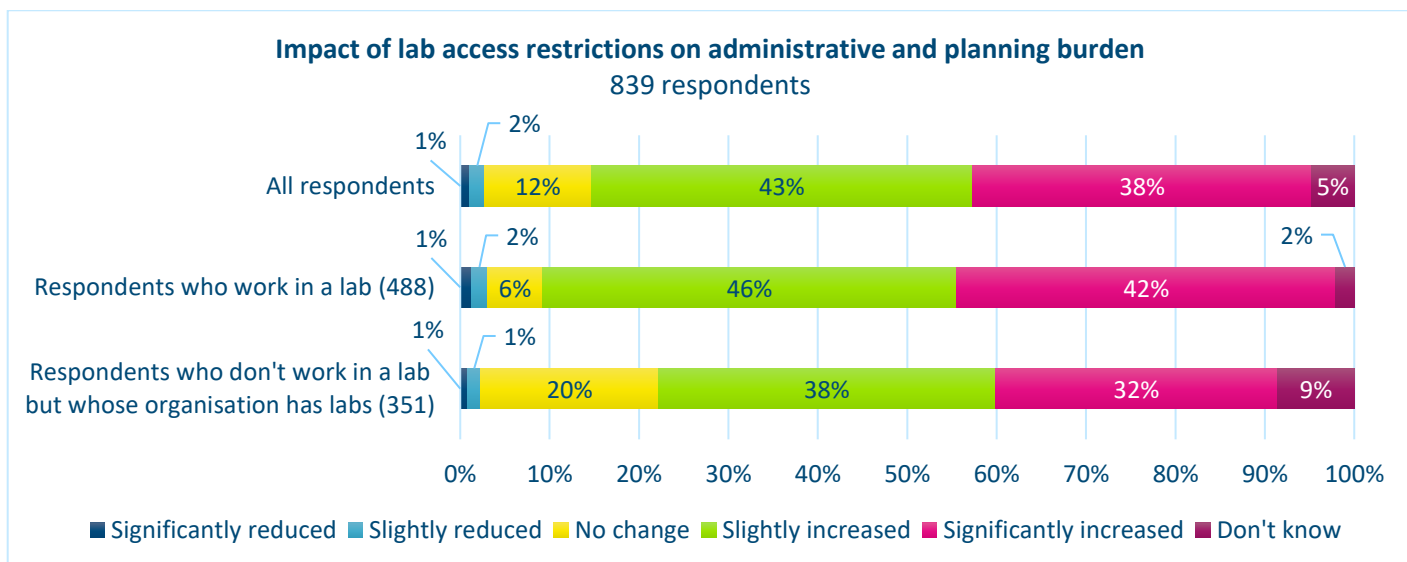


Fig. 4



## Other current impacts

6. Of the respondents who reported restrictions on lab access,
- 55% said they were experiencing potential delays on research delivery;
  - 35% said they were experiencing new restrictions on research activity;
  - 31% said they were experiencing a need to learn new digital skills;
  - 29% said they were experiencing difficulties maintaining/learning lab skills;
  - 25% said they were experiencing a need to invest in new digital tools/technologies.

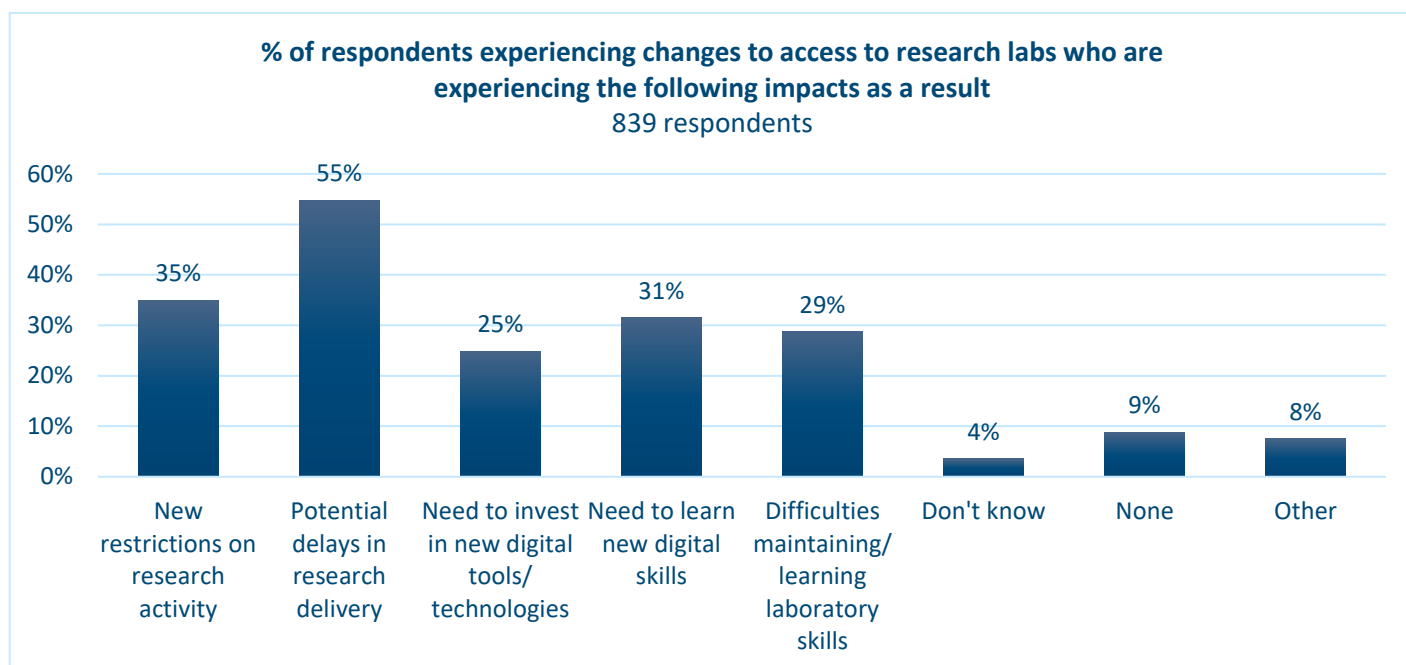


Fig. 5

## Impact on scientific research in the longer-term

7. Of the respondents who reported restrictions on lab access, 31% said Covid-19 related changes would lead to more scientific work done outside the laboratory, in the longer-term.

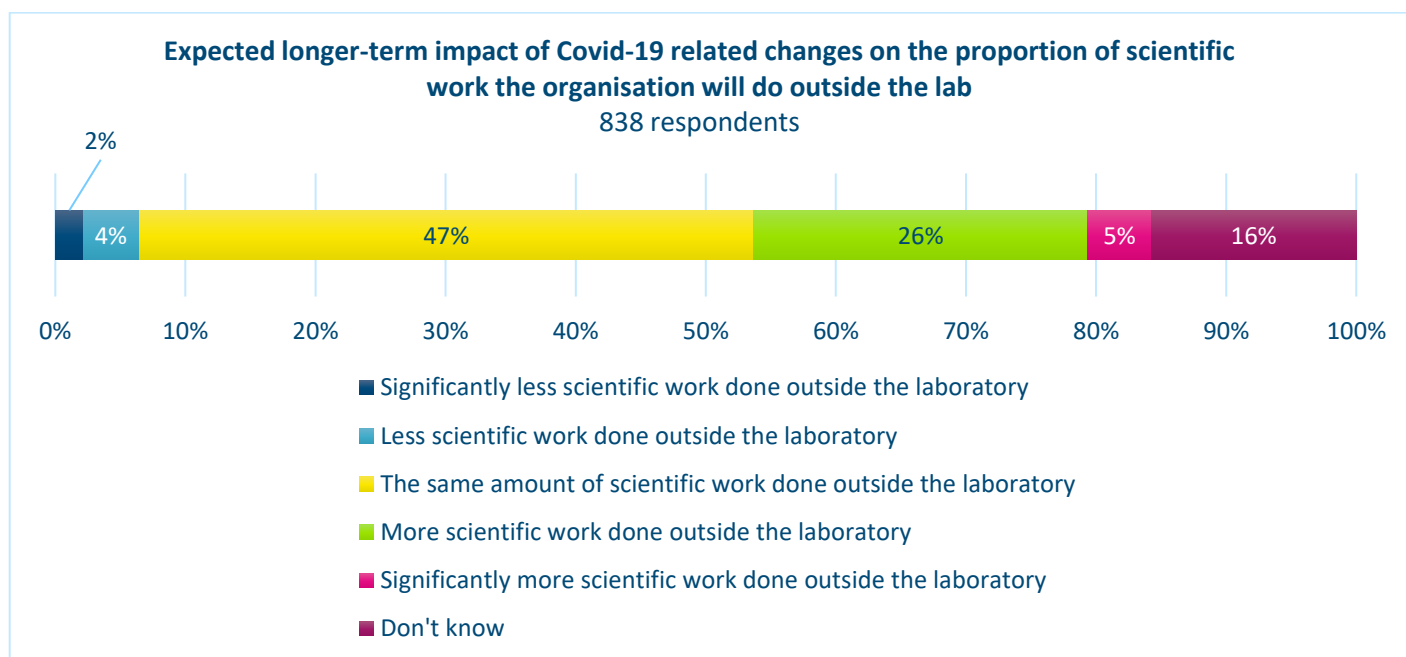


Fig. 6

8. Of the respondents who anticipated that Covid-19 related changes would lead to more scientific work done outside the laboratory in the longer-term, 62% thought that this shift would have a negative impact on the research environment, while 22% thought it would have a positive impact.

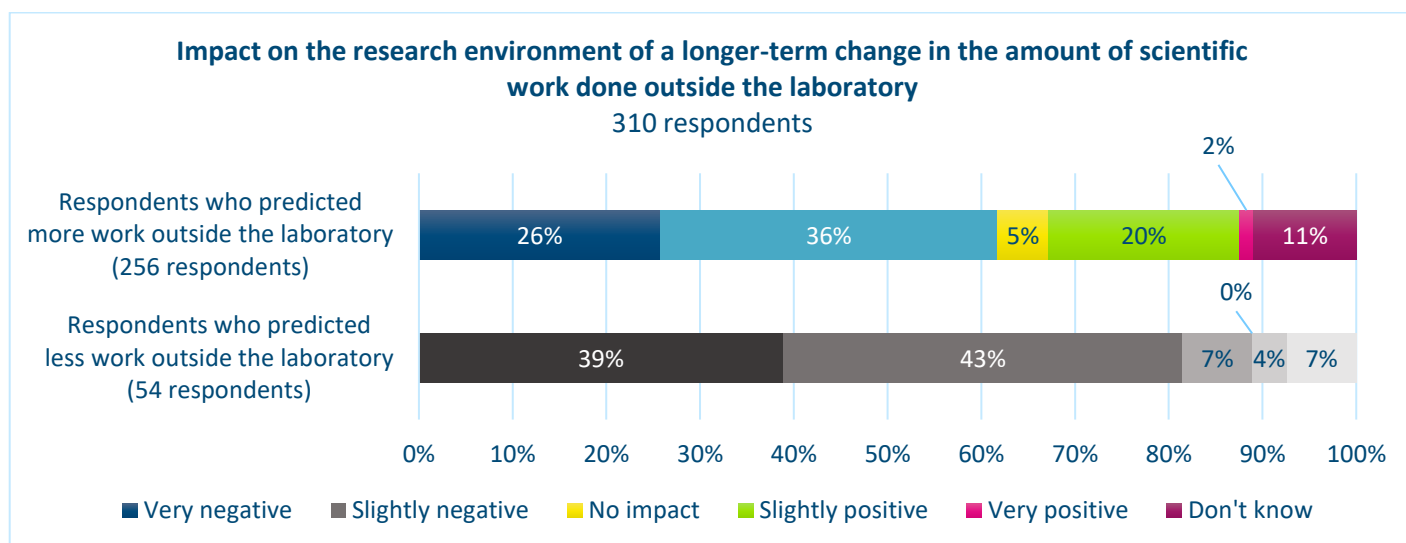


Fig. 7

9. Of the respondents who anticipated that Covid-19 related changes would lead to more scientific work done outside the laboratory in the longer-term, 63% thought that this shift would make it harder to do rigorous or robust scientific research. 21% thought it would have no impact, and only 6% thought it would make it easier.

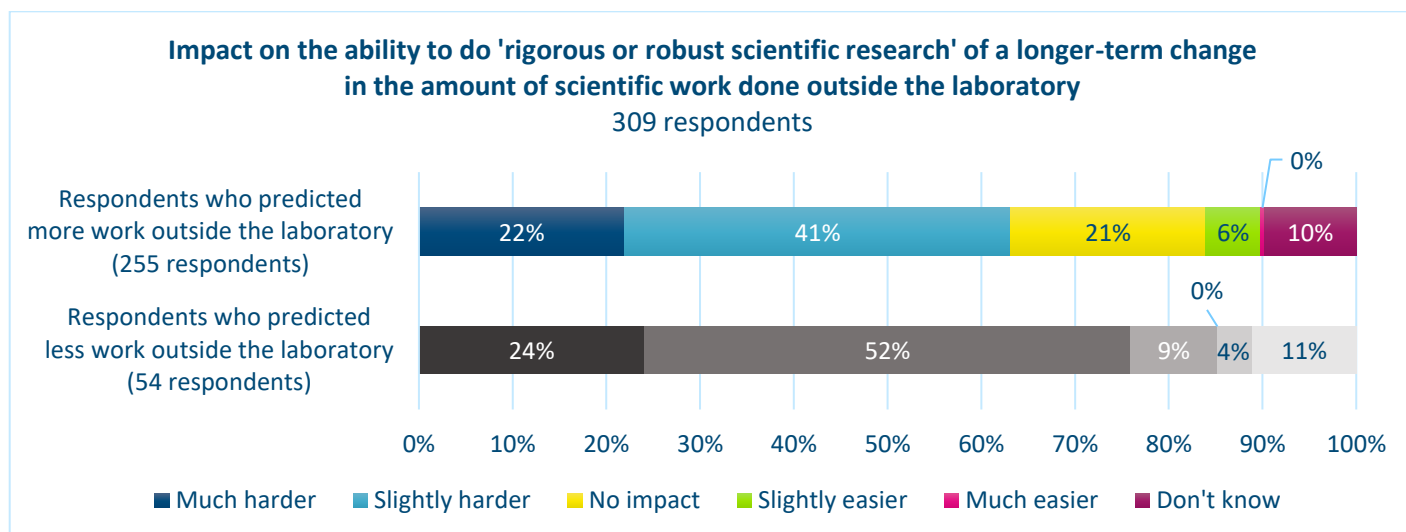


Fig. 8

# Online chemistry education: The university and vocational teachers' perspective

## Section summary

The vast majority of respondents who normally teach, supervise, or support students in a lab said that some timetabled sessions had been moved online last term, as a result of Covid-19 policy, with 23% saying that all timetabled sessions had been moved online. Of those who reported that some of their teaching had been moved online, three quarters said their workload had increased as a result, including more than a quarter who said it had increased by more than 10 hours per week.

Over a third of respondents who normally educate students in a lab said they had been doing more practical teaching online as a result of the Covid-19, with nearly three quarters of those feeling that moving practical teaching online was having a negative impact on the quality of their teaching.

## Teaching online

10. 23% of respondents who normally teach, supervise or support students in a lab said that all timetabled sessions had been moved online this term, as a result of Covid-19 policy.
11. A further 47% said more than half of timetabled sessions had been moved online, with only 16% saying none had been moved online.

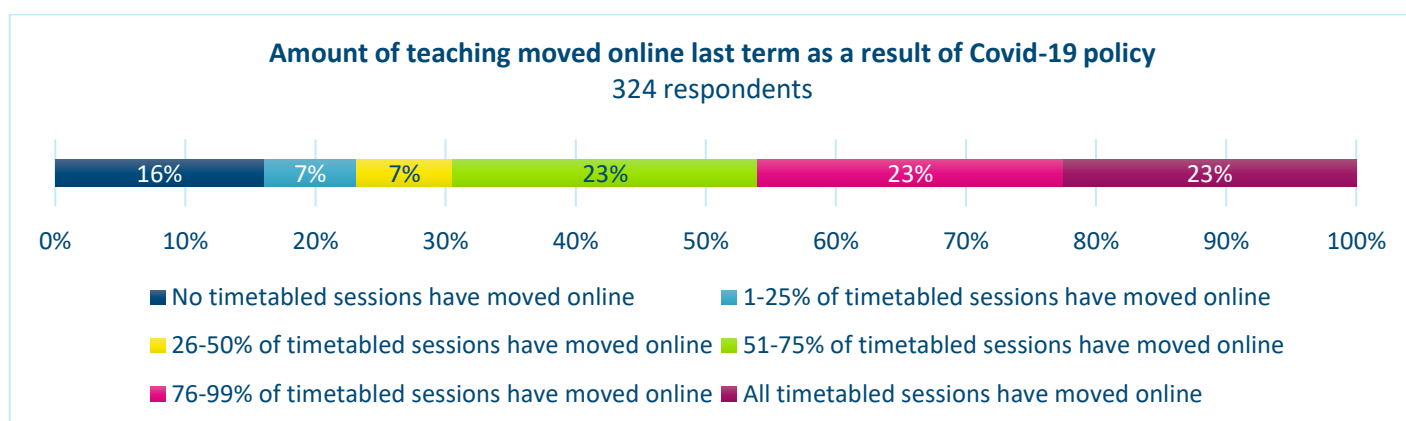


Fig. 9

12. Of respondents who reported that timetabled sessions have been moved online, 76% said it had increased their workload, including 27% who said it had increased their workload by more than 10 hours per week.

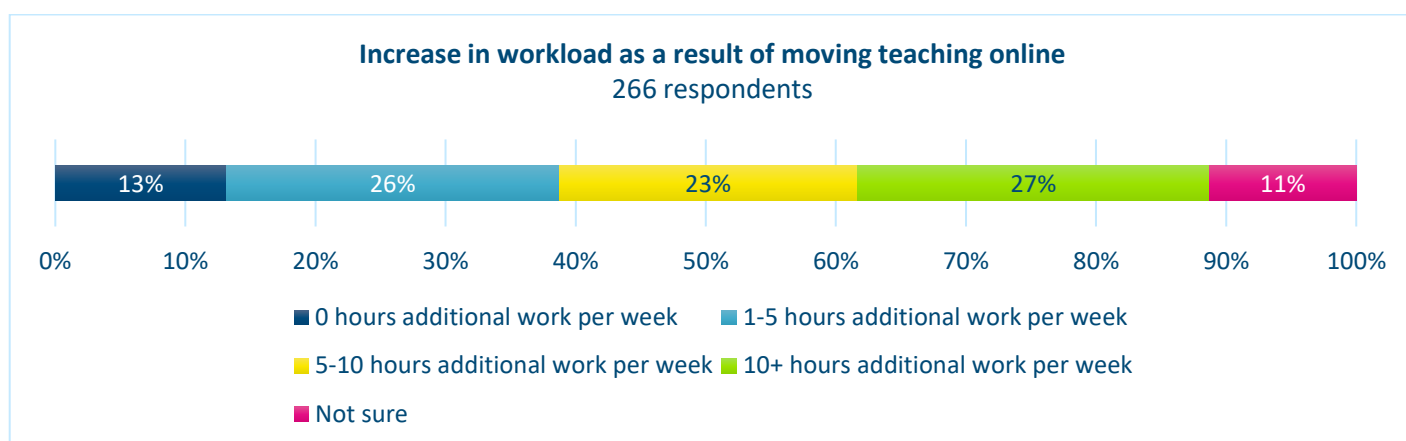


Fig. 10

## Practical teaching online

13. 34% of respondents (who normally teach, supervise, or support students in a lab) said they had been doing more practical teaching online as a result of Covid-19.

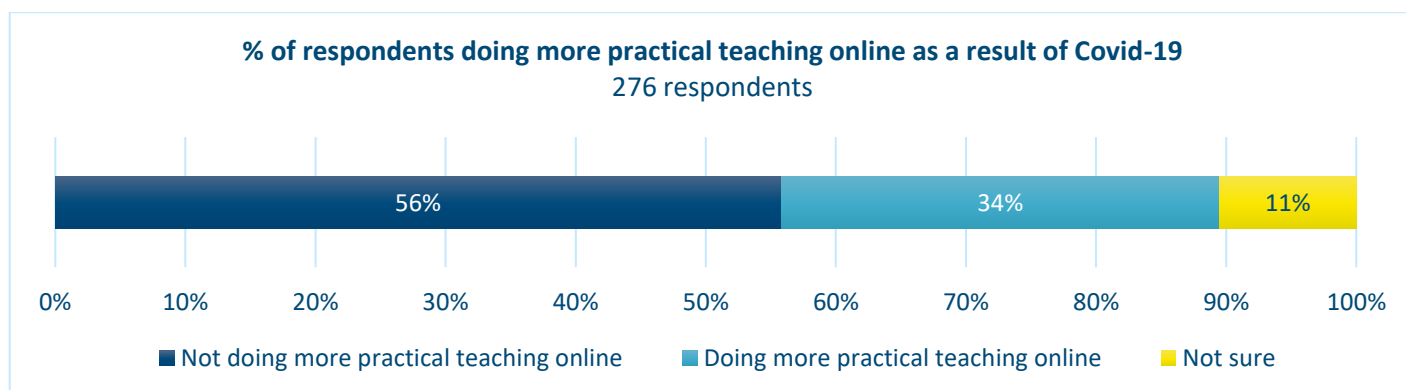


Fig. 11

14. Of respondents who reported that they have been doing more practical teaching online,
- 72% felt that moving practical teaching online had had a negative impact on the quality of their teaching, including 30% who reported a 'very negative' impact.
  - 12% reported a 'slightly positive' impact.

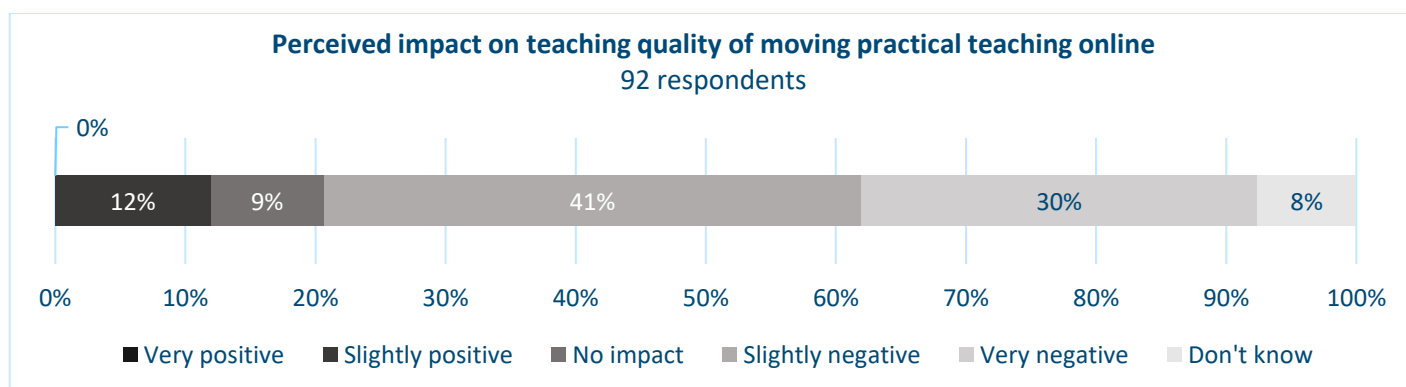


Fig. 12

## Comparing student/teacher responses

15. It is worth noting that those who normally teach, supervise, or support students in a lab (teachers) and those postgraduates and undergraduates who normally receive education in a lab (students)<sup>2</sup> did not report the same level of teaching being moved online, as students were more likely to state that a higher proportion of timetabled sessions had been moved online. This may be due to differences in the sample population or different experiences.

