

# Nature Postdocs survey 2023

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# Executive summary

**Background:** Nature were looking to conduct the second iteration of a survey run in 2020 that focuses on the experiences of postdoctoral researchers, as this audience has been described as ‘the neglected part of the scientific workforce’. Shift conducted a review of the questions from the 2020 survey and 10 cognitive interviews to inform the wording of new questions and the rewording of previous questions where necessary. A survey was launched in 3 languages in June 2023. We received 6,571 responses, of which 3,838 were useable as the final sample.

**Job satisfaction:** 55% of respondents indicated they were satisfied with their current postdoc position, a slight decrease on 60% in 2020. Similarly to 2020, they were most satisfied with their interest in their work (75% satisfied), degree of independence (73%) and opportunities to work on interesting topics (72%). They were least satisfied with their job security (56% dissatisfied) and career advancement opportunities (49%).

**Salary and benefits:** Postdocs were most likely to report that they earned between \$50,000-\$79,999 USD per year. Similarly to 2020, men were marginally more likely to earn between \$80,000-\$109,999 than women. 10% of the sample reported having a second job alongside their postdoc, a slight increase on the 2020 figure of 6%. These postdocs were most likely to be based in Africa (33%) and South America (28%). In terms of workplace benefits, postdocs were most likely to have access to paid vacation days (85%) and sick leave (81%), but only 17% had access to subsidised childcare. 16% had become a parent over the course of their postdoc, 38% of which were women. 19% who had become a parent were not able to take any parental leave, a slight increase on the 2020 figure of 15%.

**Postdocs experiences:** Only 13% of the sample indicated that they didn’t work more hours than they were contracted to, however this is a larger proportion than in 2020 (9%). Most of these respondents worked between 6-10 hours overtime, but 7% worked more than 20 hours overtime. In the past month, 72% had not worked overnight in their workplace, and only 2% had done this more than 20 times. Working on weekends or days off was more common – only 11% had not done this, and 35% had done this once or twice. 24% of postdocs had sought professional help for work-related anxiety or depression, whilst a further 21% would like to receive this. Both of these were slightly lower figures than in 2020. 24% of postdocs reported having experienced discrimination or harassment in their current or previous postdoc position – the same proportion as in 2020. 32% had observed these behaviours also.

# Executive summary

**Impact of AI and sustainability policies:** 31% of postdocs had used AI chatbots as part of their work, with those in their early career being more likely than their senior career counterparts. Where AI was used, it was mostly for refining text (63%) and code generation, editing and troubleshooting (56%), followed by finding and summarising literature (29%). Those that used AI most commonly used it on a weekly basis (43%). In terms of sustainability policies implemented by labs and workplaces, Sharing equipment or lab space with other teams or research groups (47%) was the most common policy among postdoc's workplaces, followed by reminders to switch off equipment, to save power (41%). Postdocs in the biomedical and clinical sciences were significantly more likely to answer that their workplaces employed all of these policies, with the exception of carbon offsetting for work travel.

**Job prospects:** 65% of postdocs were planning to base their career within academia, similar to the 2020 figure of 63%. 41% of postdocs felt positive about their future job prospects, an increase on the 2020 figure of 28%. This was met by 42% who felt negatively about their prospects. Just over half of postdocs would still recommend a scientific research career to their younger self (52%).

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## Background & Methodology


# Background and Methodology

In 2020, Nature commissioned Shift Insight to conduct a survey among postdoctoral researchers worldwide, an audience often described as 'the overlooked segment of the scientific workforce.' Nature has once again partnered with Shift to conduct a follow-up survey, seeking to gain deeper insights into how the working lives of postdocs have evolved over the past three years.


The online survey was developed in collaboration with Nature. To ensure that results were directly comparable to those from 2020, survey questioning remained largely the same, with questions relating to COVID-19 and some other less important questions were replaced with those exploring current issues within the research community:




The survey was sent to Nature’s database and subscribers via a number of channels. In order to boost responses in specific regions which have been under-represented in other Nature surveys, the survey was translated into Spanish and Chinese in addition to English. The survey was live for approximately 7 weeks. Only those working in a science related field were included in the final analysis. Respondents who provided poor quality responses or had missing data were also removed from the dataset.



**The survey included 75 questions**



**We received 6571 responses to the survey**



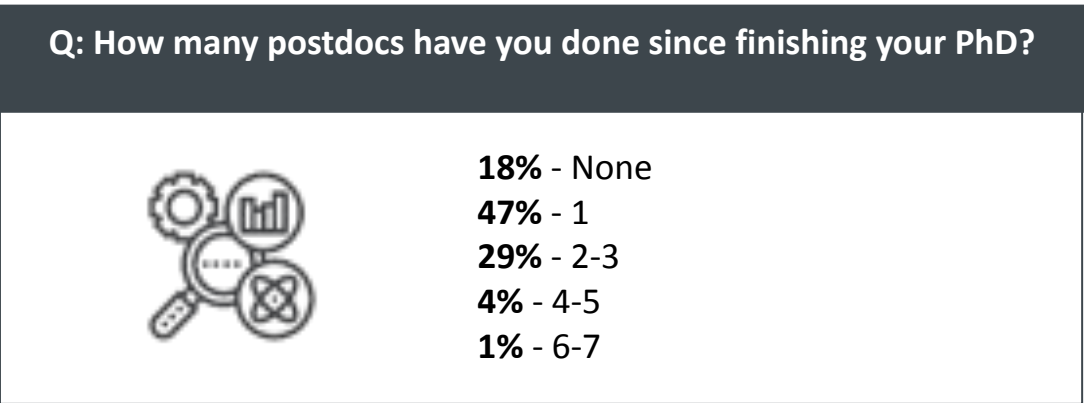
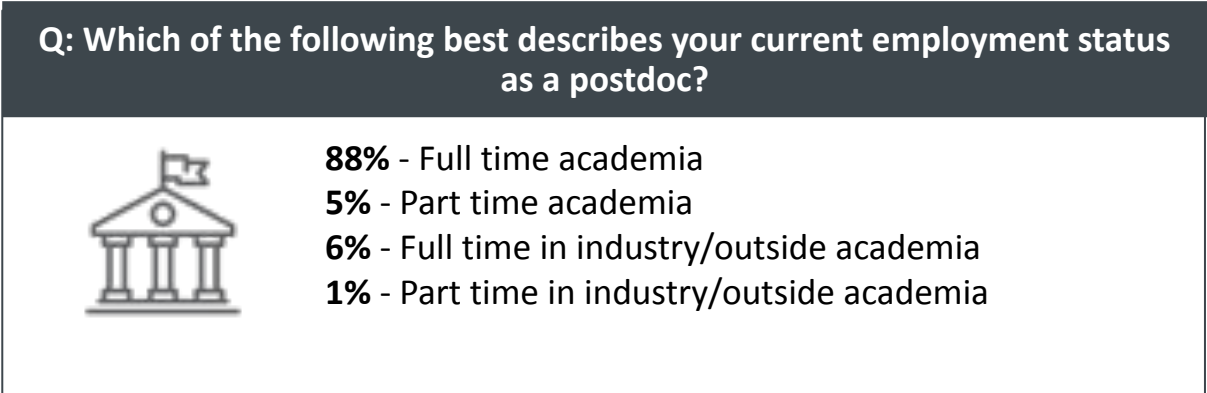