<sup>2</sup> Questions about the experiences of those who normally receive education in a lab were put to undergraduates, postgraduates, and apprentices. However, since only four apprentices responded to the survey, they have been removed from analysis so that the results give a clearer picture of the academic experience. Case studies illustrating the experiences of apprentice respondents are available on page 44.

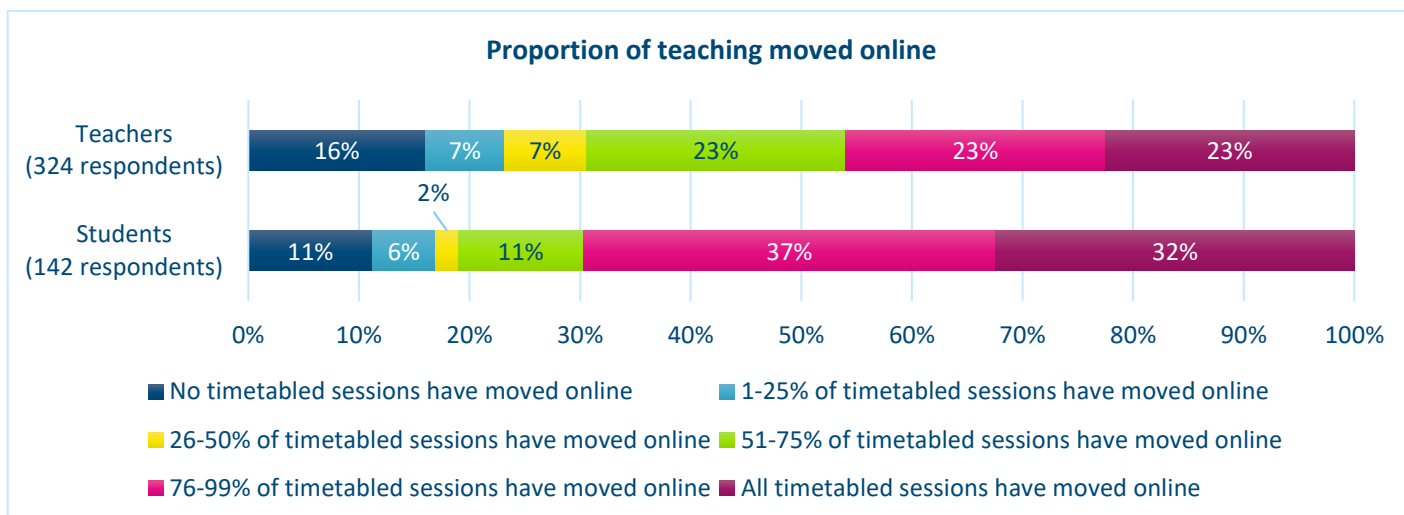


Fig. 13

## Support from institutions

16. Of the respondents who said their teaching had been moved online,
- 62% said their institution had provided the right software to teach remotely;
  - 56% said their institution had provided training and support on learning to use remote teaching tools;
  - 32% said their institution had provided the right hardware to reach remotely;
  - 24% said their institution was listening and responding to their concerns;
  - 21% said their institution had shown flexibility in allowing them to decide when to return to face-to-face teaching.

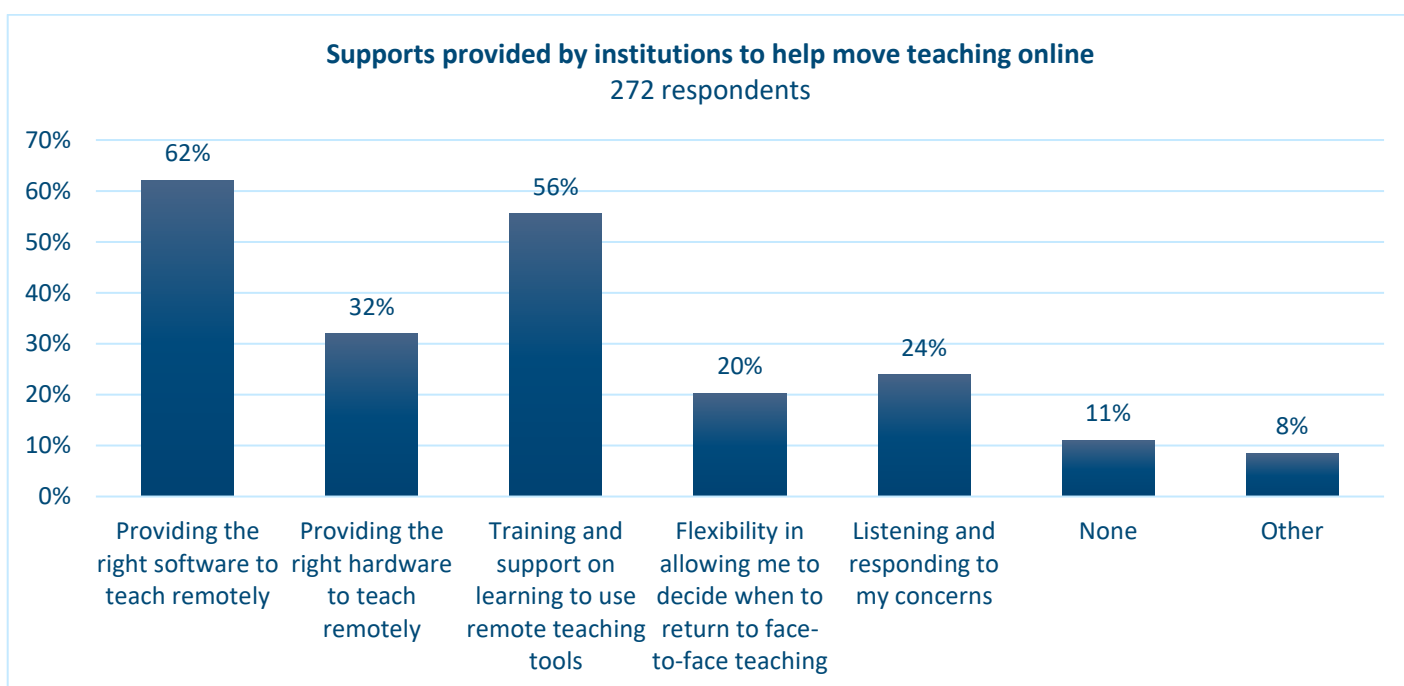


Fig. 14

# Online chemistry education: The students' perspective

## Section summary

The majority of undergraduates and postgraduates<sup>3</sup> who would normally be receiving education in a lab said that more than 75% of their timetabled sessions had been moved online as a result of Covid-19 policy, with nearly a third saying all timetabled sessions had moved online.

The majority said that the digital platform used by their university was effective. However, a majority also said that accessing library resources was less easy, and a significant number said they were less able to access staff and suitable practical simulations. 42% of respondents said that they had been receiving more practical education online as a result of Covid-19 policy and, although the sample size was small, there were indications that the majority of those receiving more practical education online felt it was having a negative impact on the quality of their education.

## Learning online

17. 70% of undergraduates and postgraduates who would normally be receiving education in a laboratory said that more than 75% of their timetabled sessions have been moved online as a result of Covid-19 policy. This included 32% who said all timetabled sessions have been moved online.
18. 99% of undergraduates reported that some timetabled sessions have been moved online, including 80% who said that more than 75% of timetabled sessions have been moved online.
19. As noted previously, student responses about the amount of education moved online do not closely align with teacher responses, perhaps due to different sample populations or different experiences.

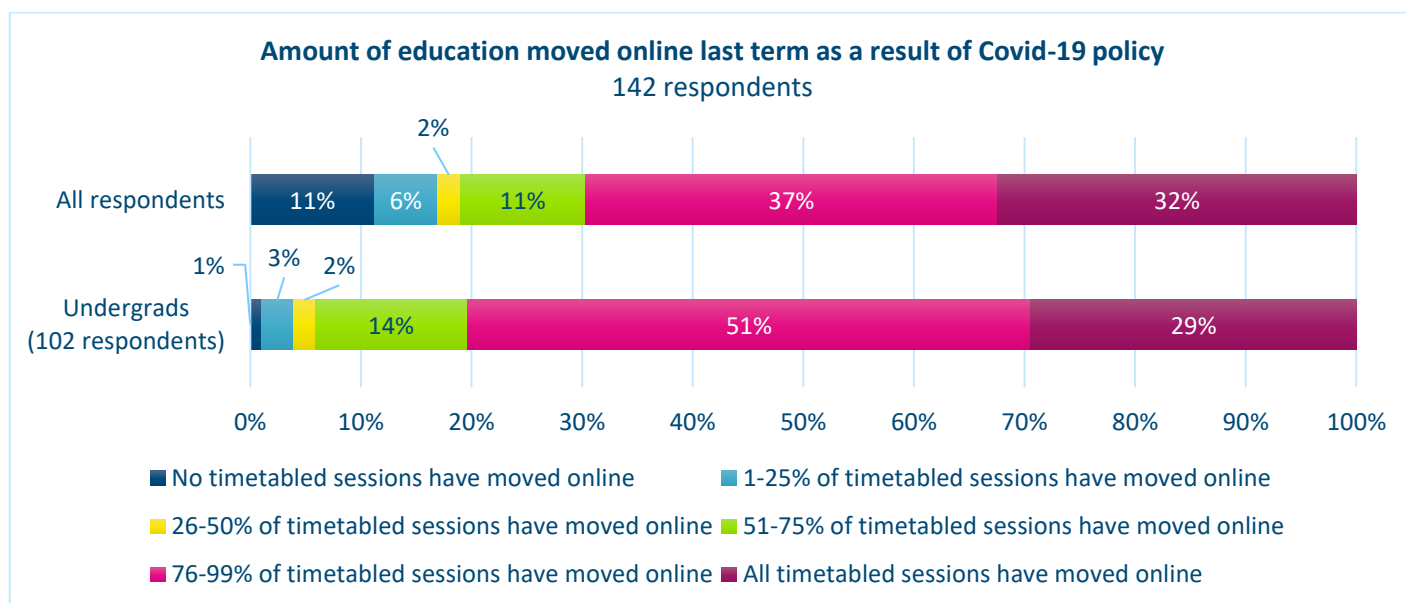


Fig. 15

20. Undergraduates and postgraduates who said that timetabled sessions have been moved online reported the following impacts of teaching moving online:
  - a) 63% said that the digital platform used by their university is effective, including 69% of undergraduates. However, 20% of respondents said that the digital platform used by their university is not effective, including 18% of undergraduates.

<sup>3</sup> Questions about the experiences of those who normally receive education in a lab were put to undergraduates, postgraduates, and apprentices. However, since only four apprentices responded to the survey, they have been removed from analysis so that the results give a clearer picture of the academic experience. Case studies illustrating the experiences of apprentice respondents are available on page 44.

- b) 55% said that accessing library resources was less easy, including 58% of undergraduates. Only 14% said it was easier, including 14% of undergraduates.
- c) 44% said they were less able to access staff effectively, including 44% of undergraduates. However, 29% said they were more able to access staff effectively, including 34% of undergraduates.
- d) 40% said they were not able to access suitable practical simulations effectively, including 43% of undergraduates. 26% said they were able to access such simulations effectively, including 29% of undergraduates.

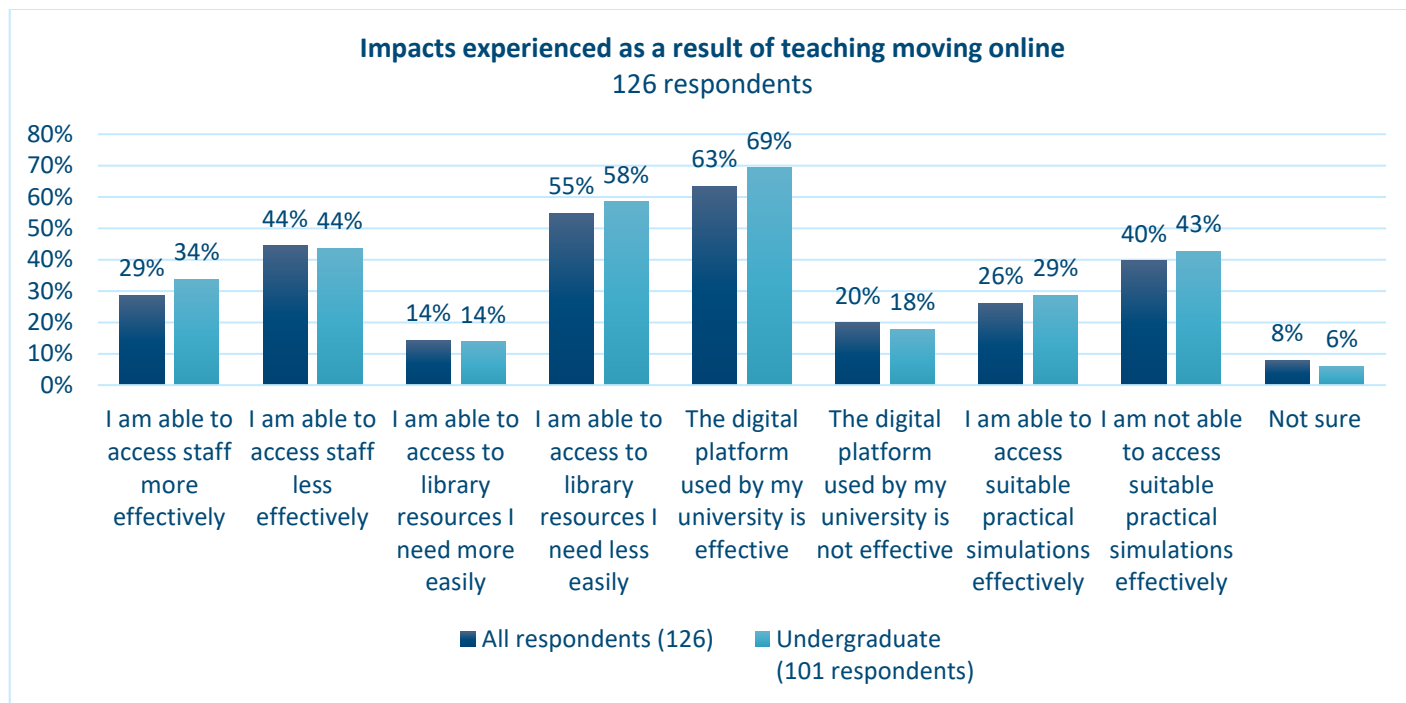


Fig. 16

### Practical learning online

- 21. 42% of respondents said that they had been receiving more practical education online as a result of Covid-19 policy.
- 22. 47% of undergraduates said that they had been receiving more practical education online as a result of Covid-19 policy.
- 23. As noted earlier, student responses about whether practical education has been moved online do not closely align with the responses of educators, perhaps due to different sample populations or different experiences.

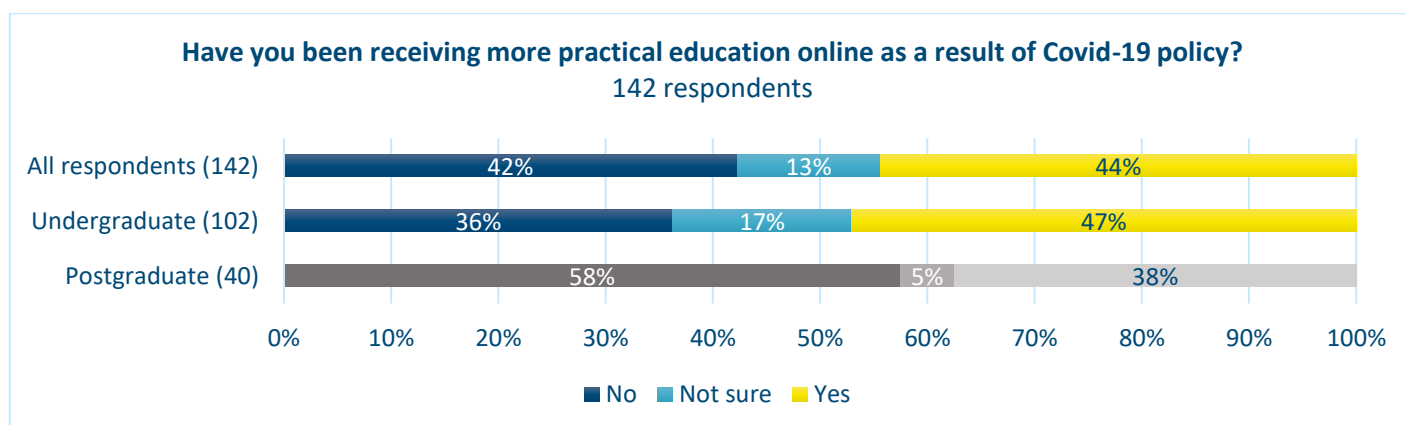


Fig. 17

24. Of those who said they had been receiving more practical education online, 80% said they felt it had had a negative impact on the quality of their learning, including 25% who reported a very negative impact.

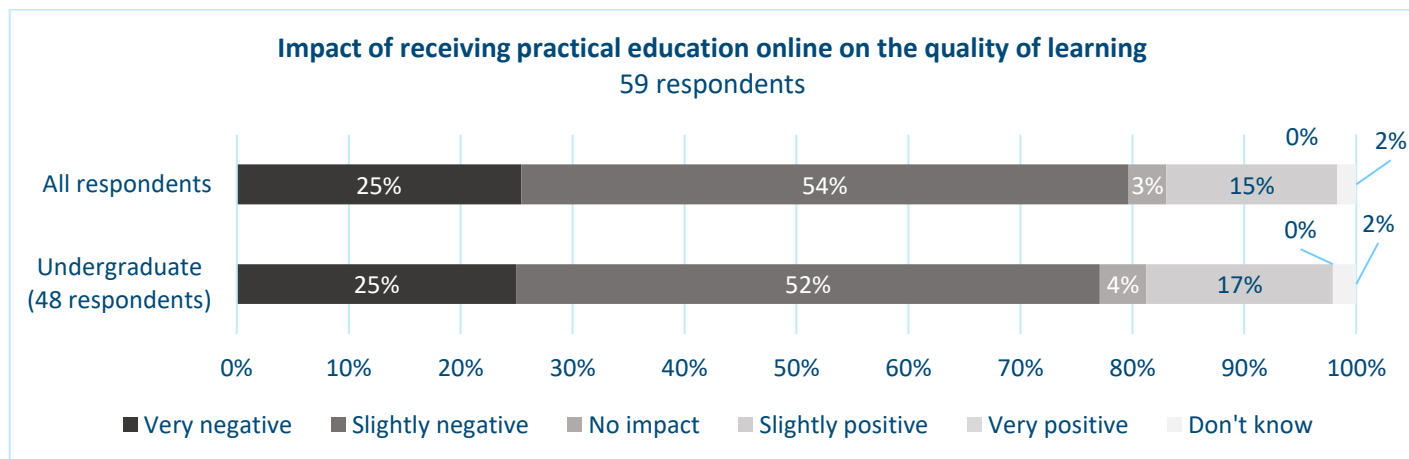


Fig. 18



# Higher education student prospects

## Section summary

The vast majority of student respondents expect Covid-19 to have a negative impact on their ability to find future employment, with a third anticipating a “very negative” impact. Postgraduates are more pessimistic than undergraduates about prospects, and students due to complete their studies in less than a year are more pessimistic than those whose studies finish in more than a year. A third of postgraduate respondents said the pandemic has made it less likely that they will pursue further study upon completion of their current course.

## Finding future employment

25. 80% of undergraduates and postgraduates perceived that Covid-19 would have a negative impact on their ability to find future employment, including 32% who expect a ‘very negative’ impact.
26. Postgraduates are more pessimistic than undergraduates about the impact of the pandemic on their employment prospects: 88% said they think the pandemic will have a negative impact (including 39% who expect a ‘very negative’ impact), compared to 70% of undergraduates (including 22% who expect a ‘very negative’ impact).

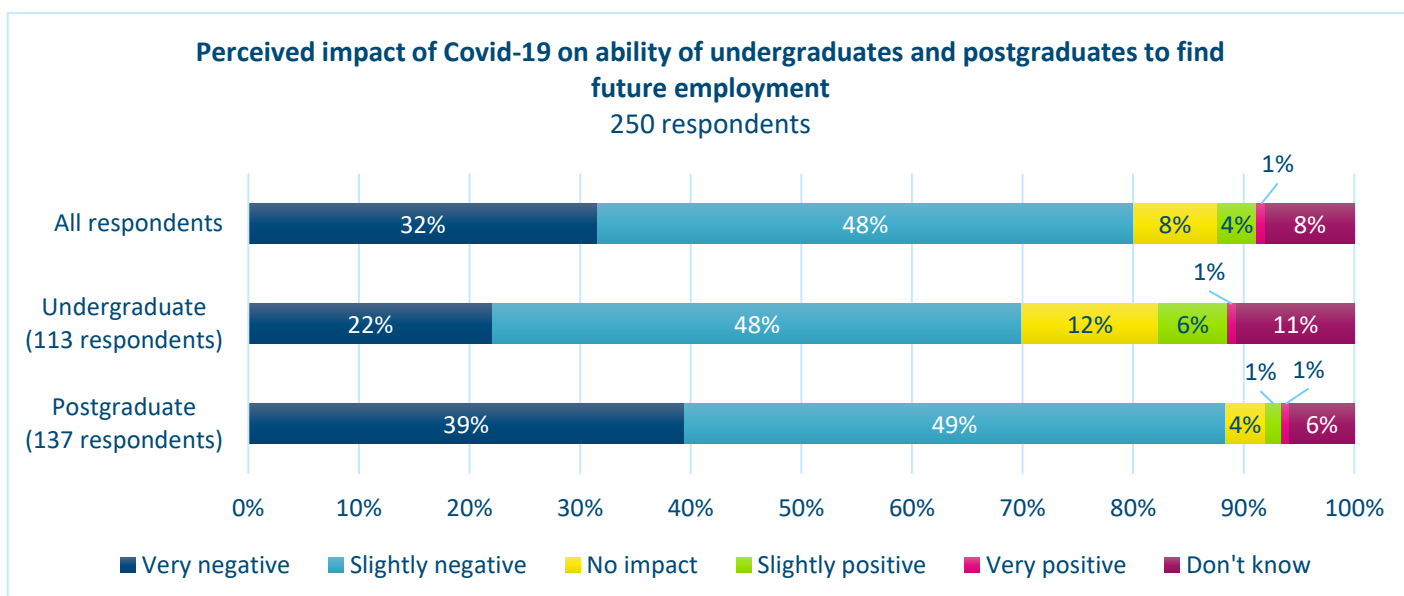


Fig. 19

27. Those whose studies finished in less than a year were more pessimistic than others about their prospects: 44% said they think that the pandemic will have a ‘very negative’ impact, compared to 25% whose studies finish in more than a year.

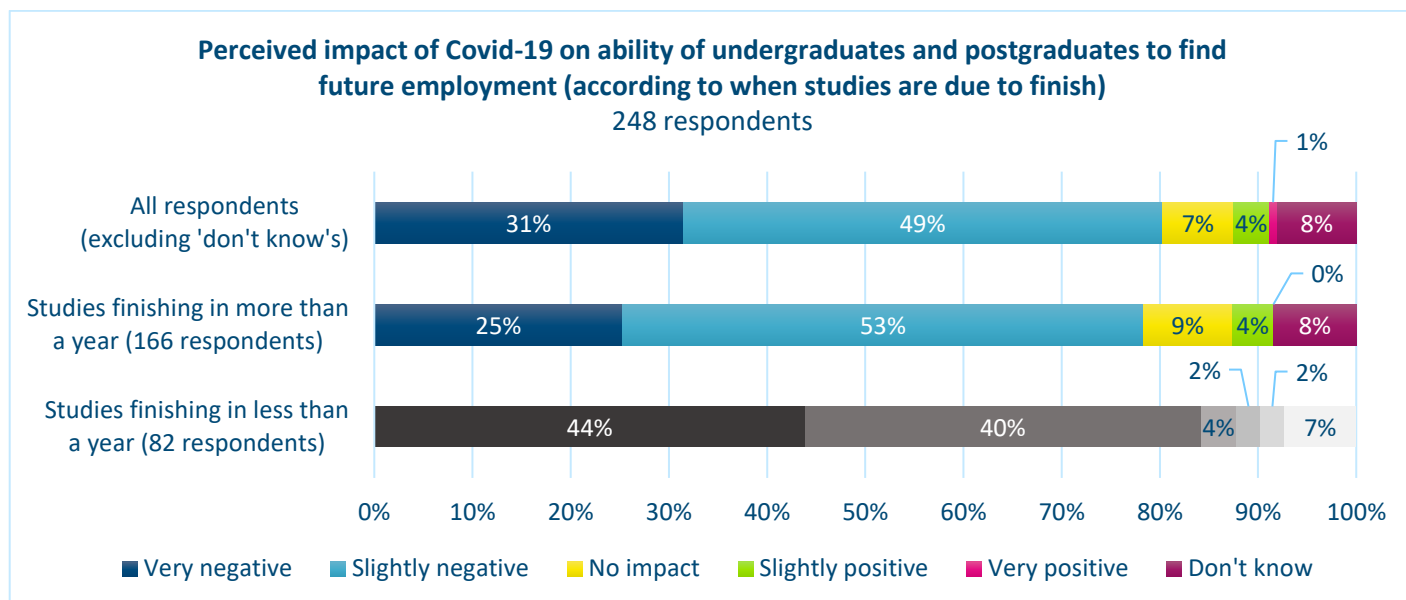


Fig. 20

### Pursuing further study

28. 26% of undergraduates and postgraduates said that the pandemic has made it less likely that they will pursue further study on completion of their current course, including 33% of postgraduates and 17% of undergraduates.
29. 13% of undergraduates and postgraduates said that the pandemic has made it more likely that they will pursue further study on completion of their current course, including 10% of postgraduates and 16% of undergraduates.

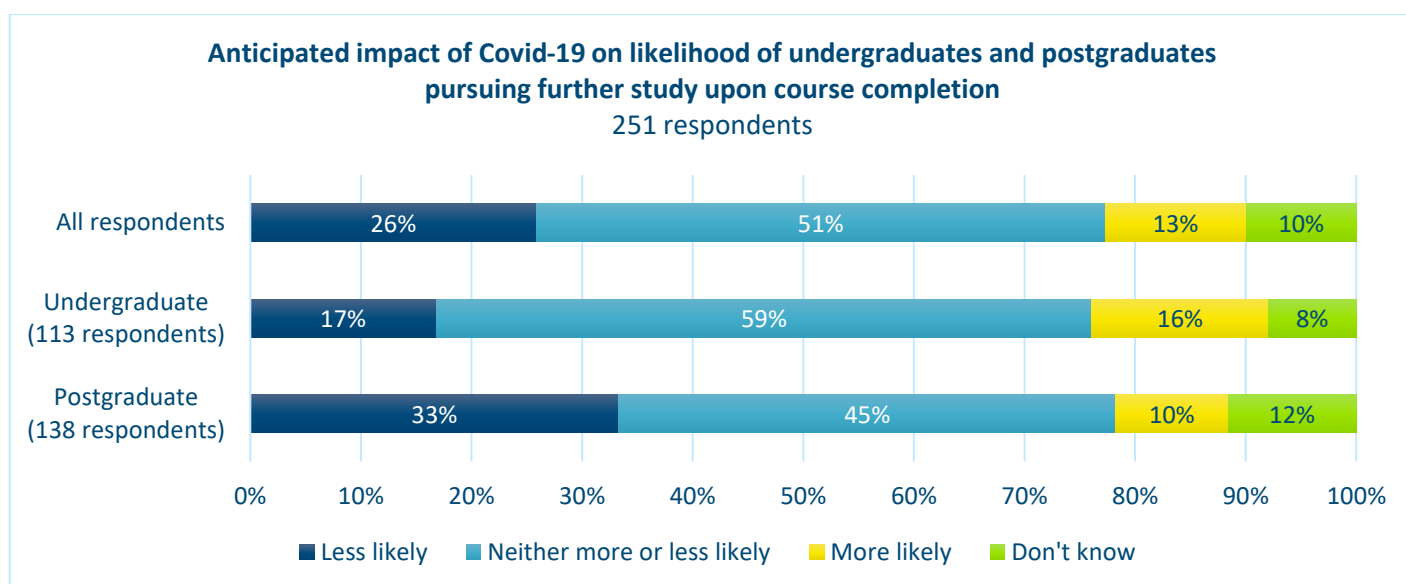


Fig. 21

# Employment prospects

## Section summary

Nearly one third of respondents said they were considering looking to find a new job in the chemical sciences in the next six months (for any reason), including nearly one fifth of respondents in academia who said they definitely were. Of those considering looking for a new job, the vast majority said they anticipated that Covid-19 would have a negative effect on their ability to find a suitable role.

Over a third of respondents said that they were more concerned about losing their job than they were a year ago due to the pandemic, with nearly half of those in academia saying so. Furthermore, one fifth of respondents said they were considering, or may be considering, retraining for a new career as a result of the pandemic, with respondents in academia much more likely to say so than their counterparts in industry.<sup>4</sup>

## Seeking employment

30. 32% of respondents said they were, or maybe were, looking to find a new job in the chemical sciences in the next six months. (19% of respondents to this question were postgraduates or undergraduates.)
31. 18% of respondents in academia said they were looking to find a new job in the chemical sciences in the next six months. Of all academic respondents to this question, 49% were undergraduates or postgraduates. Excluding these students, 17% of academic respondents said they were looking to find a new job in the chemical sciences in the next six months.
32. Respondents in academia were more likely than those in other sectors to be considering looking for a new job in the chemical sciences in the next six months. 39% of those in academia said they were, or maybe were, looking for a new job, compared to 28% in those industry.

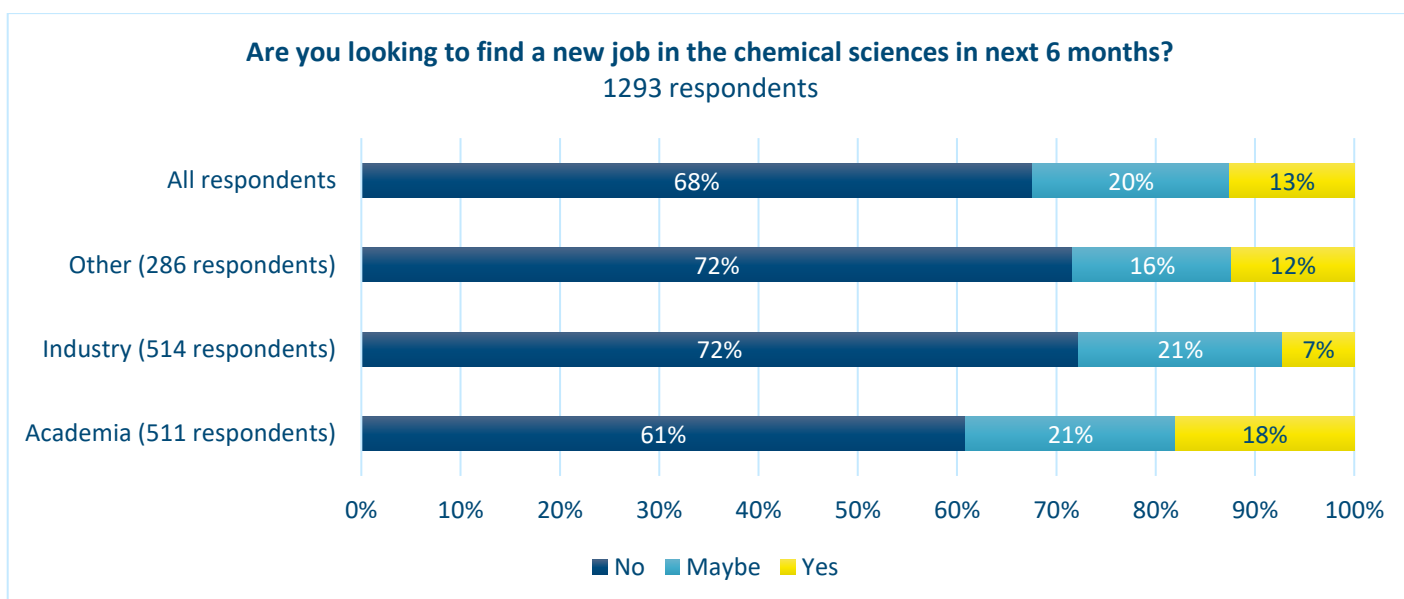


Fig. 22

33. Of all academic respondents to this question, 49% were undergraduates or postgraduates. Excluding these students, 17% of academic respondents said they were looking to find a new job in the chemical sciences in the next six months.

<sup>4</sup> Data from HESA shows that 33% of academic staff were employed on fixed-term contracts in 2019/20, which may provide some additional context for the job insecurity in this sector <https://www.hesa.ac.uk/data-and-analysis/staff/employment-conditions>

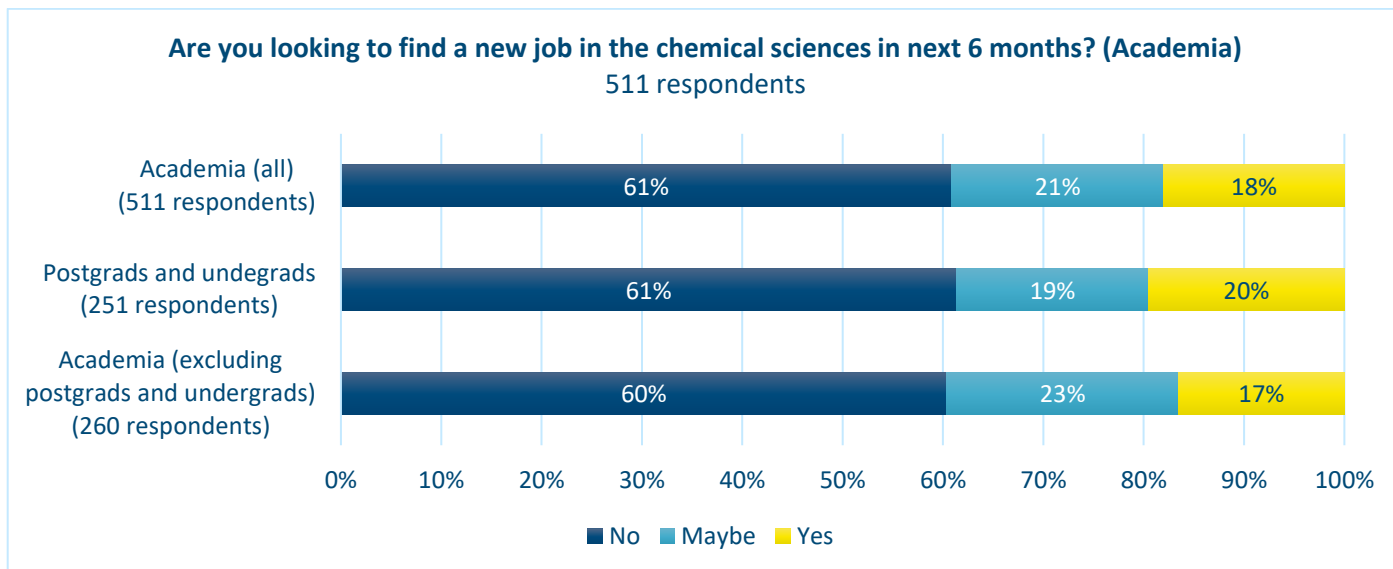


Fig. 23

34. Respondents in Yorkshire & the Humber were most likely to be considering looking for a job: 44% of these respondents said they were, or maybe were, looking for a job in the chemical sciences in the next six months. Conversely, respondents in the South West were the least likely to be considering looking for a job – only 23% said they were, or maybe were, looking for a job in the chemical sciences in the next six months.

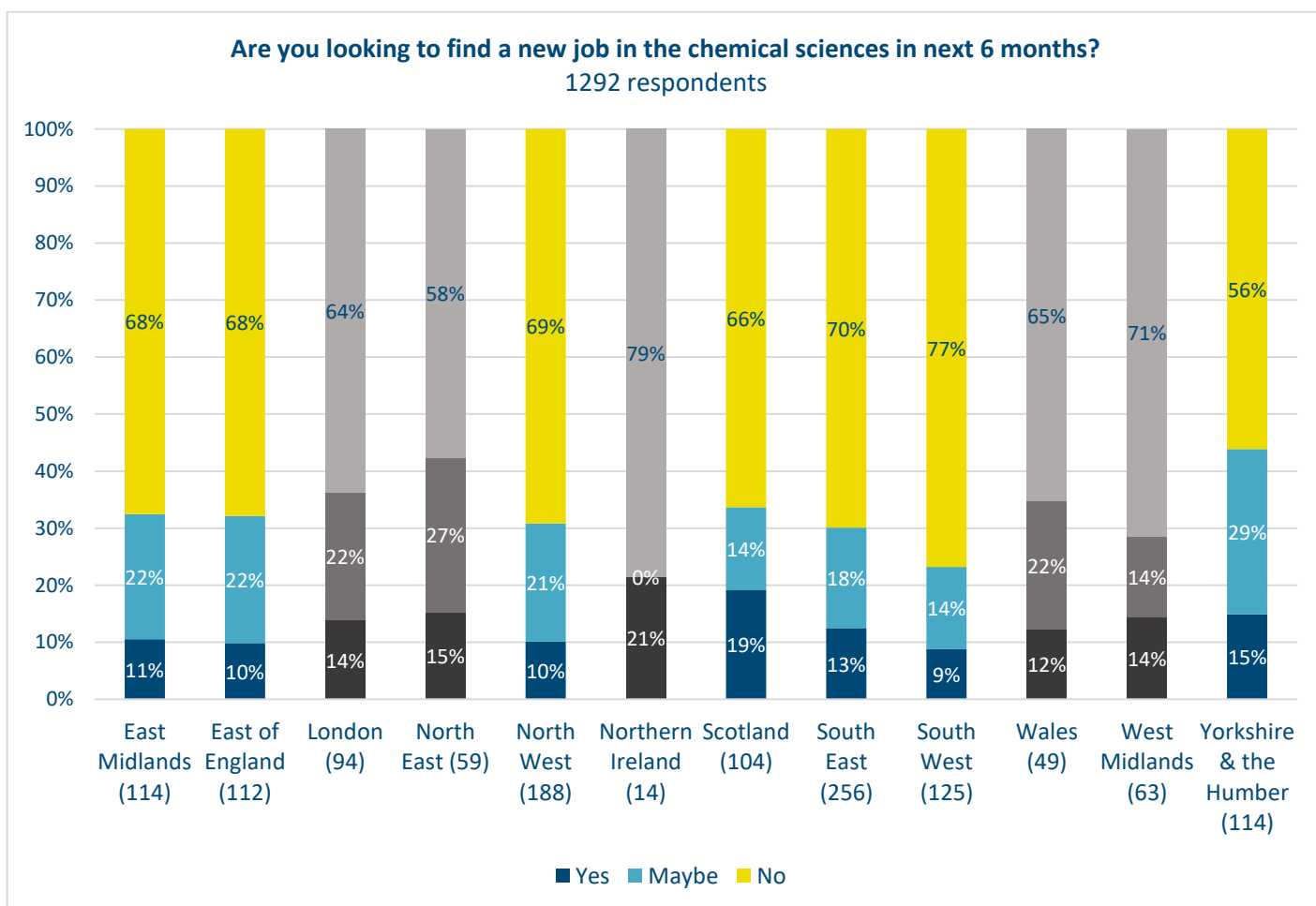


Fig. 24

35. Of those who said they were, or maybe were, looking to find a new job in the chemical sciences in the next six months:
- 83% said they thought Covid-19 would have a negative impact on their ability to find a suitable role, including 45% who expect a 'very negative' impact.
  - Respondents in academia were slightly more pessimistic than those in industry about their prospects. 86% of respondents in academia expect a negative impact, compared to 80% of respondents in industry.

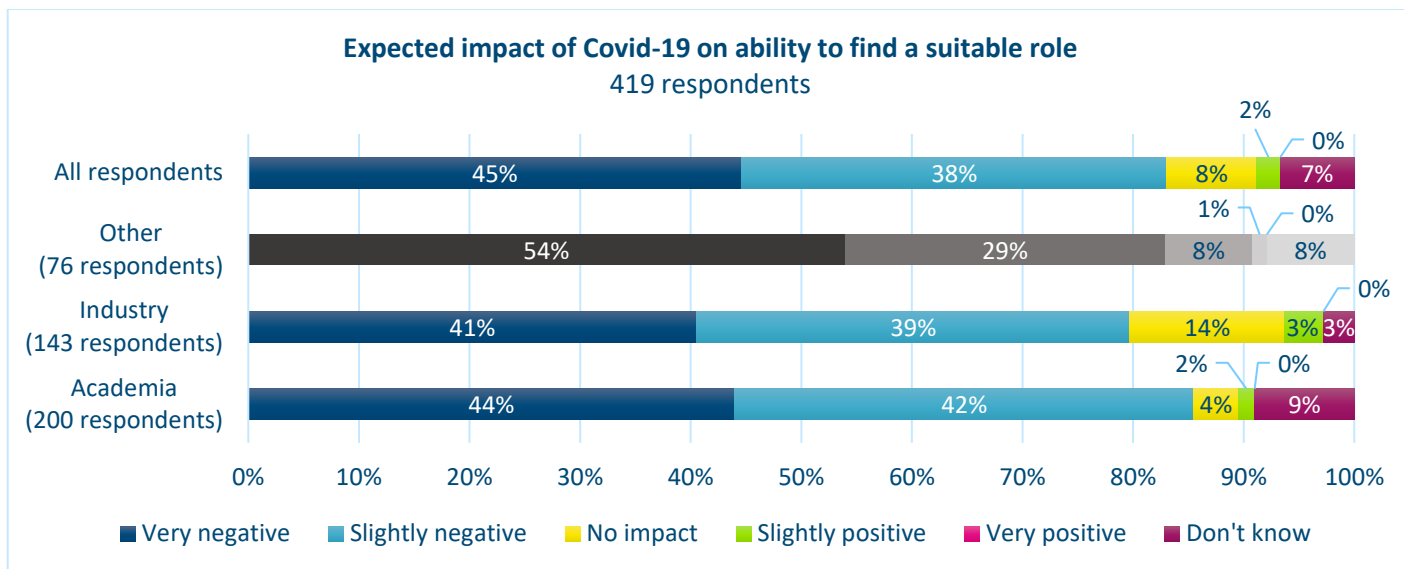


Fig. 25

### Concerns about job or client loss

36. 38% of respondents agreed that they were more concerned that they may lose their job (or that their contract may not be renewed) than they were last year, as a result of economic or other consequences of the Covid-19 pandemic, including 14% who strongly agreed. 37% disagreed, including 17% who strongly disagreed.
37. Of these, respondents in academia were more pessimistic than those in industry about their prospects. 45% of respondents in academia agreed they had increased concerns about job loss, including 19% who strongly agreed; compared to 35% of respondents in industry, including 12% who strongly agreed.