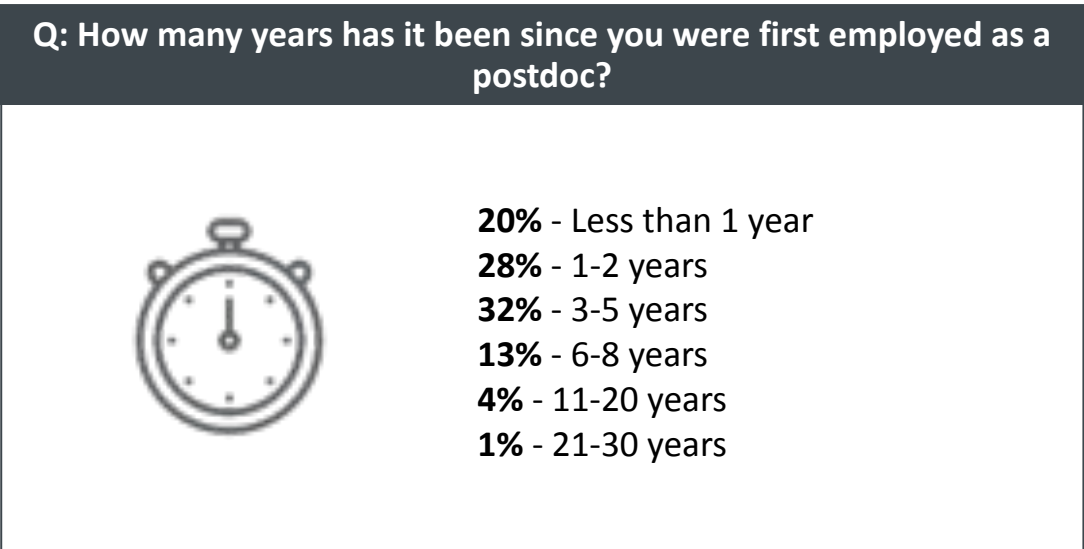
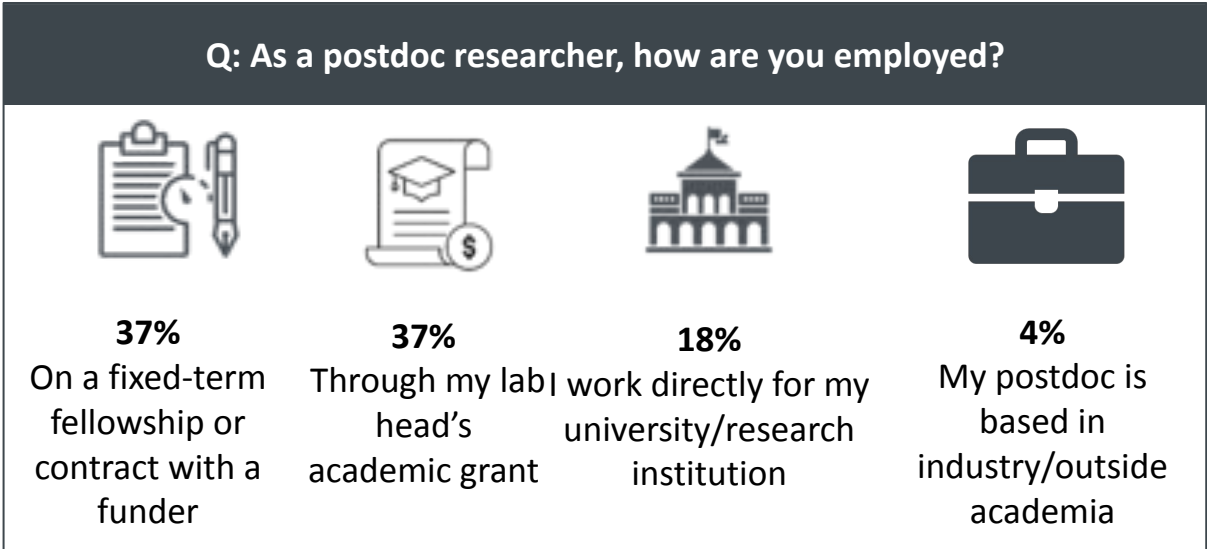
**Following data cleaning, we had a useable sample of 3838**