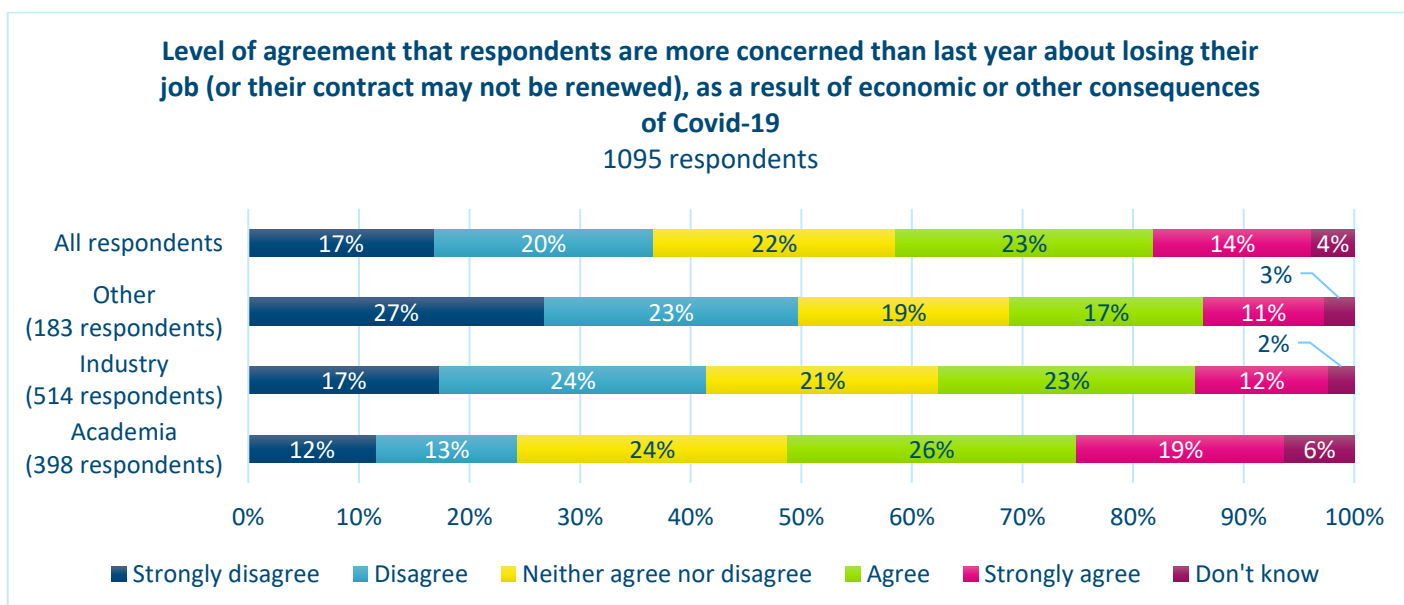


Fig. 26

38. 65% of self-employed respondents agreed that they were more concerned that they may lose clients than they were last year, as a result of economic or other consequences of the Covid-19 pandemic, including 27% who strongly agreed. Only 15% disagreed.

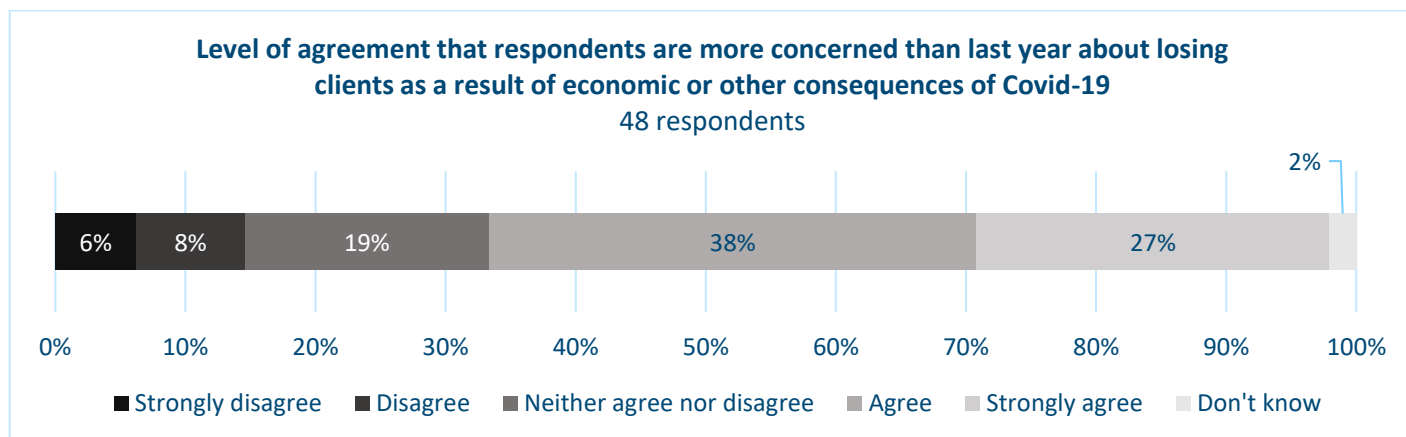


Fig. 27

## Retraining

39. 20% of respondents said they were considering, or may be considering, retraining for a new career as a result of the Covid-19 pandemic.
40. Respondents in academia were more likely than those in industry to be considering retraining – 29% said they were considering, or may be considering, retraining; compared to 13% of those in industry.

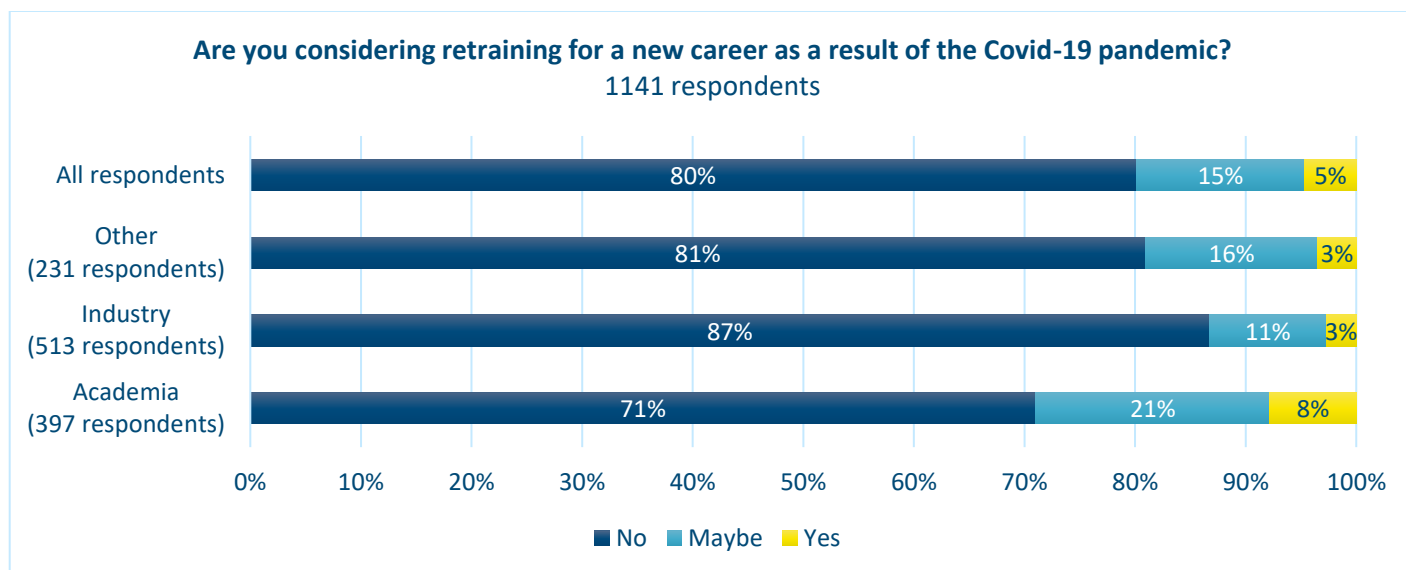


Fig. 28

## Flexible working<sup>5</sup>

41. Respondents for whom flexible working wasn't available were more than twice as likely than others to say they were looking to find a new job in the chemical sciences in the next 6 months. 26% of respondents for whom flexible working was not available said they were looking for a new job, compared to 10% of others.

<sup>5</sup> This report includes data on how respondents with different flexible working circumstances responded to the question on job seeking because there were statistically significant differences in responses between groups.

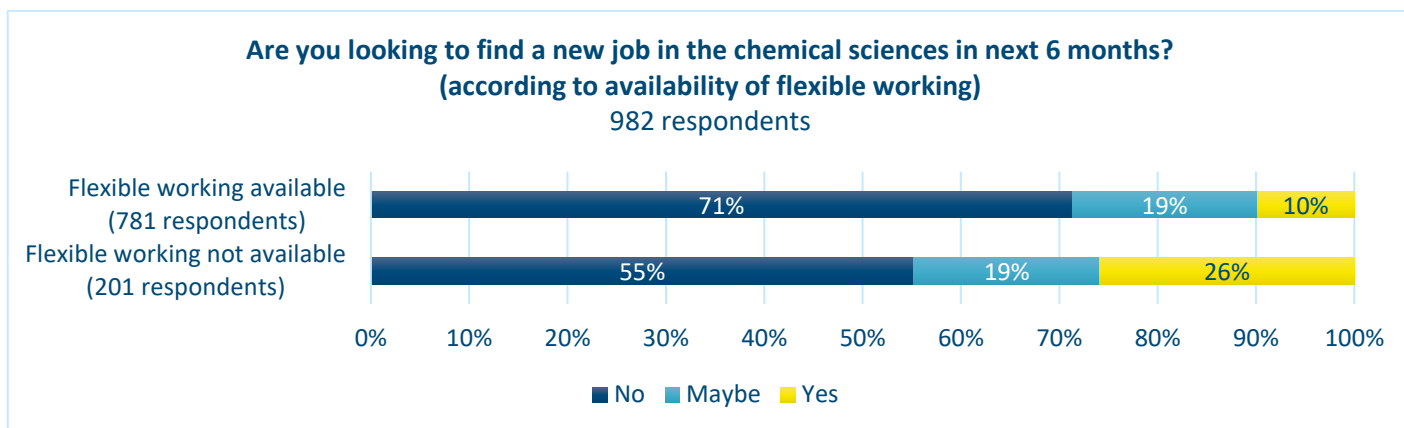


Fig. 29

42. Respondents for whom flexible working wasn't available were also more likely than others to be considering retraining for a new career.

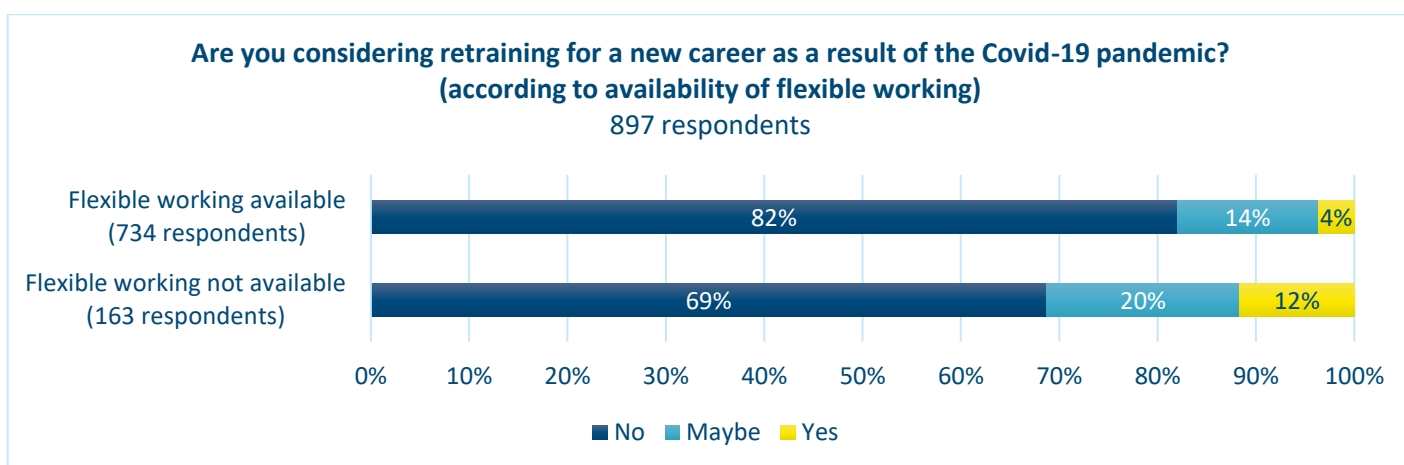


Fig. 30

### Non-UK nationals<sup>6</sup>

43. Respondents who are not UK national were considerably more likely than UK nationals to be considering looking for a new job in the chemical sciences in the next 6 months. Half (50%) of non-UK respondents were considering looking for a job, compared to 30% of UK nationals.

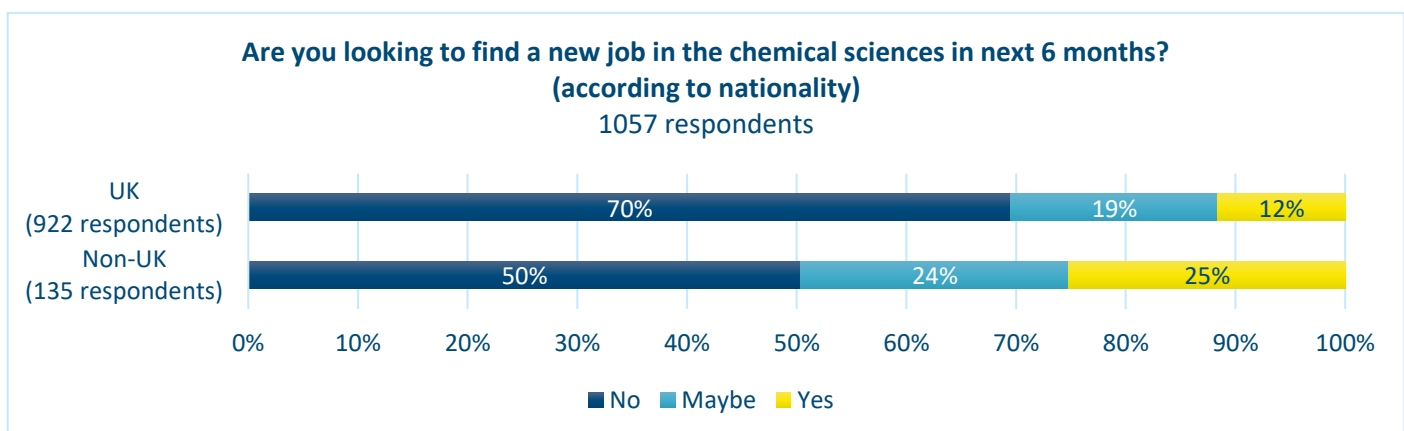


Fig. 31

<sup>6</sup> This report includes data on how respondents of different nationalities responded to questions on job seeking, retraining, and concerns about job loss, because there were statistically significant differences in responses between groups.

44. One third of non-UK national respondents were considering retraining for a new career as a result of the pandemic, compared to 18% of UK nationals.

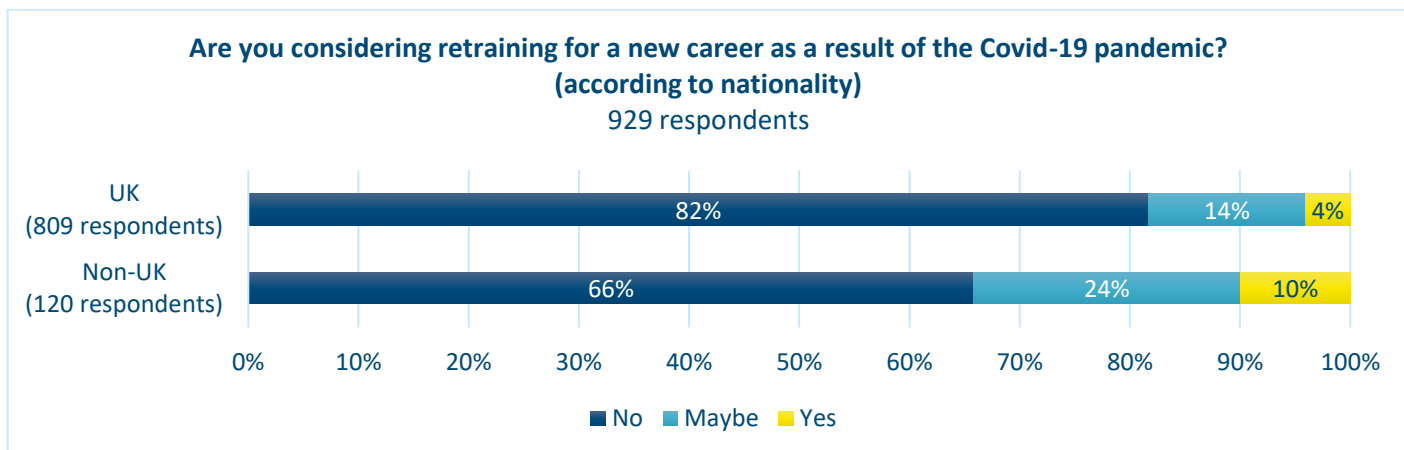


Fig. 32

45. Half (50%) of non-UK national respondents were concerned about job loss, compared to 36% of UK nationals.

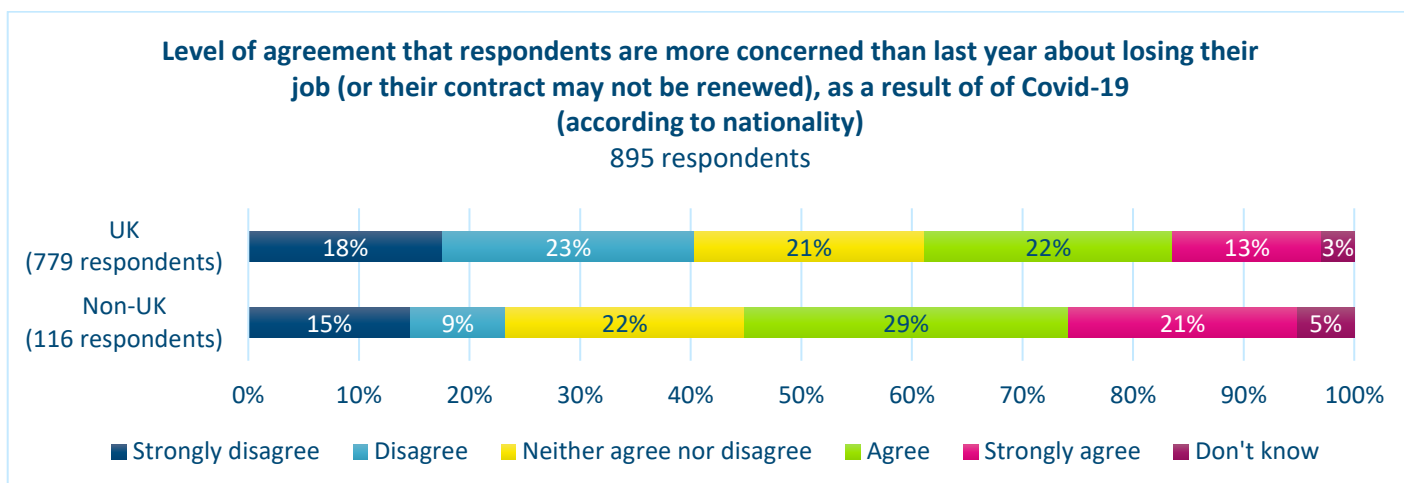


Fig. 33



# Job losses and job creation

## Section summary

One fifth of respondents said that the chemistry workforce in their team or department had already been reduced as a result of Covid-19, including nearly one third of those in academia. Respondents in academia were also much more pessimistic than those in industry and other sectors about staffing prospects for the coming year, with over a third of academics anticipating further job losses. Just under half of respondents also said they expect that Covid-19 has made it less likely that staff will be hired in their team in the coming year.

We analysed the regional breakdown of responses relating to job losses and creation in light of findings from the RSC report *Chemistry's Contribution*, published in 2020, that showed regional variations in employment trends in the chemistry workforce from 2013-2019. Responding to this survey, respondents in Yorkshire and the Humber, the East Midlands, and Scotland tended to be most likely to report Covid-19-related job losses thus far and anticipate more in the year ahead.

## Job losses so far

46. 21% of respondents said that the chemistry workforce in their team or department has been reduced as a result of economic or other consequences of the Covid-19 pandemic, including 32% of respondents in academia and 16% of respondents in industry.

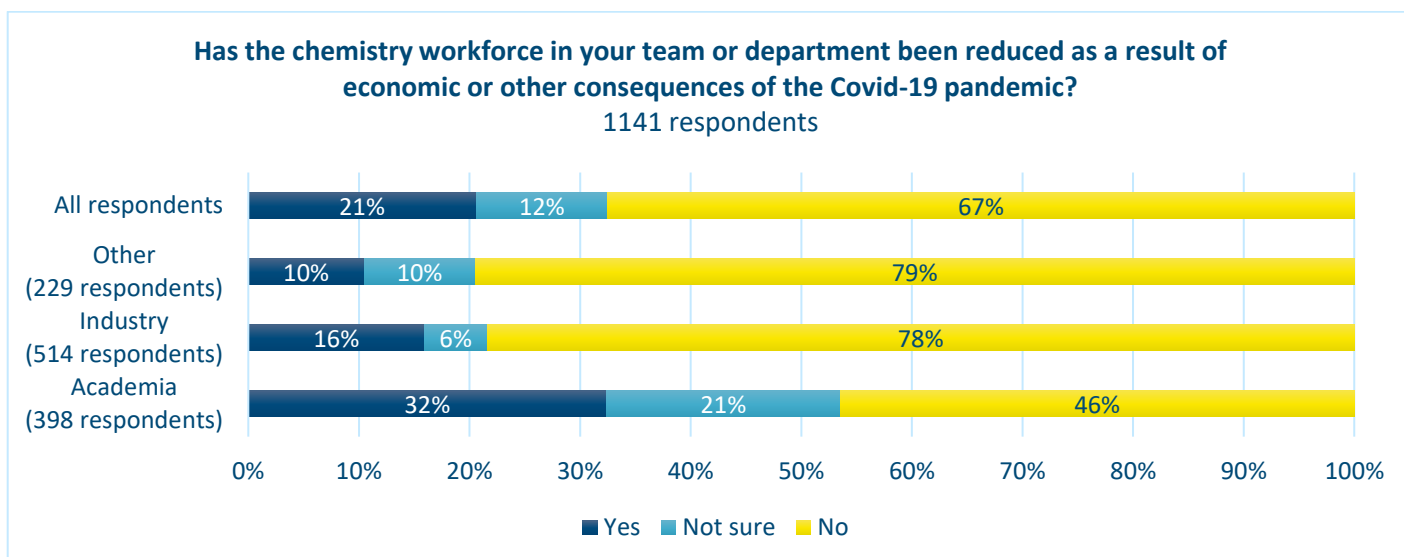


Fig. 34

47. Respondents in the East Midlands and Yorkshire and the Humber were the most likely to report a reduction in the chemistry workforce in their team or department, with 30% of respondents from both regions doing so. By comparison, only 15% of respondents in the South East reported a reduction.