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## Profile of respondents

# Profile of respondents | Jobs and career stages

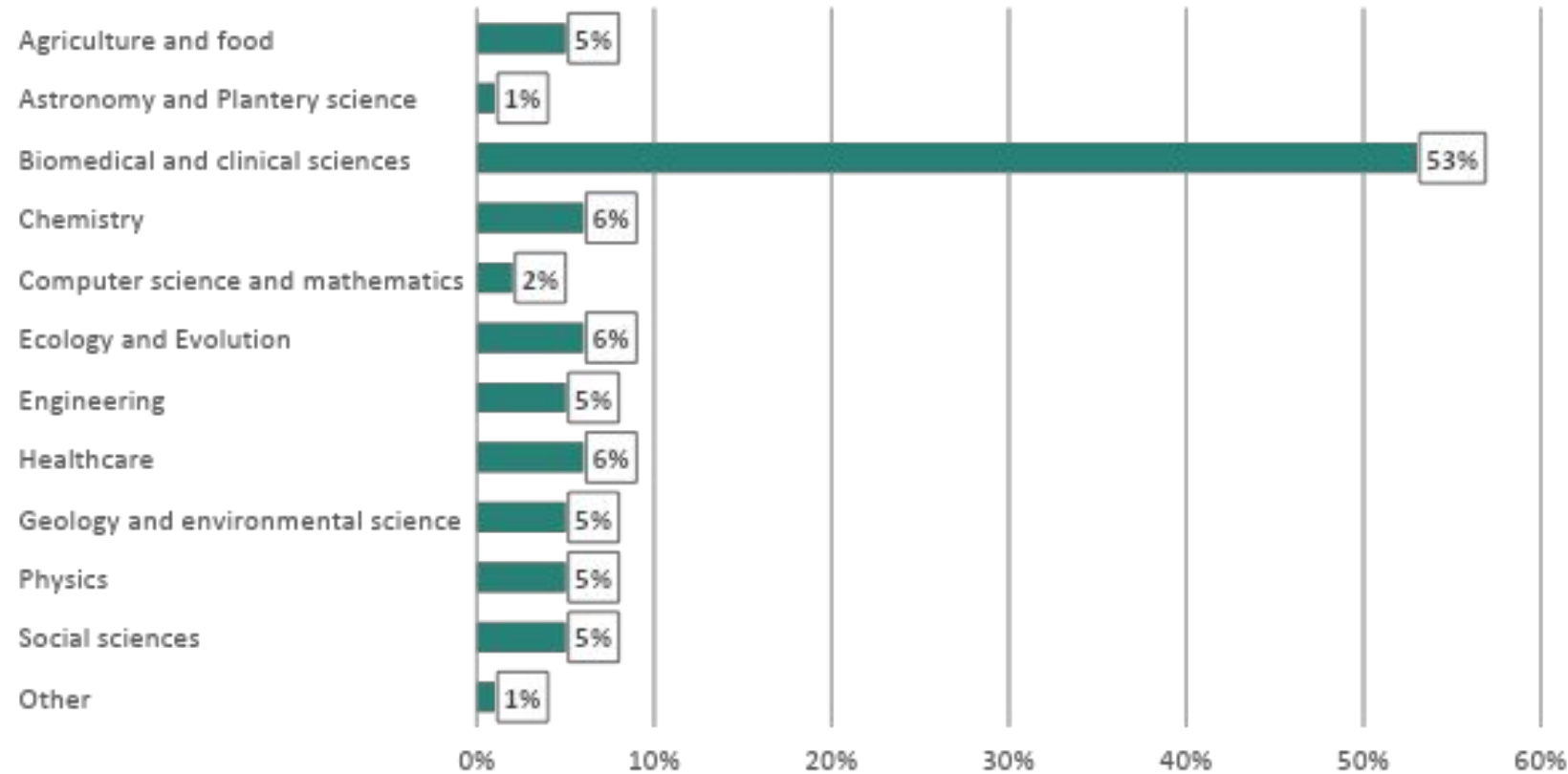


Base n: 3838. Single choice questions. Asked to all.  
Employment status base n: 3766. Single choice question. Not asked to unemployed respondents.



# Profile of respondents | Fields and locations

Q: Which of the following best describes the field you work in?



Q: Are you undertaking a postdoc in your native country?



39% - Yes  
61% - No

Q: Have you ever moved from the country/territory where you completed your PhD to undertake a postdoc?



54% - Yes  
46% - No

Q: Is your postdoc at the same institution where you completed your PhD?



65% - Yes  
35% - No

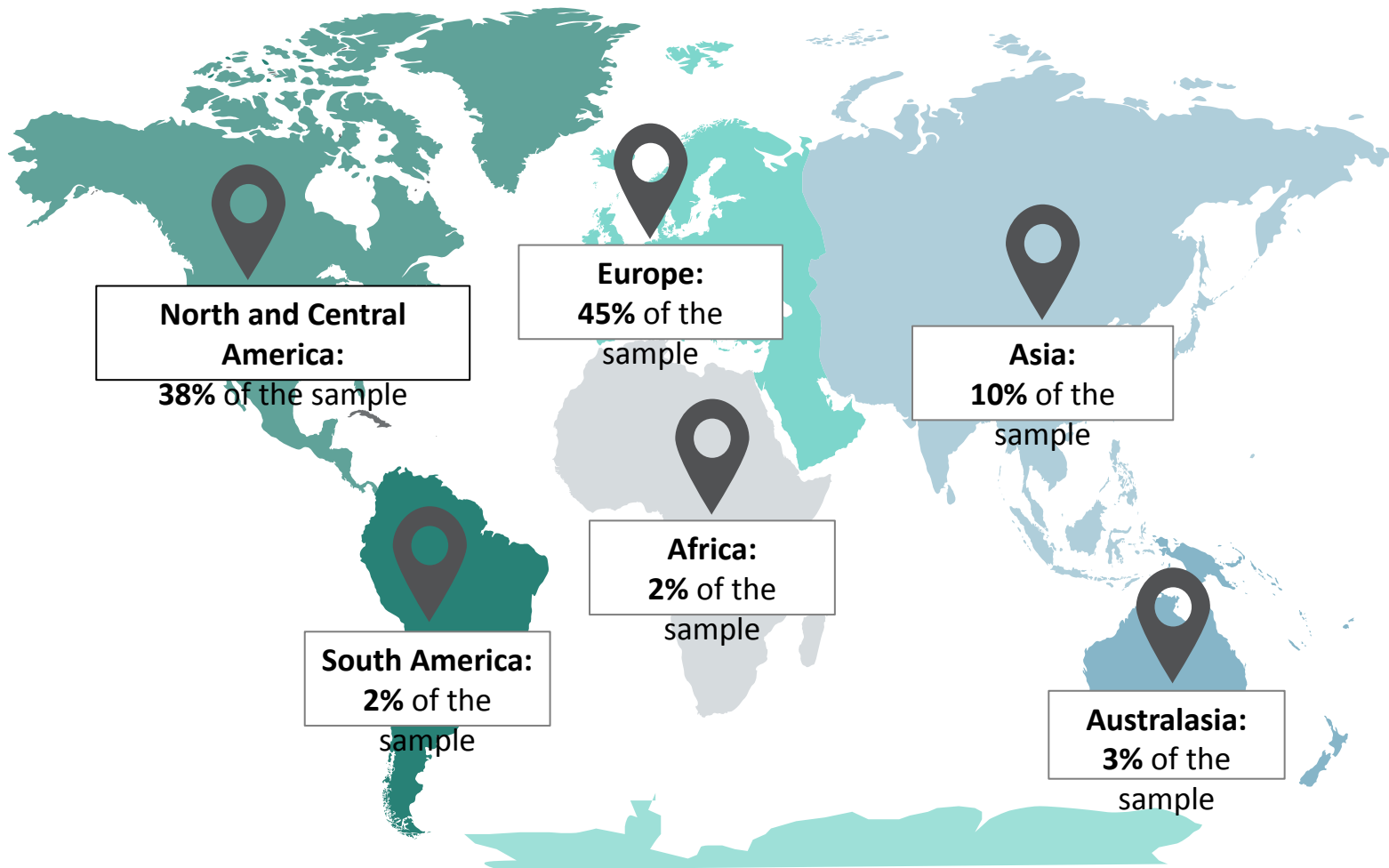
Base n: 3838. Single choice questions. Asked to all.

Undertaking a postdoc in native country base n: 3766. Single choice question. Not asked to unemployed respondents.

Postdoc at the same institution base n: 1753. Single choice question. Asked to those who had not moved region for their current postdoc.