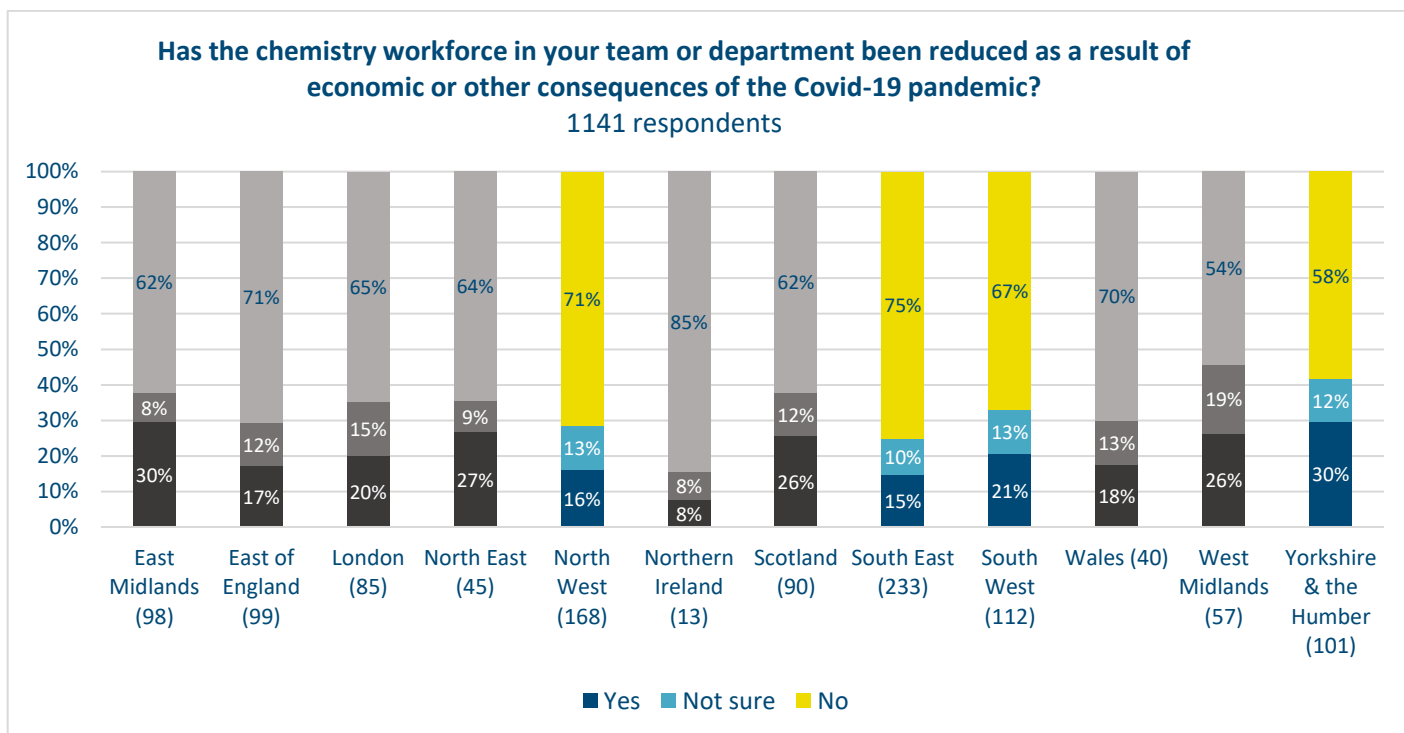


Fig. 35

### Anticipated job losses

48. 21% of respondents said they anticipate a reduction the chemistry workforce in their team or department within the next 12 months as a result of economic or other consequences of the Covid-19 pandemic.
49. Respondents in academia were significantly more pessimistic about the future than those in industry and other sectors. 38% of respondents in academia said they anticipate reductions in the chemistry workforce in their team or department in the next 12 months, compared to just 15% of respondents in industry and 6% of those in other sectors.

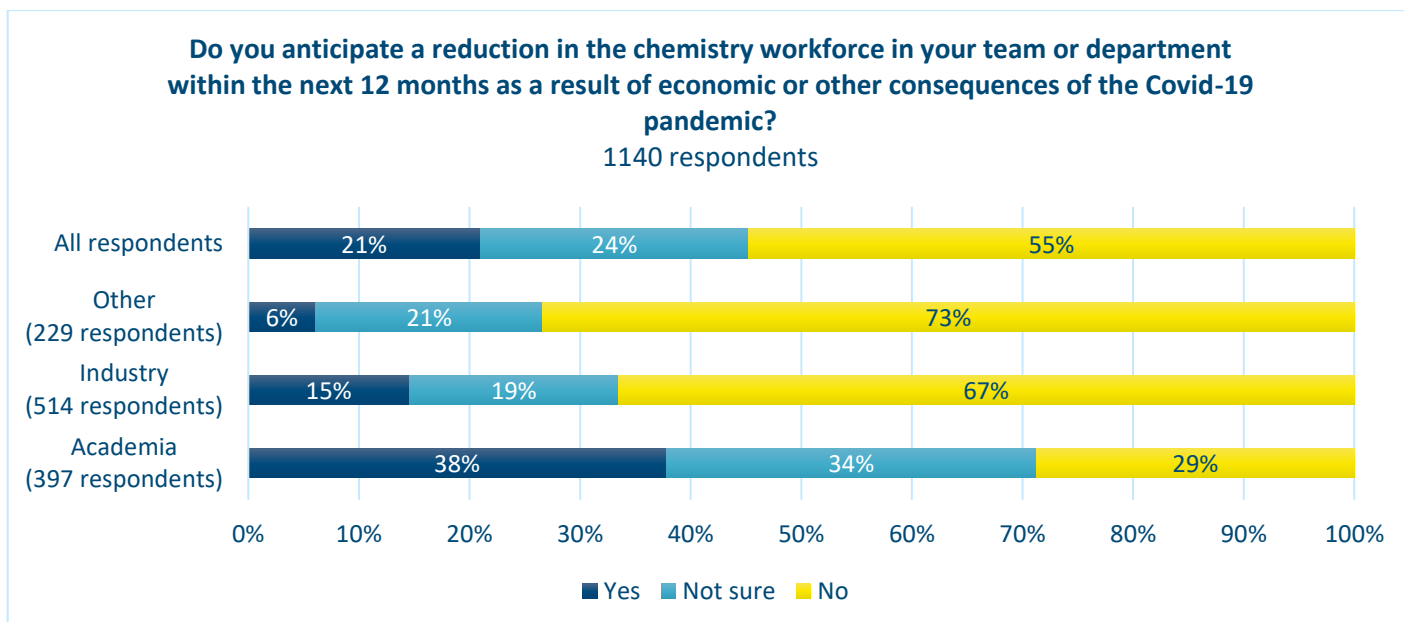


Fig. 36

50. Respondents in Yorkshire and the Humber were the most likely to anticipate a reduction in the chemistry workforce in their team or department, with 39% of respondents in the region doing so. By comparison, only 14% of respondents in the East of England anticipated a reduction.

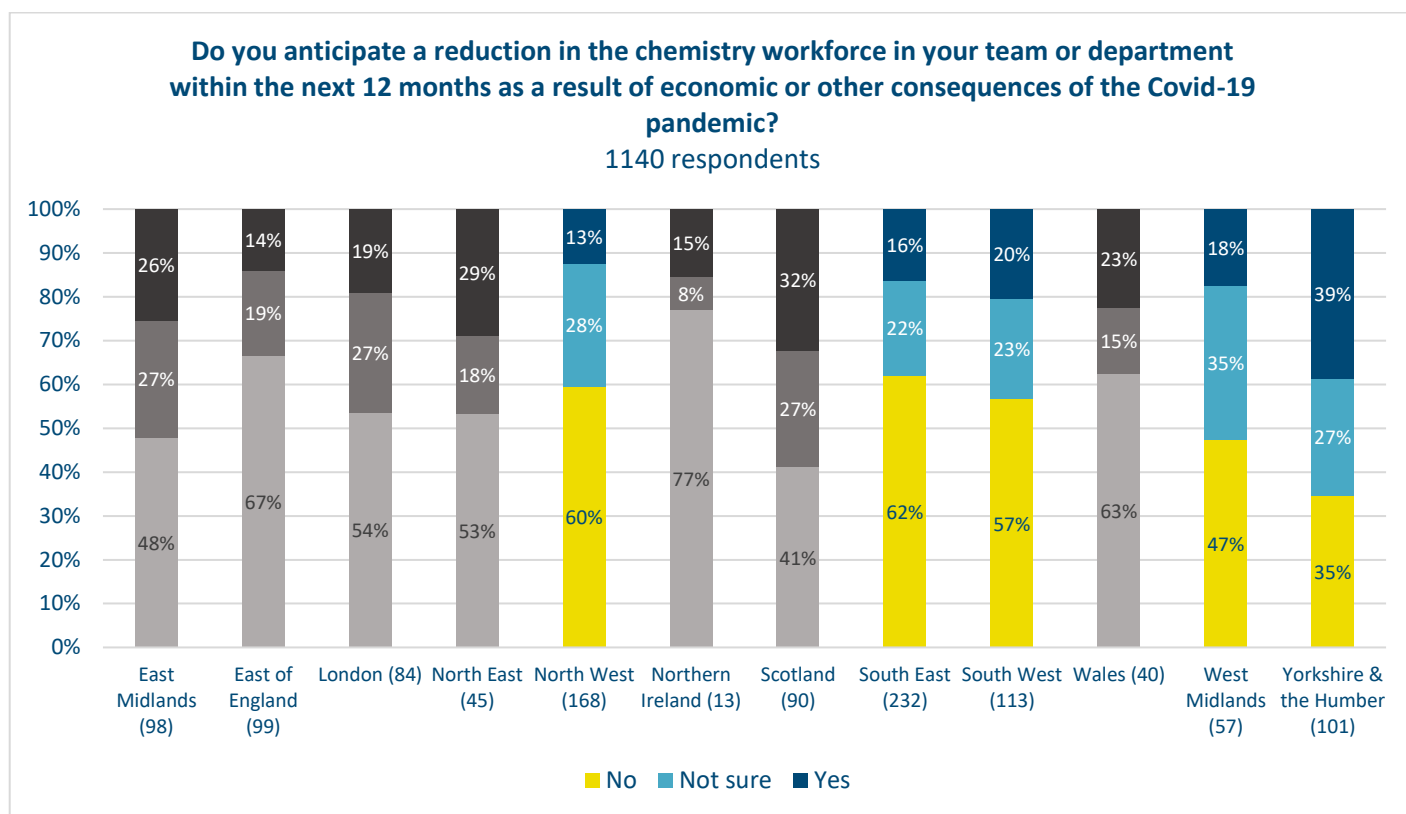


Fig. 37

### Anticipated job creation

51. 49% of respondents said they think the Covid-19 pandemic has made it less likely that staff will be hired in their team in the next 12 months, compared to only 7% who thought it was more likely.
52. Respondents in academia were significantly more pessimistic than those in industry and other sectors. 70% of the respondents in academia said hiring was less likely, compared to just 40% of those in industry and 34% of those in other sectors.

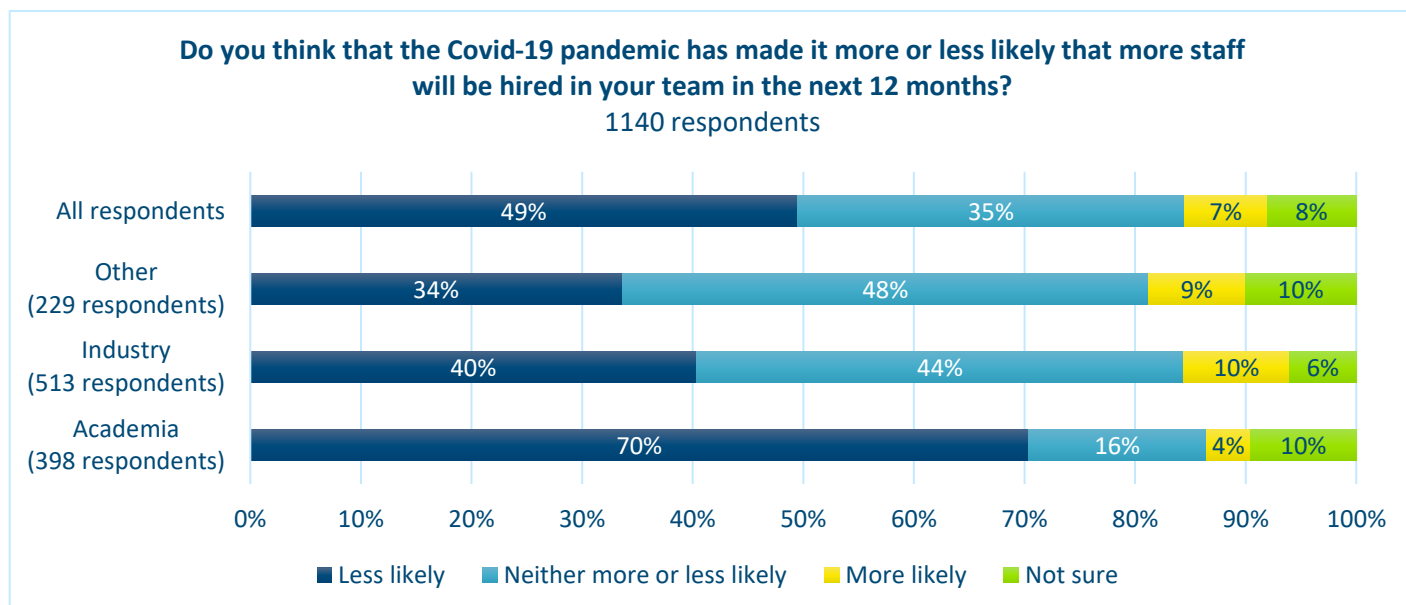


Fig. 38

53. Respondents in Scotland were the most pessimistic about the hiring outlook, with 70% of those respondents thinking hiring was less likely in the next 12 months as a result of the pandemic. By comparison, only 36% of respondents in the East of England said that hiring was less likely, and 11% of respondents in that region thought that hiring was in fact more likely as a result of the pandemic.

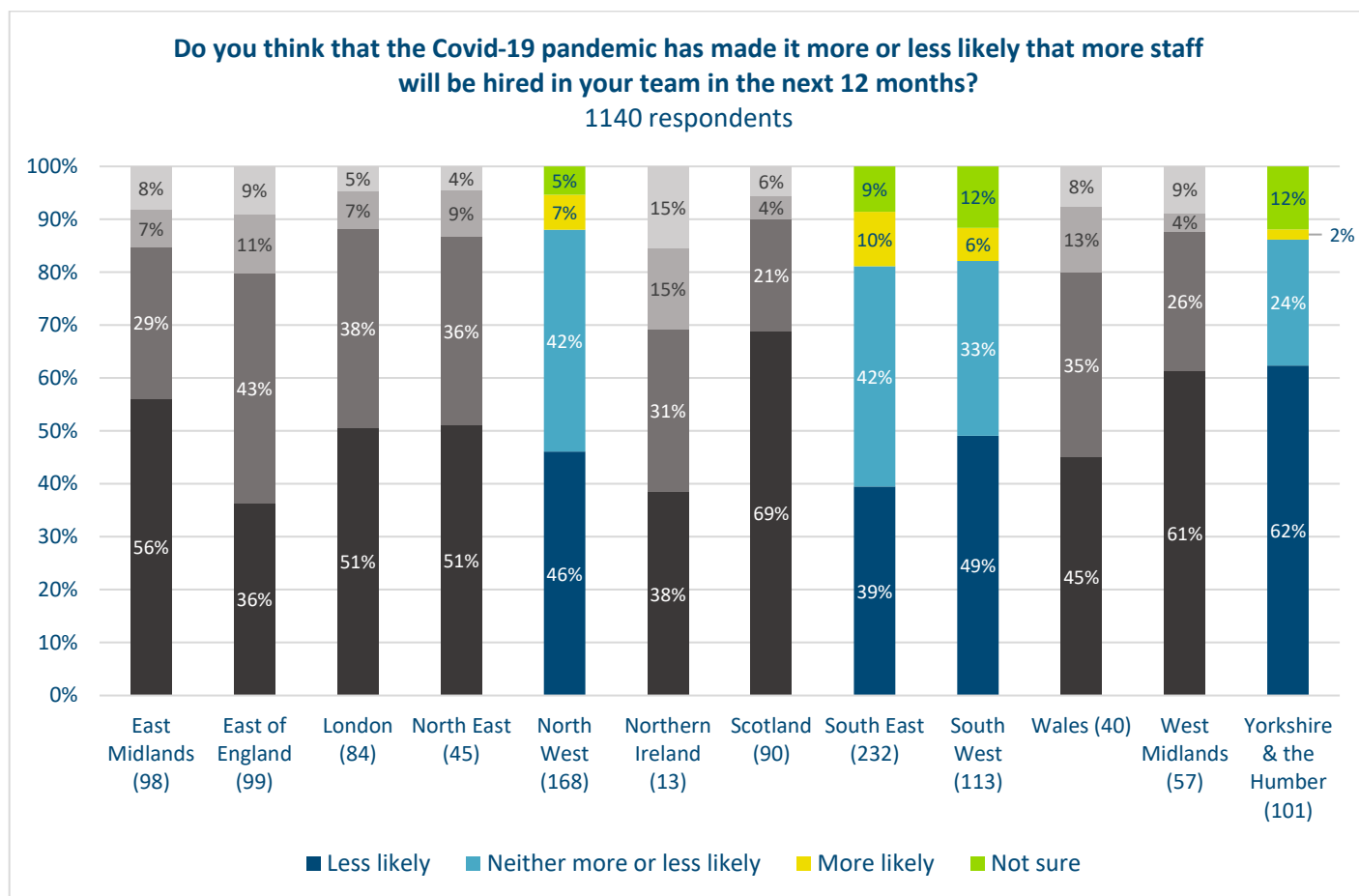


Fig. 39

# Scientific relationships

## Section summary

Respondents were asked about their expectations of how Covid-19 would affect their ability to develop and maintain scientific relationships in the long-term, considering their relationships with scientists and researchers outside their own organisation internationally, in different disciplines, in industry, and in academia.

Out of all options presented, respondents were most likely to anticipate a negative long-term impact on their ability to develop new relationships with scientists internationally, with over two thirds of respondents saying so.

## International relationships

54. 57% of respondents said that the Covid-19 pandemic will have a negative impact on their ability to *maintain* international relationships in the long-term, and 69% of respondents said that the pandemic will have negative impact on their ability to *develop* international relationships in the long-term.
55. Academics were much more pessimistic than industry and other sectors about the long-term impact of the pandemic on their international scientific relationships – particularly developing them. 80% of academics said the pandemic would have a negative impact on their ability to *develop* international relationships, with more than half (53%) expecting a very negative impact.

### Anticipated long-term impact of Covid-19 on ability to maintain and develop *international* scientific relationships, by sector

(Maintain relationships - 1051 respondents  
Develop relationships - 1068 respondents)

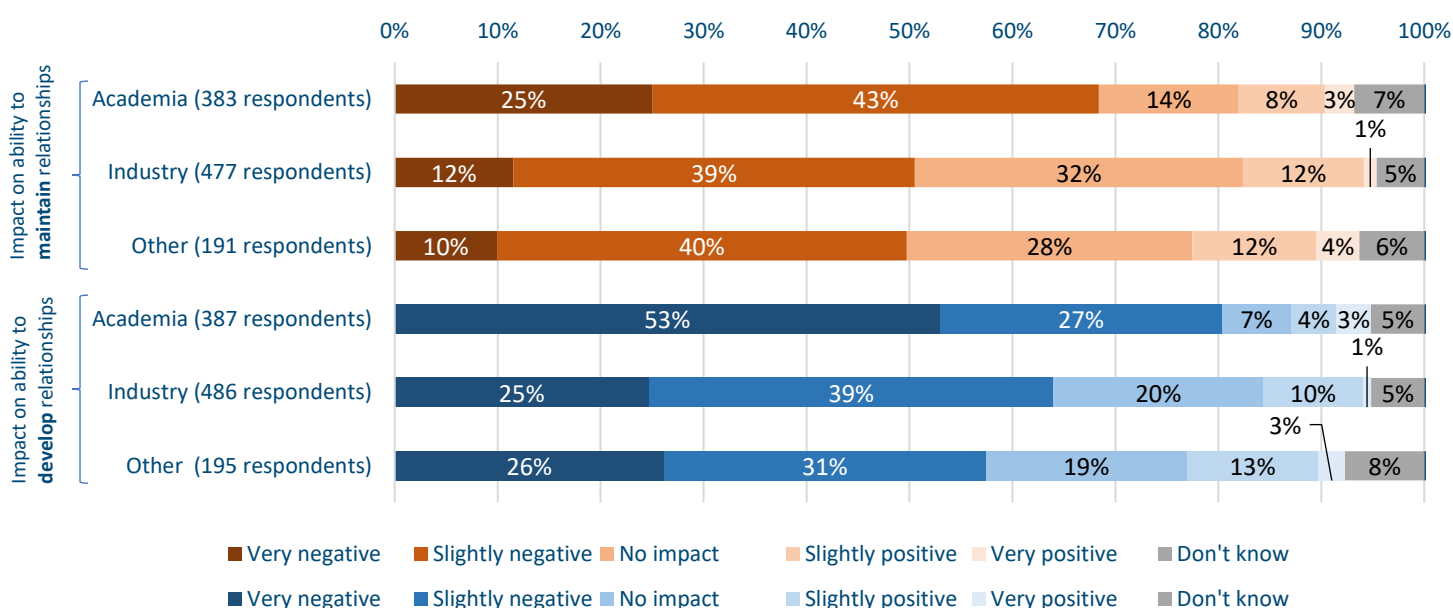


Fig. 40

## Interdisciplinary relationships

56. 53% of respondents said that the Covid-19 pandemic will have a negative impact on their ability to *maintain* relationships with those in different disciplines in the long-term, and 65% of respondents said that the pandemic will have negative impact on their ability to *develop* relationships with those in different disciplines in the long-term.
57. Again, academics were the most pessimistic about prospects. 77% expected a negative impact on their ability to *develop* relationships in different disciplines.

### Anticipated long-term impact on ability to maintain and develop scientific relationships in different disciplines, by sector

(Maintain relationships - 1053 respondents  
Develop relationships - 1061 respondents)

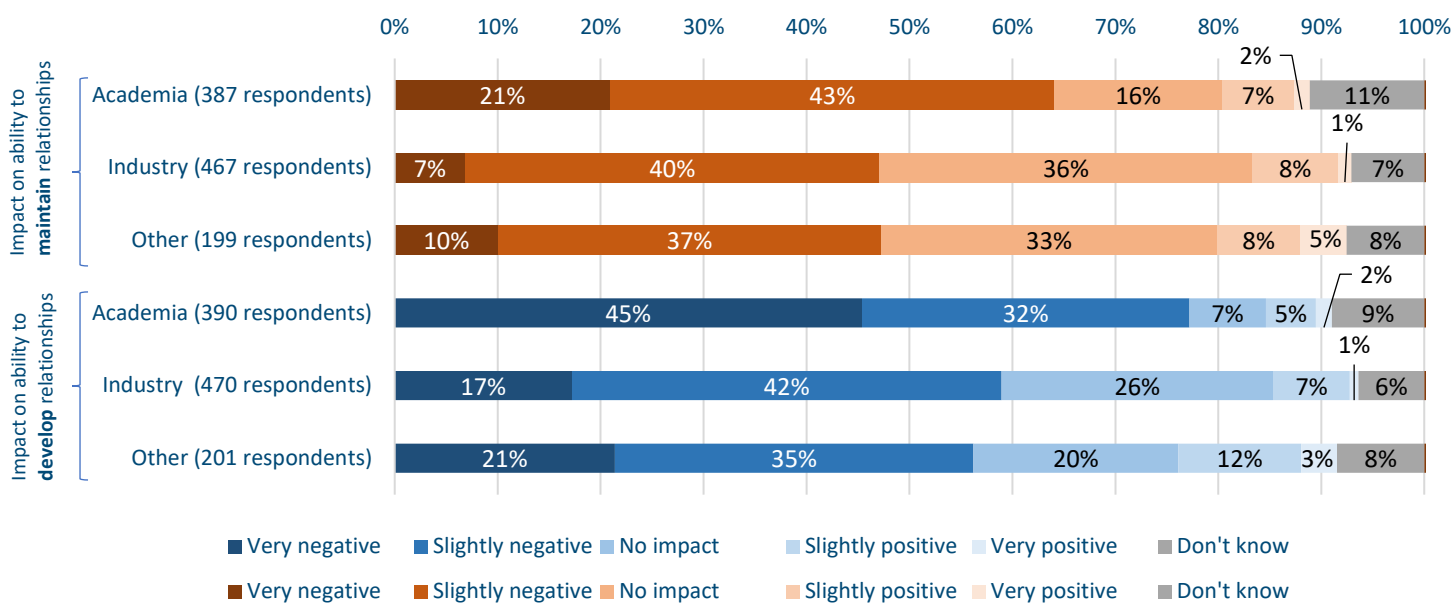


Fig. 41

### Relationships with academia

58. 57% of respondents said that the Covid-19 pandemic will have a negative impact on their ability to *maintain* relationships with those in academia in the long-term, and 65% of respondents said it will have a negative impact on their ability to *develop* relationships with those in academia in the long-term.
59. Again, academics were the most pessimistic about prospects. 78% expected a negative impact on their ability to *develop* relationships with those in academia (thinking about people outside their organisation).

### Anticipated long-term impact of Covid-19 on ability to maintain and develop scientific relationships with scientists in academia, by sector

(Maintain relationships - 993 respondents  
Develop relationships - 1007 respondents)

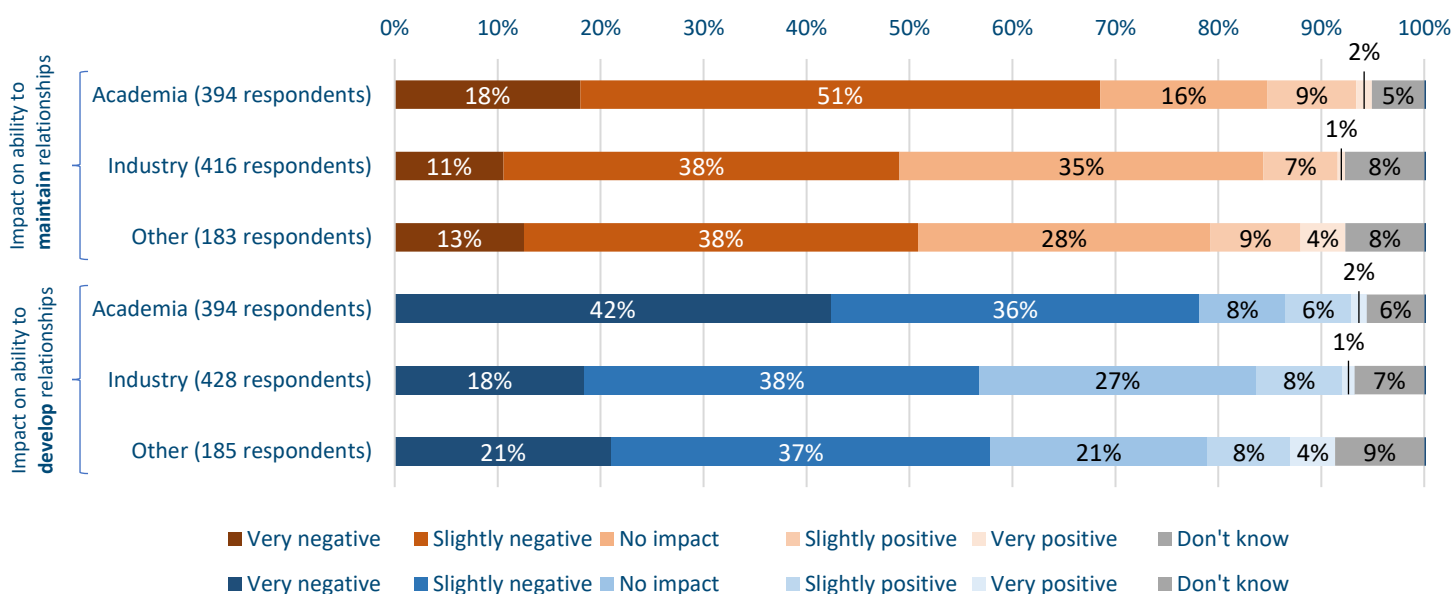


Fig. 42

## Relationships with industry

60. 58% of respondents said that the Covid-19 pandemic will have a negative impact on their ability to *maintain* relationships with those in industry in the long-term, and 66% of respondents said that the pandemic will have negative impact on their ability to *develop* relationships with those in industry in the long-term.
61. Again, academics were the most pessimistic about prospects. 79% expected a negative impact on their ability to *develop* relationships with those in industry.

### Anticipated long-term impact of Covid-19 on ability to maintain and develop scientific relationships with scientists *in industry*, by sector

(Maintain relationships - 1076 respondents  
Develop relationships - 1090 respondents)

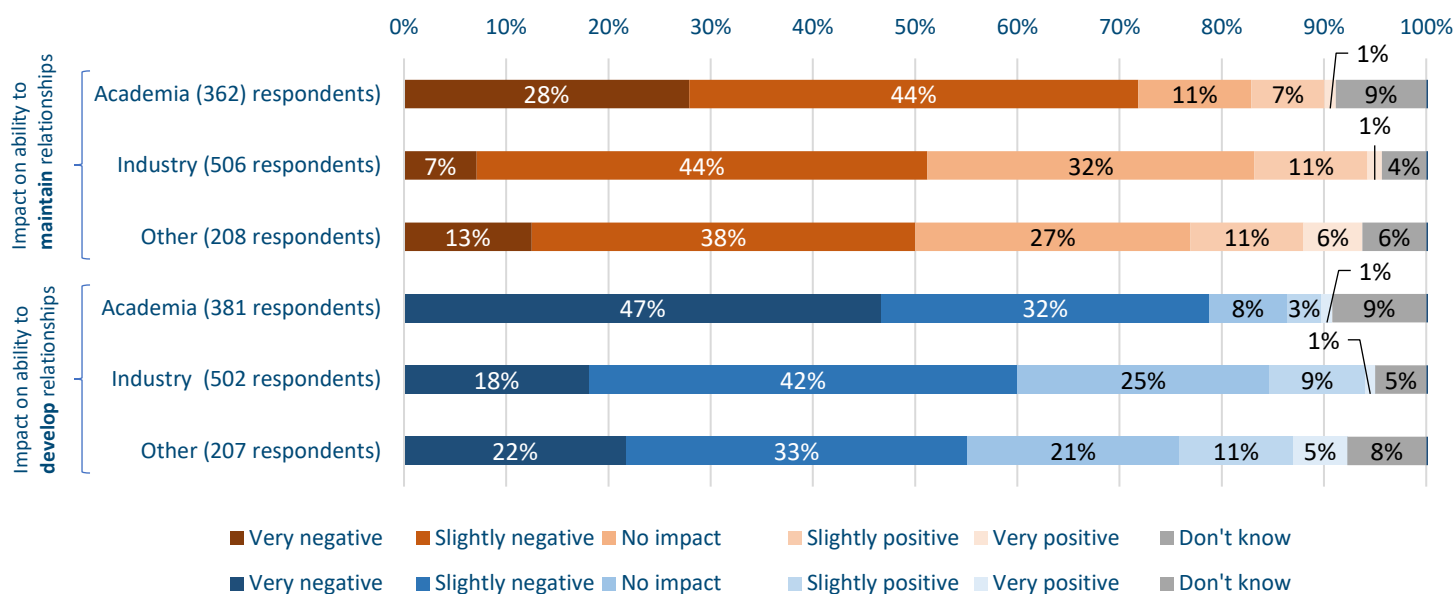


Fig. 43

## Relationships between academia and industry

62. Respondents in academia and industry have significantly different expectations of how the pandemic will impact their ability to maintain and develop relationships with one another. While 53% of industry respondents anticipate a negative impact on their relationships with academics, 75% of academic respondents anticipate a negative impact on their relationships with scientists in industry – including 37% who expect a very negative impact.

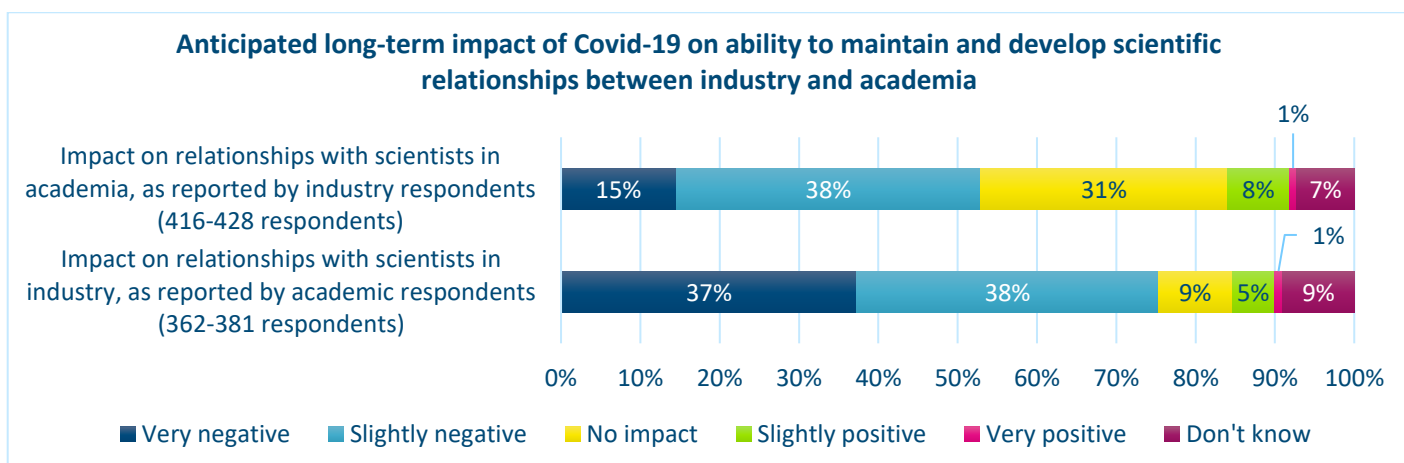


Fig. 44

# Access to funding

## Section summary

The majority of respondents expect that Covid-19 will lead to fewer opportunities to access non-Covid related research funding in the next two years, with the most concern about access to charity funding.

## Charity, public, and private funding

- 63. 69% of respondents said they anticipate fewer opportunities to access non-Covid-related charity funding in the next two years as a result of the pandemic, with 39% anticipating a lot fewer opportunities.
- 64. 69% of respondents anticipate fewer opportunities to access non-Covid-related public funding in the next two years as a result of the pandemic, with 32% anticipating a lot fewer opportunities.
- 65. 63% of respondents anticipate fewer opportunities to access non-Covid-related private funding in the next two years as a result of the pandemic, with 27% anticipating a lot fewer opportunities.

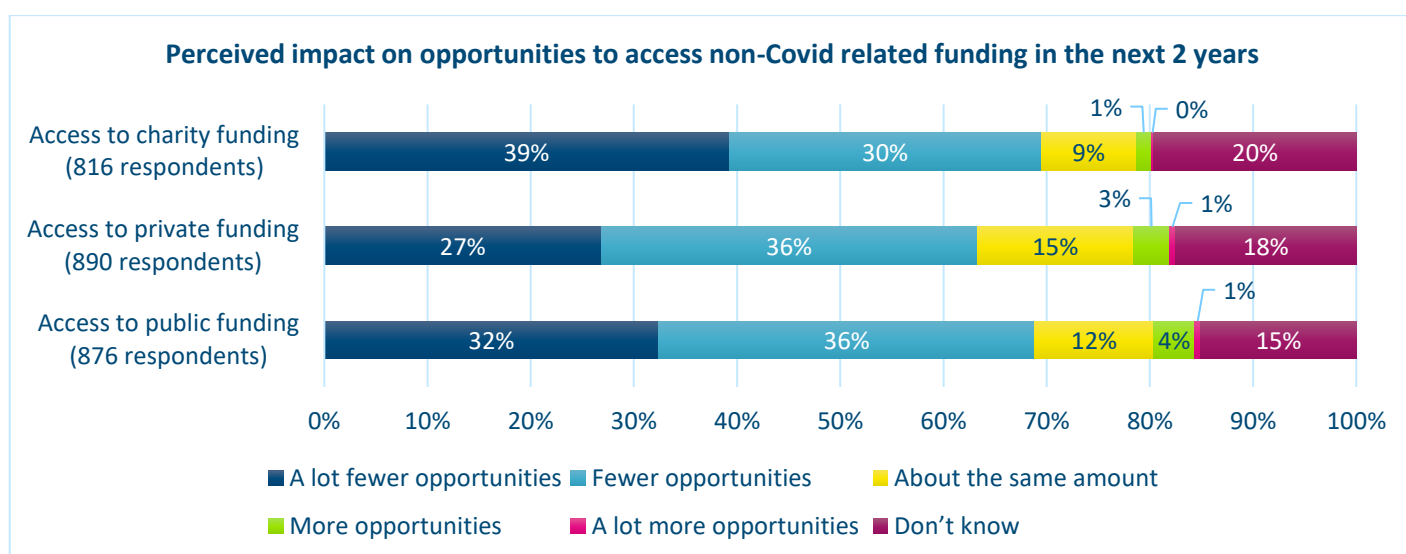


Fig. 45



# Caring responsibilities and productivity

## Section summary

28% of respondents said they have caring responsibilities, including 26% of female respondents and 29% of male respondents. Of those with child caring responsibilities who were affected by challenges accessing childcare during lockdown, three quarters reported a decrease in productivity as a result, with women more likely to report a significant decrease in productivity.

Nearly three quarters of respondents affected by challenges accessing care for a child or adult reported a decrease in their productivity as a result. Respondents in academia affected were much more likely to report a significant decrease than those in industry, and respondents in mid-career were more likely to report a significant decrease than those with established careers.<sup>7</sup>

## Child caring responsibilities

66. Of the respondents who said they have caring responsibilities for a child and were affected by school/nursery closures, or other challenges accessing childcare, during lockdown as a result of Covid-19, 75% said their productivity at work or study decreased.
- Of these, 77% of female respondents reported a decrease in productivity, while 73% of male respondents did so.
  - Female respondents were more likely to report a significant decrease in productivity, with nearly half (48%) doing so, compared to 34% of men.

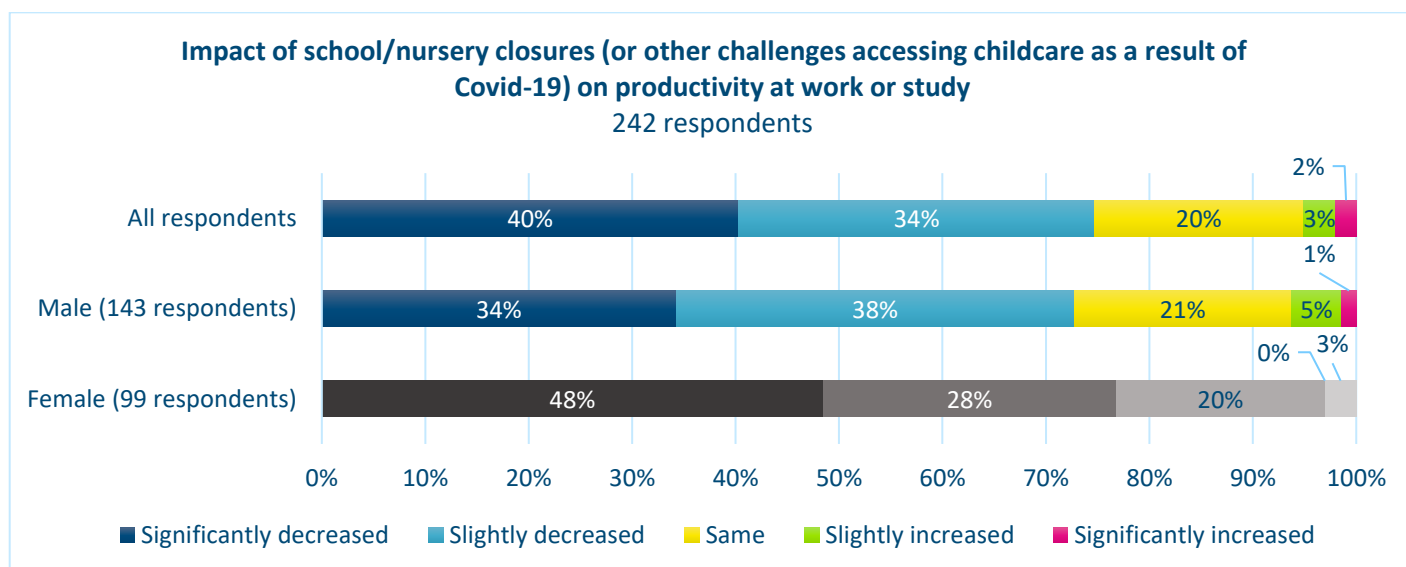


Fig. 46

## Adult caring responsibilities

67. Of the respondents who said they have caring responsibilities for an adult, 65% said their productivity at work or study decreased as a result of challenges accessing alternative care options as a result of Covid-19, during lockdown.

<sup>7</sup> Anecdotal evidence from our community suggested that women were particularly significantly impacted by challenges accessing support for their caring responsibilities, which is why much of the analysis in this section is presented according to gender. We further wanted to understand how respondents in different sectors and career stages were affected, and have included data on this where differences between groups were statistically significant.

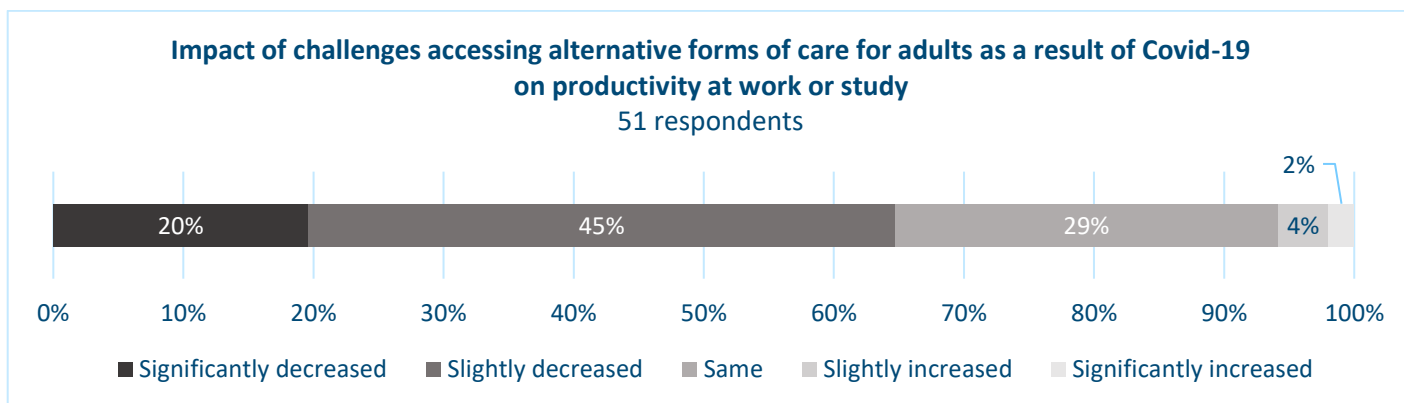


Fig. 47

## All caring responsibilities

68. Of respondents who said they had caring responsibilities (for children or adults), were affected by challenges accessing care, and were working or studying during lockdown, 73% said challenges accessing care had decreased their productivity, including 37% who reported a significant decrease.

- c) Of these, 76% of female respondents reported a decrease in productivity, while 70% of male respondents did so.
- d) Female respondents were more likely to report a significant decrease in productivity, with 45% doing so, compared to 32% of men.

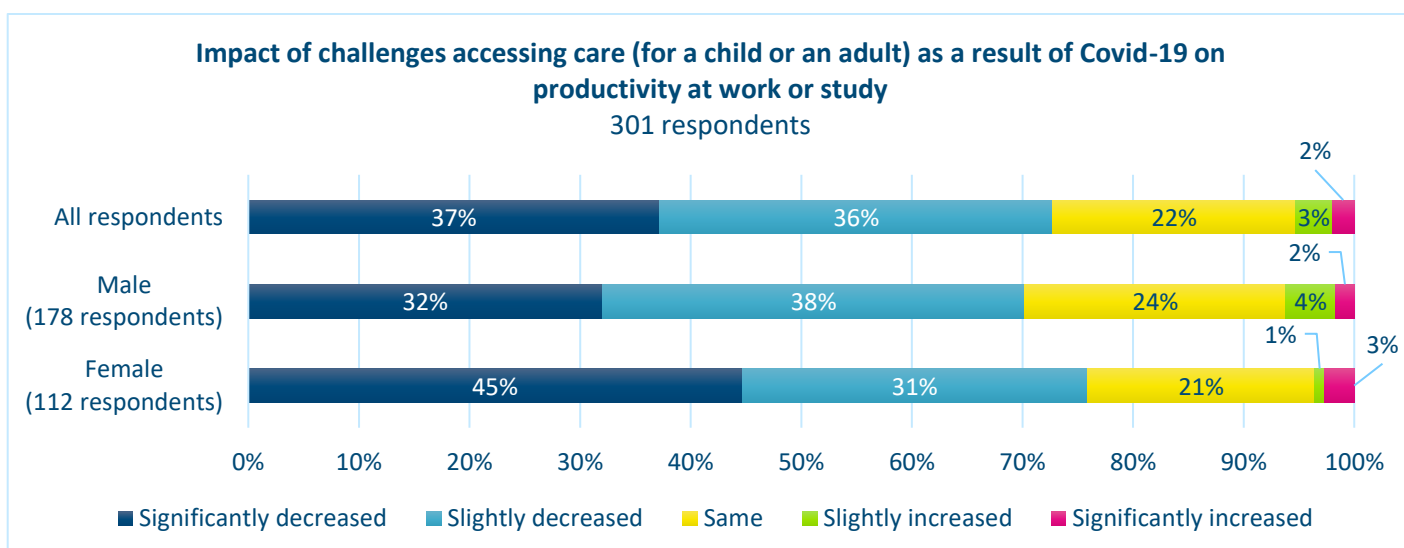


Fig. 48

69. Of respondents who said they had caring responsibilities (for children or adults), were affected by challenges accessing care, and were working or studying during lockdown, 81% of respondents in academia reported a decrease in productivity, compared to 65% of respondents in industry.