# Profile of respondents | Region

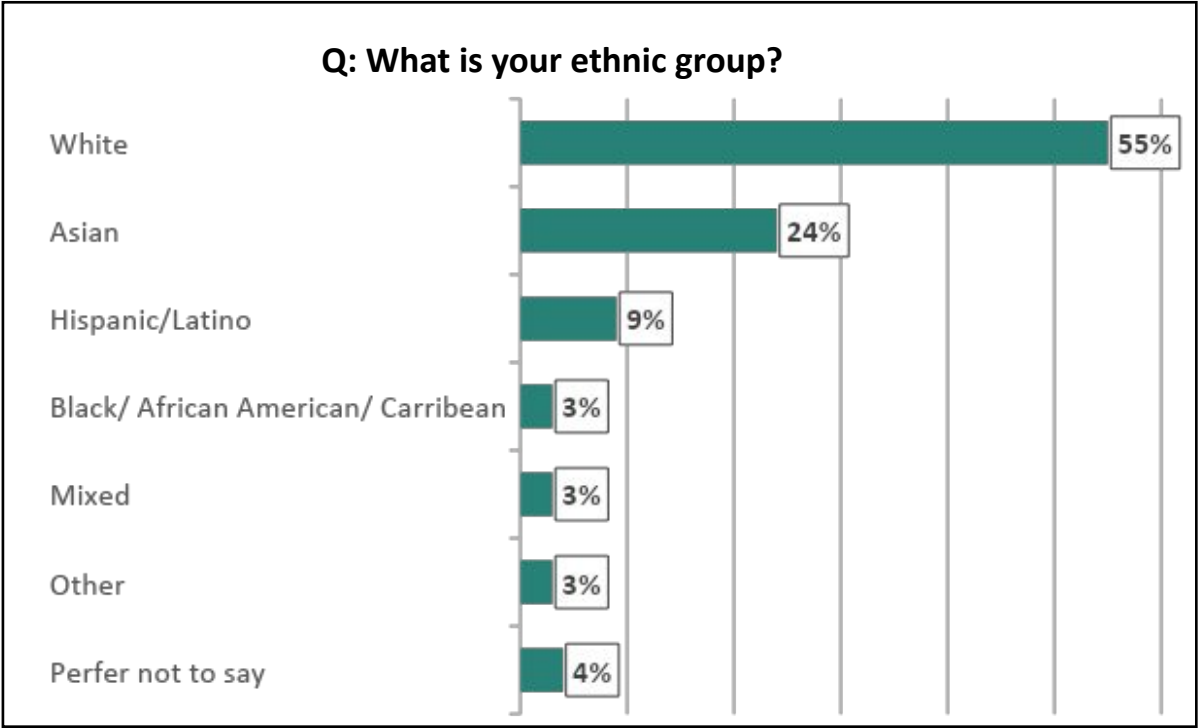
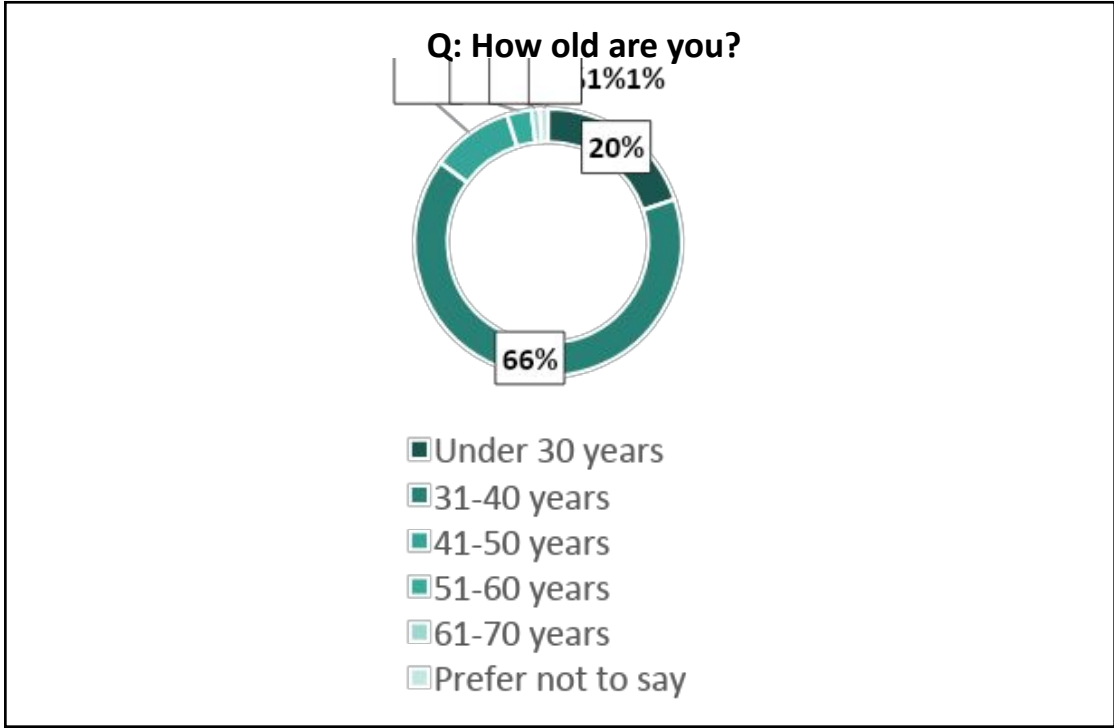
Q: Where do you currently live?



<b>Africa (91 respondents):</b> 30% of African respondents were from Egypt, 25% were from South Africa, 18% were from Nigeria
<b>Asia (402 respondents):</b> 25% of Asian respondents were from China, 21% were from India, 11% were from Japan
<b>Australasia (107 respondents):</b> 87% of Australasian respondents were from Australia, 13% were from New Zealand
<b>Europe (1712 respondents):</b> 25% of European respondents were from the UK, 20% were from Germany, 7% were from France
<b>North and Central America (1446 respondents):</b> 89% of North and Central American respondents were from the US, 7% were from Canada
<b>South America (75 respondents):</b> 52% of South American respondents were from Brazil, 19% were from Chile, 12% were from Columbia

Base n: 3838. Single choice question. Asked to all.