70. Respondents in academia were much more likely than those in industry to report a significant decrease in productivity: 56% of those in academia did so, compared to 24% in industry.

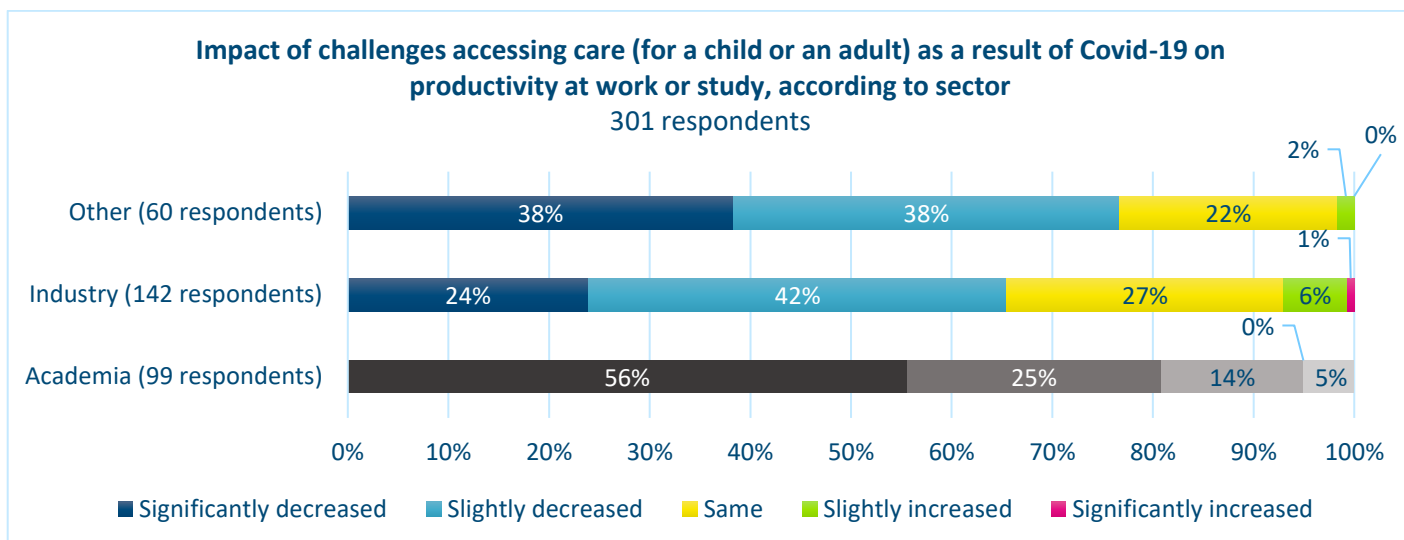


Fig. 49

71. Of respondents who said they had caring responsibilities (for children or adults), were affected by challenges accessing care, and were working or studying during lockdown, 76% of mid-career respondents reported a decrease in productivity, while 68% of established-career respondents did so.
72. Mid-career respondents were more likely to report a significant decrease in productivity, with 43% doing so, compared to 27% of established-career respondents. (This may be partly explained by a higher proportion of mid-career respondents being female than in the established-career category).

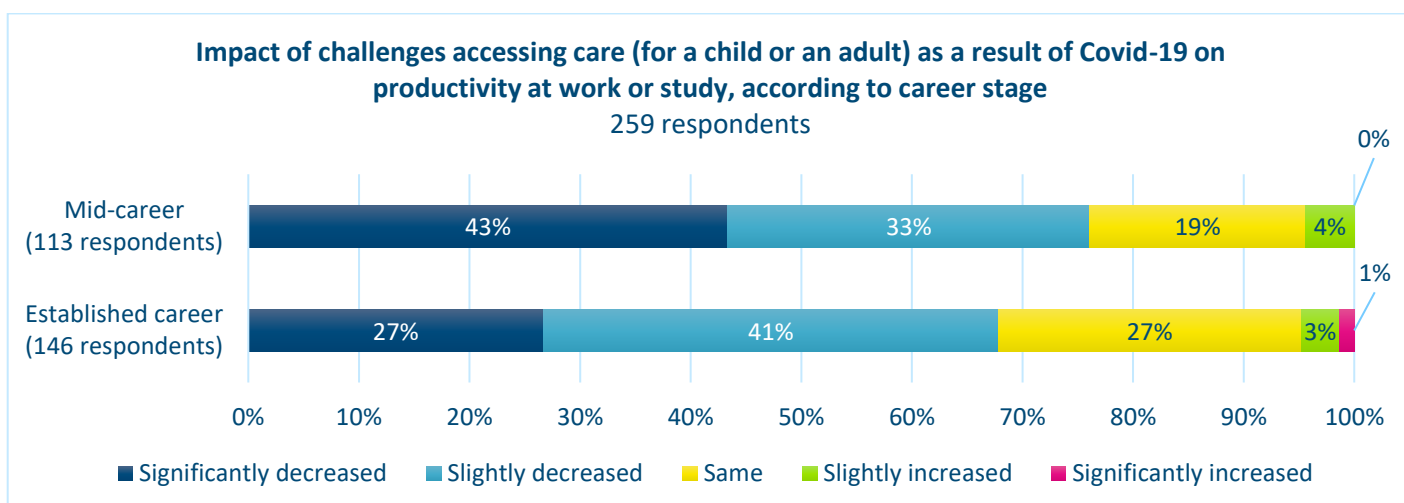


Fig. 50

# Increased challenges in the year ahead

## Section summary

Respondents were given a list of potential issues that may be an increased challenge for them in the following 6-12 months as a result of the pandemic, and selected all that applied. The most commonly selected issue was 'work/life balance', with many also selecting concerns about scientific relationships and access to a research lab.

73. 57% of non-retired respondents said that they expect work/life balance to be an increased challenge for them personally in the next 6-12 months as a result of the Covid-19 pandemic. 54% identified 'developing new relationships with scientists and researchers' as an increased upcoming challenge, and 39% said the same of 'access to a research laboratory'.

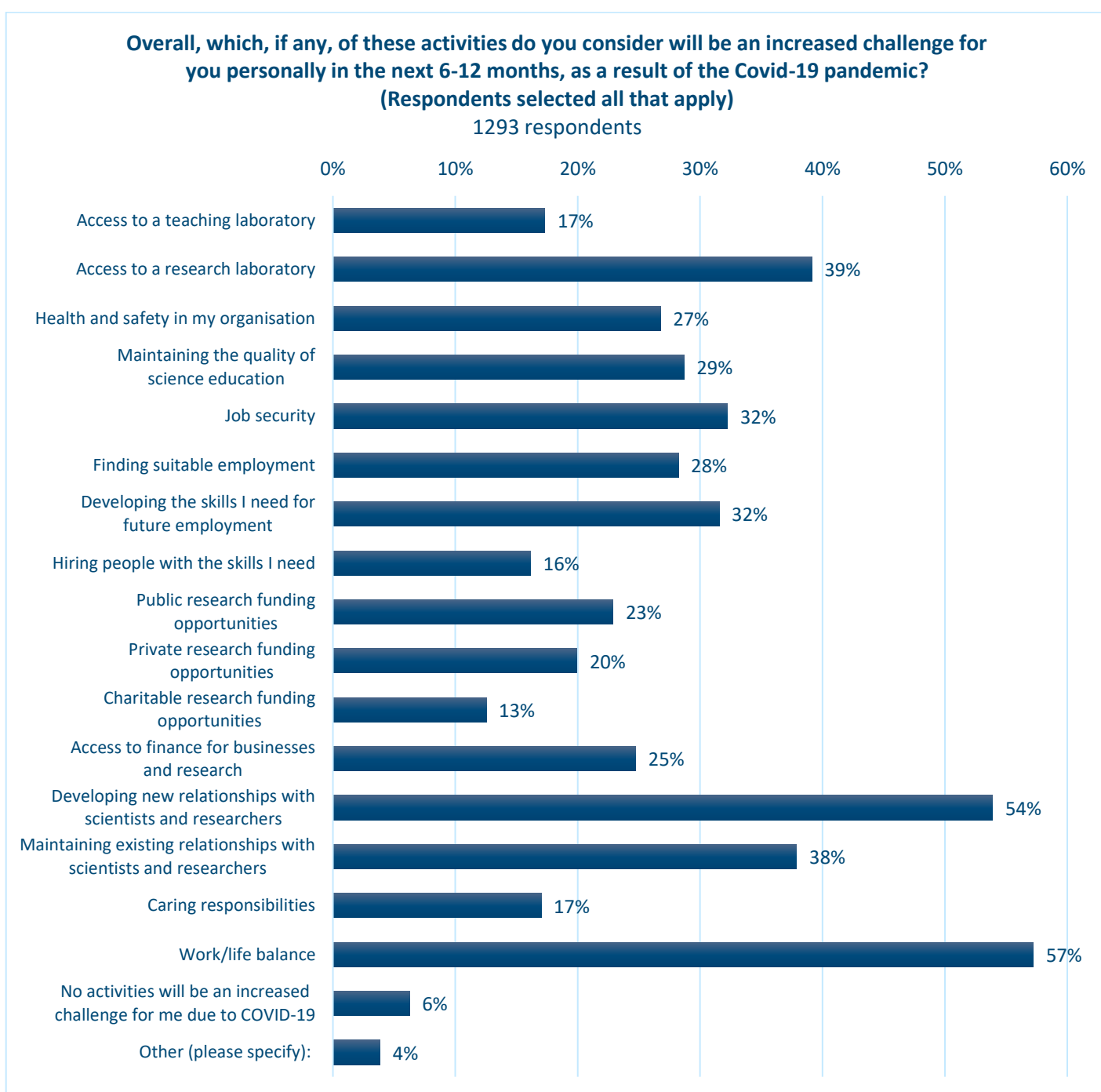


Fig. 51

74. **Undergraduates:** 73% of undergraduates said developing the skills needed for future employment would be an increased challenge for them in the next year as a result of Covid-19. Their next most commonly cited concerns were the increased challenges of ‘developing new relationships with scientists and researchers’ (65%), ‘work/life balance’ (63%), and ‘access to a teaching lab’ (61%).

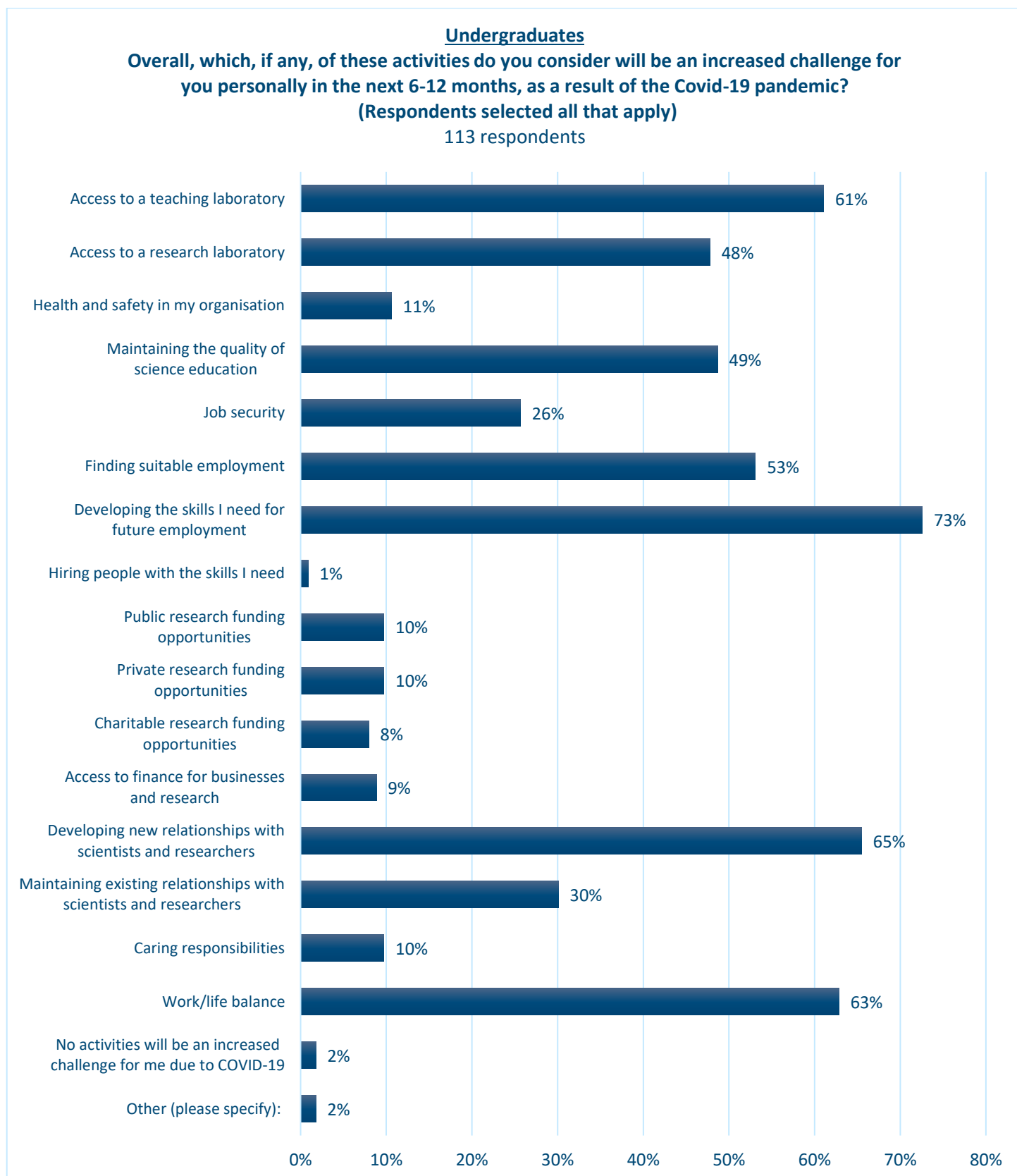


Fig. 52

75. **Postgraduates:** 87% of postgraduates said that access to a research lab would be an increased challenge for them in the next year as a result of Covid-19. Their next most commonly cited concerns were the increased challenges of ‘developing new relationships with scientists and researchers’ (80%), ‘work/life balance’ (70%), and ‘developing the skills I need for future employment’ (61%).

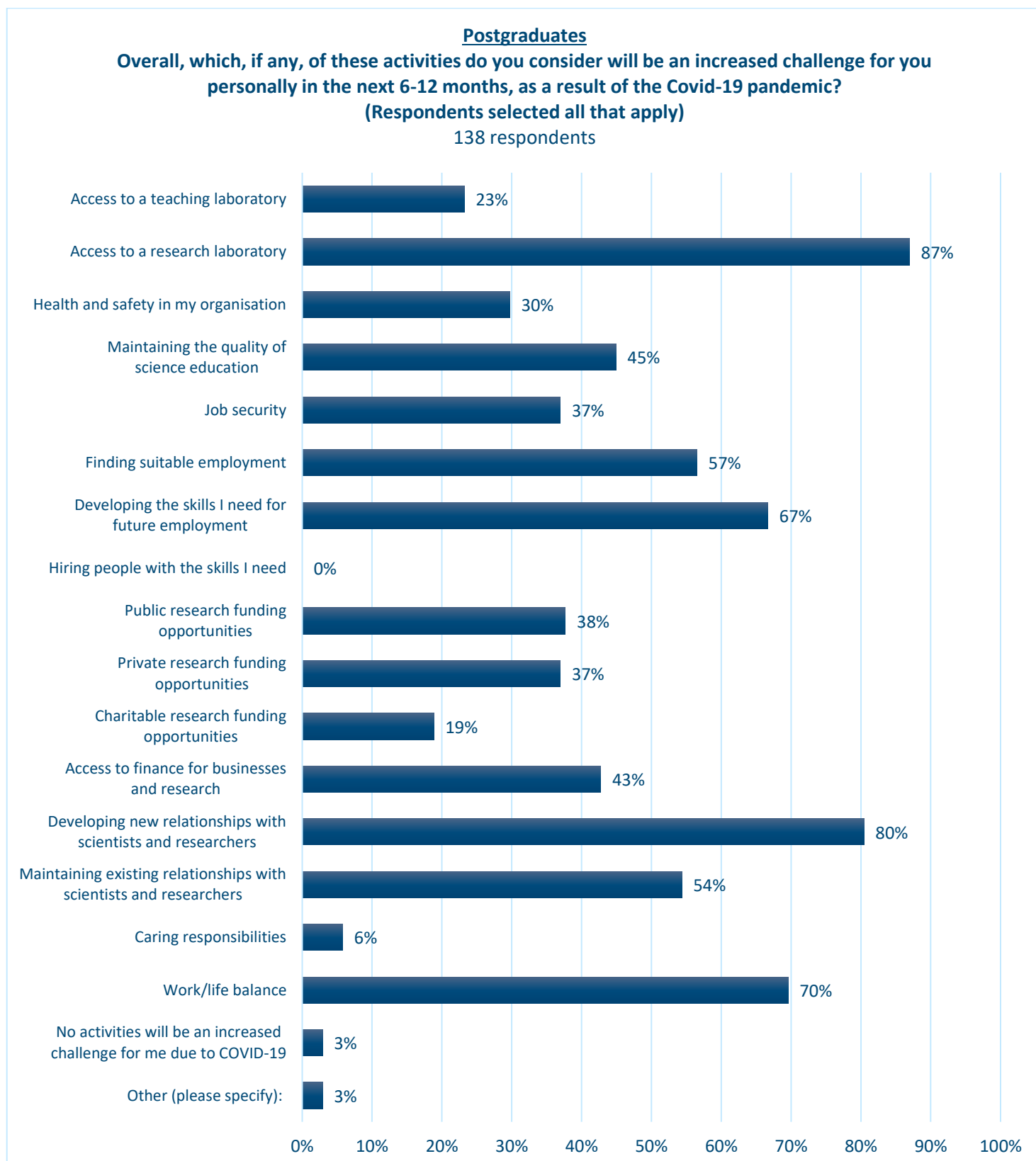


Fig. 53

76. **Early career:** 75% of early career respondents said that developing new relationships with scientists and researchers would be an increased challenge for them in the next year as a result of Covid-19. Their next most commonly cited concerns were the increased challenges of ‘work/life balance’ (67%), and ‘access to a research lab’ (53%), and ‘maintaining existing relationships with scientists and researchers’ (51%).

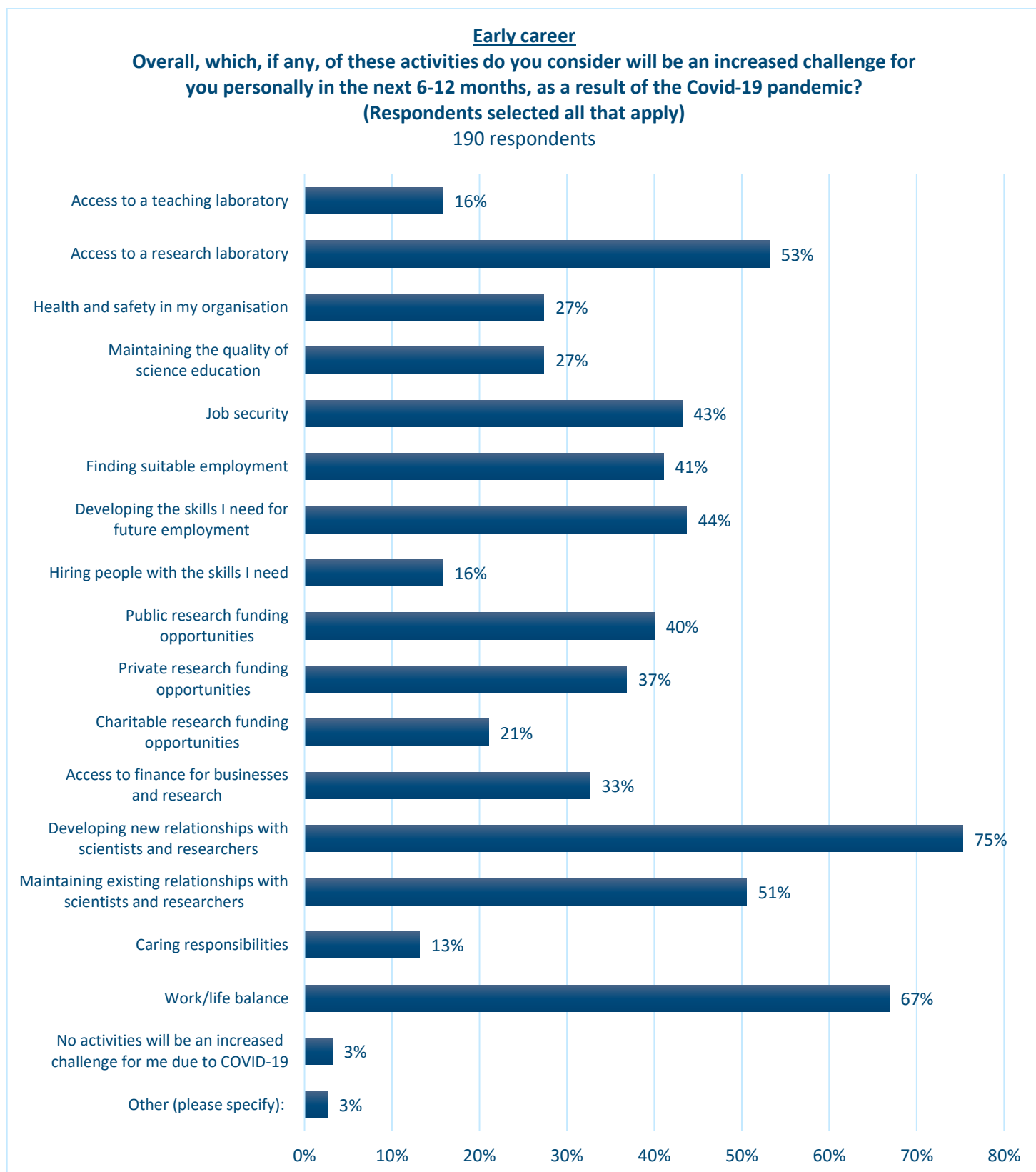


Fig. 54

77. **Mid-career:** 65% of mid-career respondents said that work/life balance would be an increased challenge for them in the next year as a result of Covid-19. Their next most commonly cited concerns were the increased challenges of ‘developing new relationships with scientists and researchers’ (49%), ‘maintaining existing relationships with scientists and researchers’ (41%), and ‘job security’ (37%).