# Profile of respondents | Demographics



**Q: What is your gender?**



51% - Female  
47% - Male  
1% - Non-gendered  
1% - Prefer not to say

**Q: Do you experience any long-term health problems or a disability?**

14% - Yes  
83% - No  
3% - Prefer not to say

**Q: Do you consider yourself to be an ethnic and/or racial minority in your country of work?**



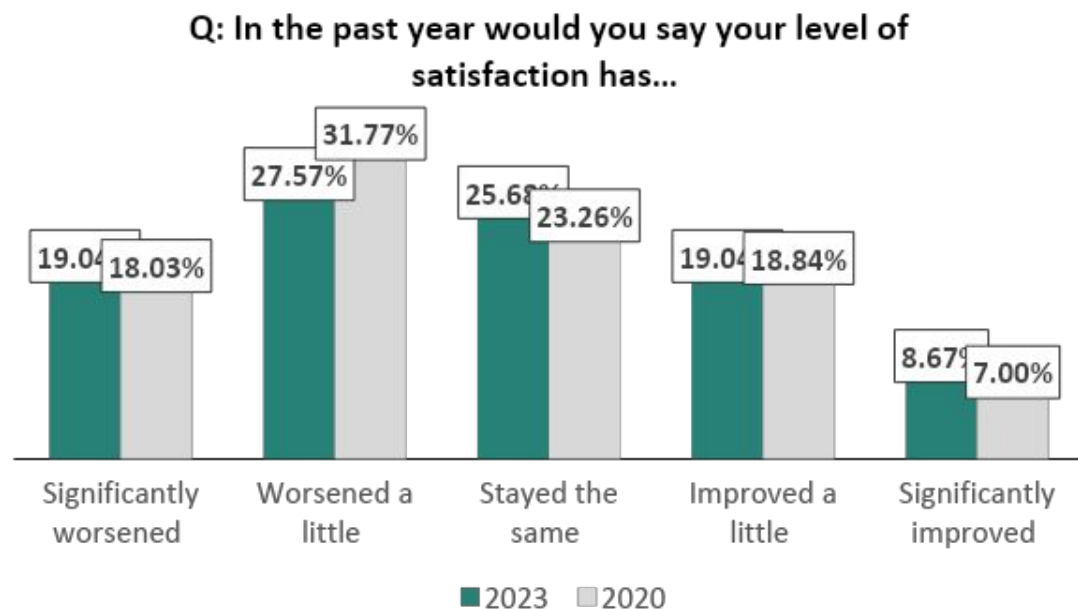
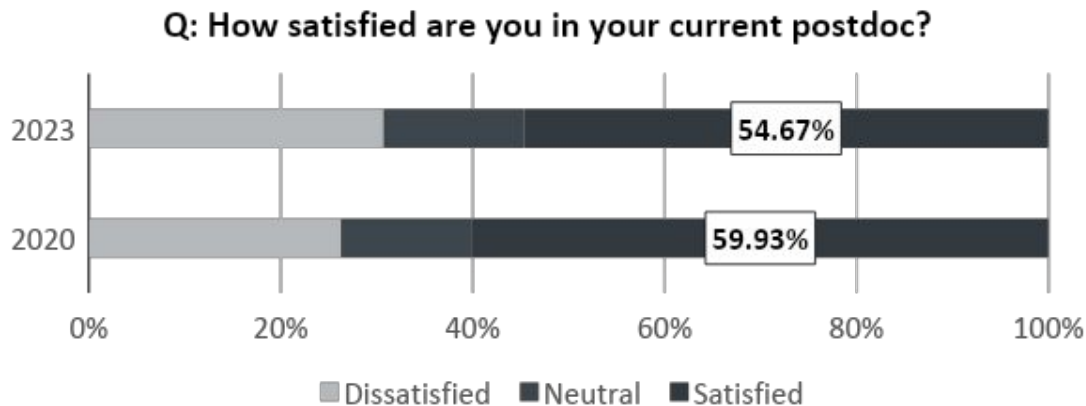
27% - Yes  
67% - No  
3% - Prefer not to say

Base n= 3838. Single choice questions. Asked to all.