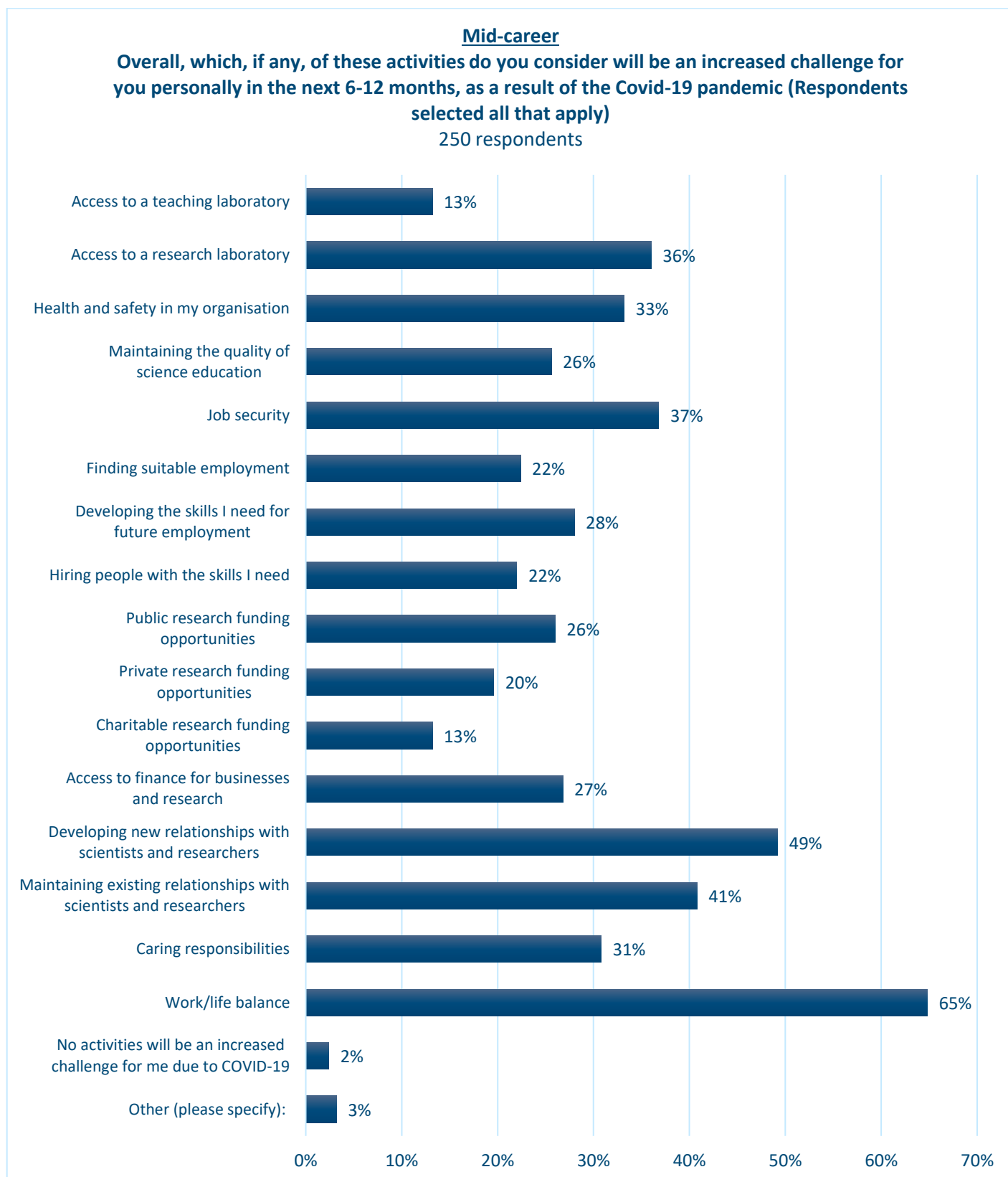


Fig. 55



78. **Established career:** 47% of established-career respondents said that work/life balance would be an increased challenge for them in the next year as a result of Covid-19. Their next most commonly cited concerns were the increased challenges of ‘developing new relationships with scientists and researchers’ (41%), ‘maintaining existing relationships with scientists and researchers’ (31%), and ‘job security’ (27%) and ‘health and safety in my organisation’ (27%).

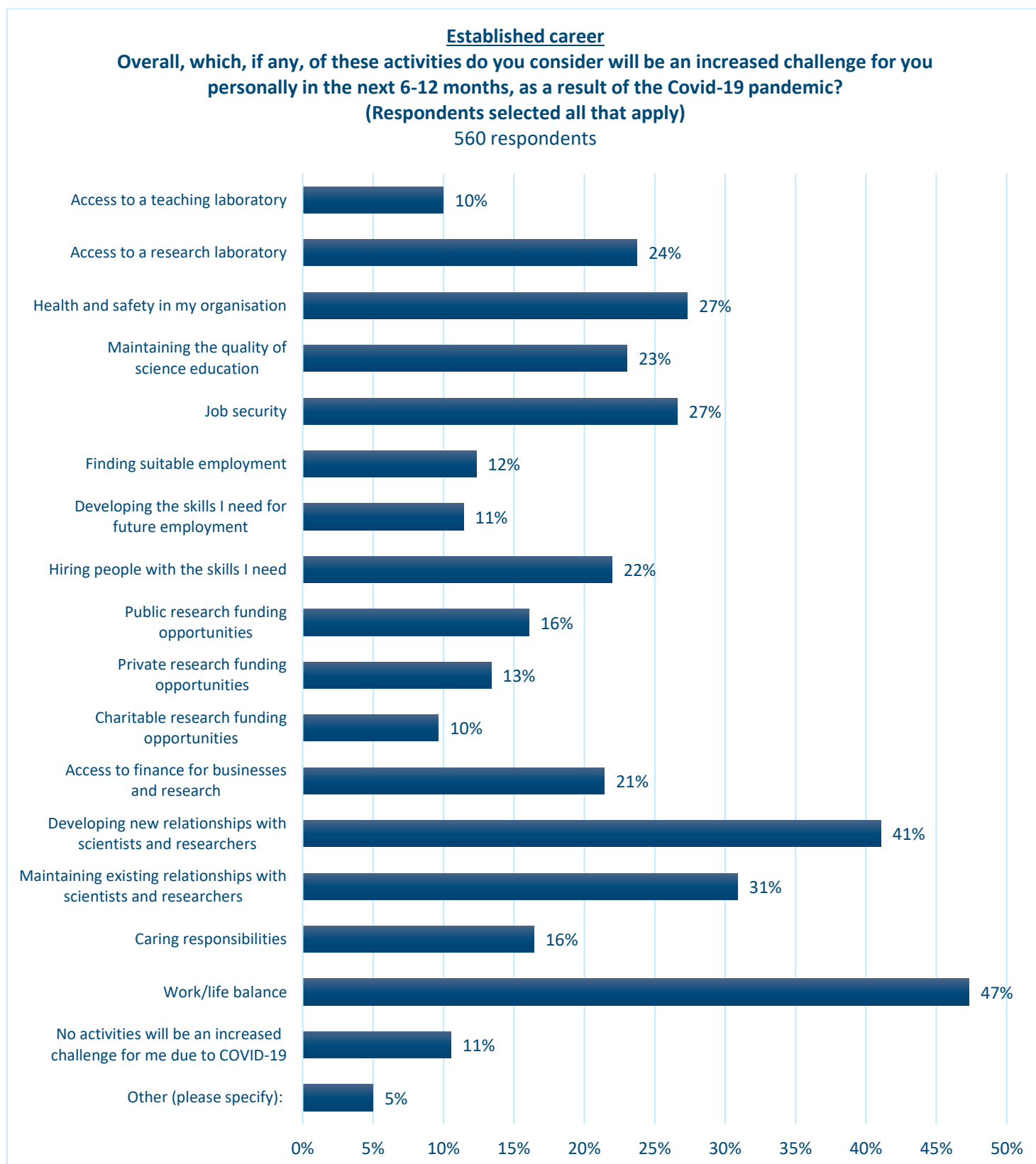


Fig. 56

79. **Not currently working or learning:** 61% of respondents who were not currently working or learning said that finding suitable employment would be an increased challenge for them in the next year as a result of Covid-19. Their next most commonly cited concerns were the increased challenges of ‘work/life balance’ (42%), ‘developing the skills I need for future employment’ (34%), and ‘job security’ (32%) and ‘developing new relationships with scientists and researchers’ (32%).

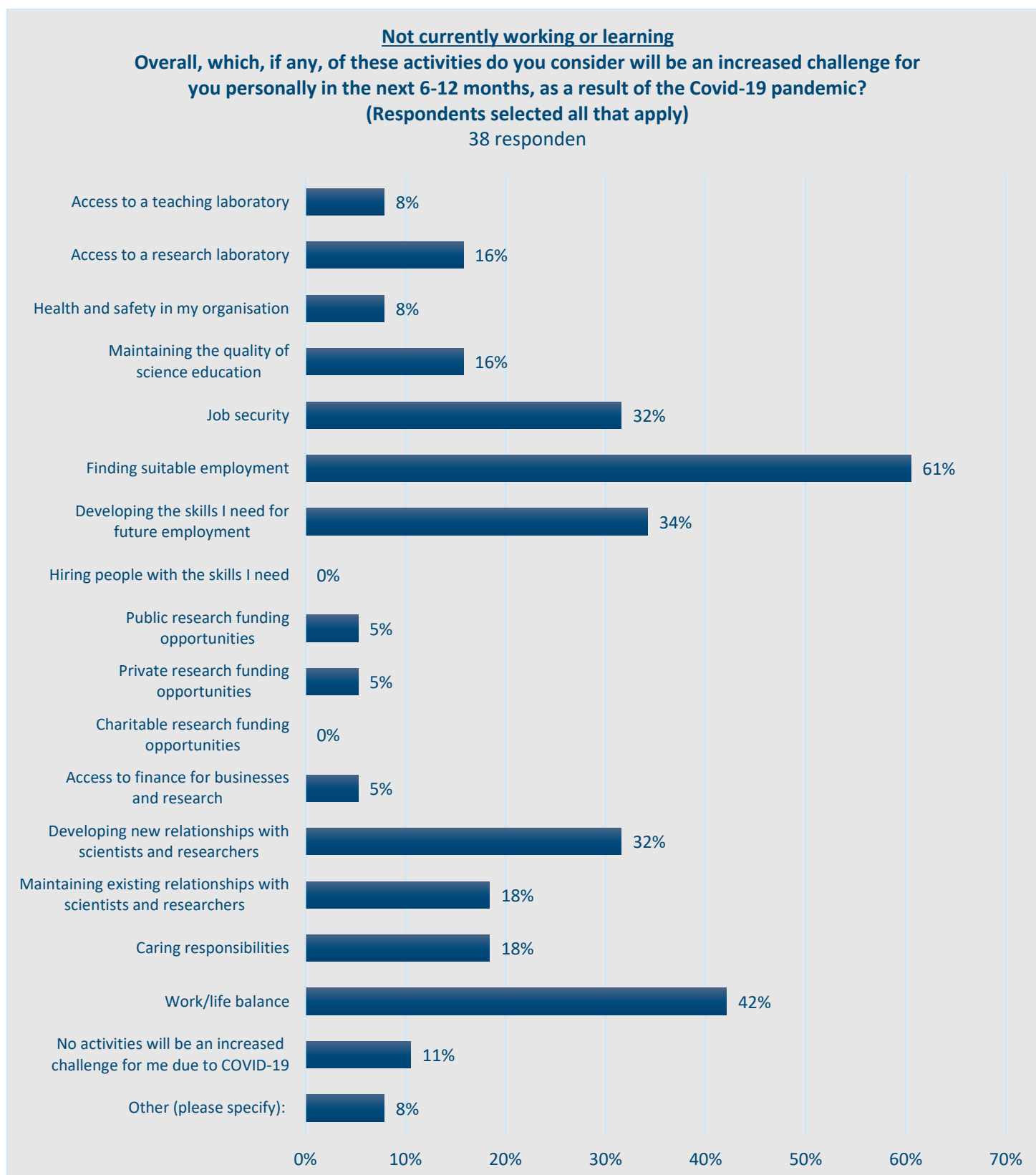


Fig. 57

80. **Retired:** 58% of retired respondents said they considered that finding suitable employment would be an increased challenge for chemical scientists in the next year as a result of Covid-19. Their next most commonly cited concerns for chemical scientists were the increased challenges of ‘access to a teaching laboratory’ (56%), ‘job security’ (55%), and ‘access to a research laboratory’ (54%) and ‘maintaining the quality of science education’ (54%).

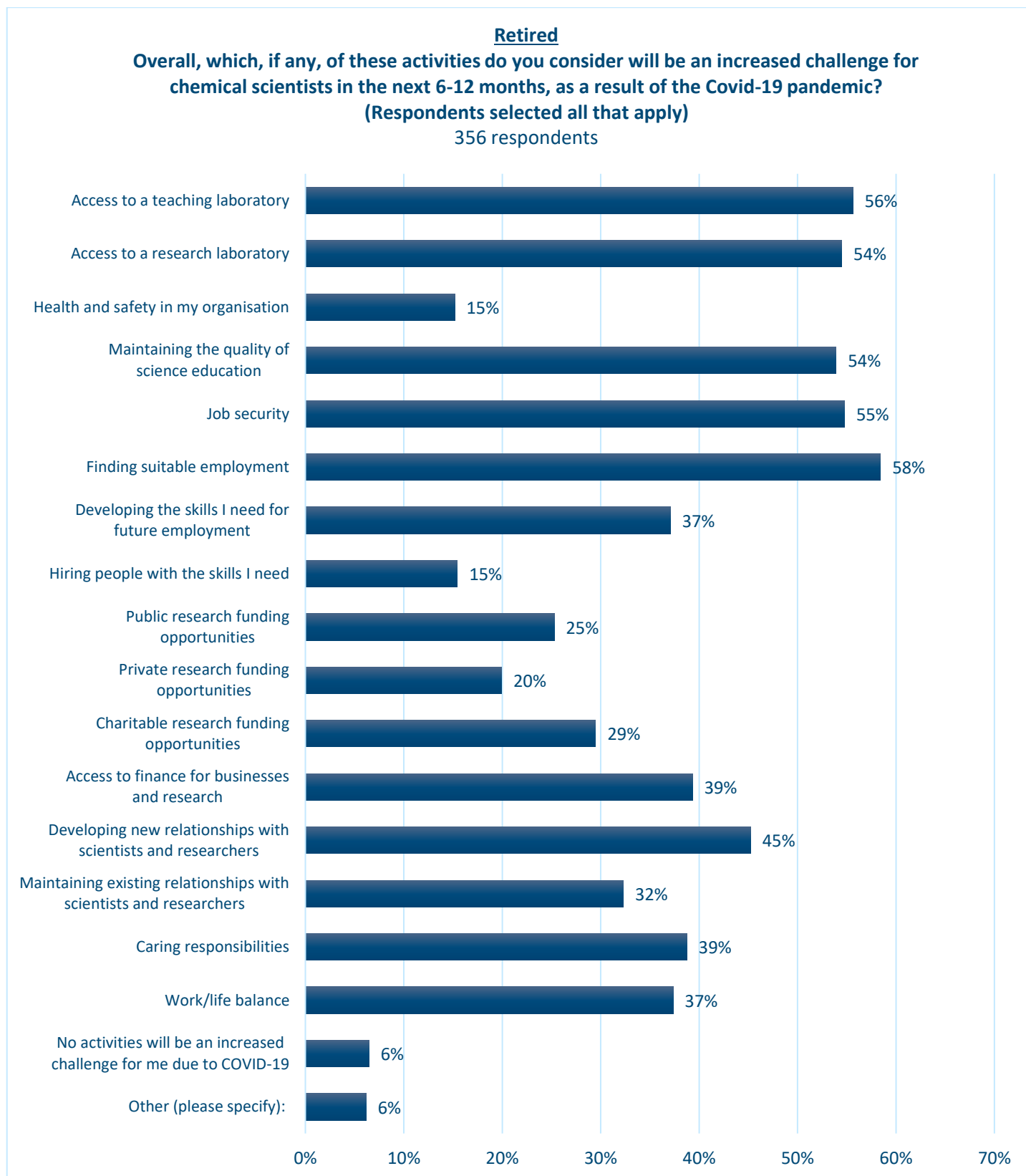


Fig. 58

## Apprentice case studies

Only four apprentices responded to this survey, meaning that the sample of apprentices was too small to have any statistical significance. However, those that did respond provided useful qualitative insight that we set out here, to show some of the issues that apprentices in the chemical sciences have encountered.

### Case study

One apprentice at a mid-sized organisation in industry said she is considering retraining for a new career as a self-employed painter/decorator as a result of the Covid-19 pandemic. She is due to finish her studies in over a year, but the chemistry workforce at her organisation has already been reduced as a result of the pandemic, and she anticipates more job losses over the course of the next 12 months. The pandemic has led her to an increased concern about losing her job, and she considers that finding suitable employment will be an increased challenge for her over the next 6-12 months.

### Case study

Another apprentice, based at a teaching-intensive university, said that the biggest impact of Covid-19 for the chemical sciences would be the amount of admin work that comes along with the job. As well as concerns about developing skills and scientific relationships, she identified access to a teaching laboratory, and health and safety, as likely to be increased challenges in the next year as a result of Covid-19.

## Question list

The survey routed respondents through the question list below based on answers they gave as they went along, in order to present each respondent with the questions most relevant to their experiences. Therefore, individual respondents would have seen a sub-set of these questions, according to their circumstances and answers.

1. In what country are you currently based?
2. In what UK region are you currently based?
3. Are you a member of the Royal Society of Chemistry?
4. Please select your age range
5. What best describes your gender?
6. Which of the following best describes your career stage?
7. Which of the following options most closely describes your current job role?
8. What sector do you work in?
9. How would you classify your organisation?
10. What size organisation do you work for?
11. Do you normally do scientific work\* in a laboratory, or, if not, does your organisation have scientific laboratories? (\*not including teaching, supervising or supporting students - this is covered in a later question)
12. Is your organisation currently experiencing lab closures or restricted access to labs as a result of COVID-19 restrictions? (put in place by either the government policies or your institution/employer)
13. What impact, if any, has changed access to research laboratories had on your day-to-day administrative and planning burden?
14. In the longer-term, what, if any, impact do you think COVID-19-related changes will have on the proportion of scientific work your organisation does outside the laboratory?
15. What impact, if any, do you think this long-term shift will have on the research environment?
16. What impact, if any, do you think long-term shift will have on the ability to do rigorous or robust scientific research?
17. Which of the following impacts are you currently experiencing as a result of changes to access to research laboratories?  
Please select all that apply.
18. Do you normally teach, supervise or support students in a laboratory?
19. Has some or all of your teaching this term been moved online as a result of COVID-19 policy?
20. How much has your workload increased this term, if at all, as a result of moving teaching online?
21. Which, if any, of the following supports has your institution provided to help you move to teaching online? Please select all that apply.
22. Have you been doing more practical teaching online as a result of COVID-19?
23. What impact, if any, do you feel that moving practical teaching online has had on the quality of your teaching?
24. Thinking about people outside your organisation, what impact, if any, do you expect the COVID-19 pandemic will have in the long-term on your ability to maintain relationships with researchers, scientists, partners or businesses?
25. Thinking about people outside your organisation, what impact, if any, do you expect the COVID-19 pandemic will have in the long-term on your ability to develop new relationships with researchers, scientists, partners or businesses?
26. What impact, if any, do you expect the COVID-19 pandemic will have on the number of opportunities to access research funding not related to COVID-19, in the next 2 years?
27. Would you normally be receiving any education in a laboratory?
28. Has some or all of your education been moved online as a result of COVID-19 policy?
29. Has you been receiving more practical education online as a result of COVID-19 policy?
30. Which of the following impacts have you experienced as a result of teaching moving online? Please select all that apply.
31. What impact, if any, do you feel that receiving practical education online has had on the quality of your learning?
32. When are you currently due to finish your studies?
33. What impact, if any, do you perceive that the COVID-19 pandemic will have on your ability to find future employment?
34. Do you think that the COVID-19 pandemic has made it more or less likely that you will pursue further study on completion of your current course?
35. Are you looking to find a new job in the chemical sciences in next 6 months?
36. What impact, if any, do you think COVID-19 will have on your ability to find a suitable role?
37. How strongly do you agree with the following statement: "I am more concerned that I may lose my job (or that my contract may not be renewed) than I was last year, as a result of economic or other consequences of the COVID-19 pandemic"
38. How strongly do you agree with the following statement: "I am more concerned that I may lose clients than I was last year, as a result of economic or other consequences of the COVID-19 pandemic"
39. Are you considering retraining for a new career as a result of the COVID-19 pandemic?

40. Has the chemistry workforce in your team or department been reduced as a result of economic or other consequences of the COVID-19 pandemic?
41. Do you anticipate a reduction in the chemistry workforce in your team or department within the next 12 months as a result of economic or other consequences of the COVID-19 pandemic?
42. Do you think that the COVID-19 pandemic has made it more or less likely that more staff will be hired in your team in the next 12 months?
43. Which of the following options best describe your current caring responsibilities? Please select all that apply.
44. What, if any, impact did school/nursery closures, or other challenges accessing childcare as a result of COVID-19, have on your productivity at work or study during lockdown?
45. What, if any, impact did challenges accessing alternative care options as a result of COVID-19, have on your productivity at work or study during lockdown?
46. Overall, which, if any, of these activities do you consider will be an increased challenge for you personally in the next 6-12 months, as a result of the COVID-19 pandemic? Please select all that apply.
48. What do you think the biggest impact of the COVID-19 pandemic on the chemical sciences will be?
49. Are you happy to spend two minutes answering further demographic questions as part of our diversity monitoring, and to help us understand the impact of COVID-19 on under-represented groups?
50. What is your ethnic origin?
51. Any other Asian background, please describe
52. Any other Black/African/Caribbean background,
53. Any other Hispanic background, please describe
54. Any other mixed/multiple ethnic backgrounds, please describe
55. Any other White background, please describe
56. Any other ethnic background, please describe
57. What is your nationality? This question is about the country or nation that you belong to. Please indicate which best describes your nationality.
58. Do you consider yourself to have a disability as defined below? *The Equality Act 2010 defines a disabled person as someone who has 'a physical or mental impairment which has a 'substantial' and 'long-term' adverse effect on his/her ability to carry out normal day to day activities.' For example, this can include diabetes, learning difficulties, hearing or speech impairments, arthritis, heart problems, depression, epilepsy etc.*
59. Please indicate from the list which best describes your sexual orientation:
60. Please indicate which best describes your current working pattern.
61. Is Flexible working available to you? *Within our definition of flexible working we are including – flexi-time; staggered hours; term-time hours; annualised hours; flexible shifts; compressed hours; homeworking.*
62. Do you make use of any flexible working arrangements (see definitions above) currently?