## Job satisfaction

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# Just over half of postdocs are satisfied with their current role



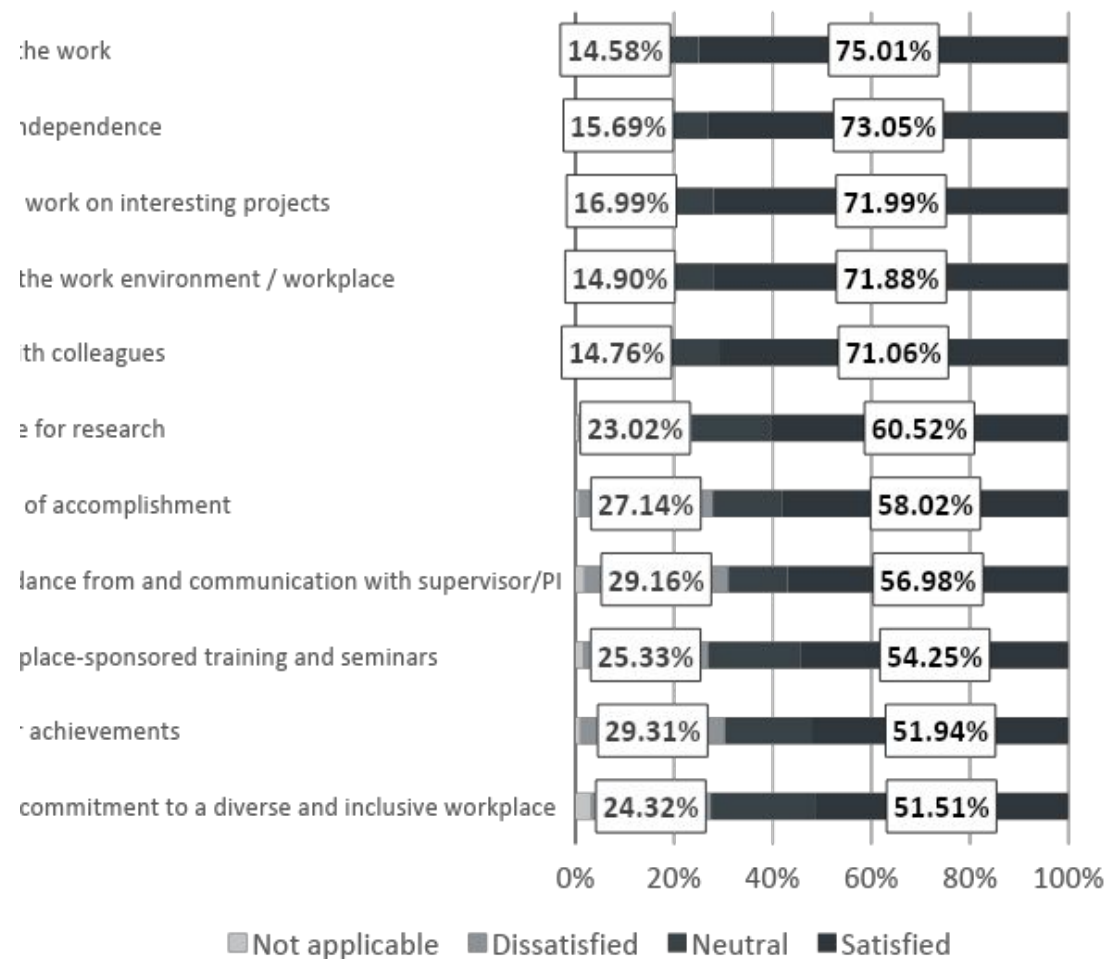
- Postdoctoral researchers (postdocs) were slightly less likely to describe themselves as satisfied in their current position than in 2020, but figures were consistent overall.
- **Those working in industry were more likely to describe themselves as satisfied (65%) than those working in academia (54%)** and were also more likely to say that their satisfaction had improved in the last year (38% versus 27%).
- Those working in the social sciences were most likely to be satisfied (70%), whereas those working in biomedical and clinical sciences were the least likely to be satisfied (51%).
- Postdocs currently based in Australasia and Europe were most likely to be satisfied (68% and 58%), whereas those in Africa and North or Central America were the most likely to be dissatisfied (38% and 34%).
- **Similarly to 2020, postdocs aged 31-50 were significantly likely to be dissatisfied (32%), whereas those aged 30 or under were significantly likely to be satisfied (64%).** Those aged 31-40 were likely to say their satisfaction had worsened (48%), also similarly to 2020. However, in 2020 14% of those aged 26-30 felt their satisfaction had worsened, a figure which has jumped to 41% for those aged 30 or under in 2023.
- Postdocs who are female or living with a disability were significantly likely to say their satisfaction had worsened over the past year (49% and 52%).

Satisfaction base n = 3746. 7-point scale grid question, derived into a 3-point scale. Satisfaction change base n = 3692. Multi-choice question. Not asked to unemployed respondents.



# Postdocs are most satisfied with their interest in their work

Q: Thinking about your current postdoc, how satisfied are you with the following? (Top 11 satisfaction scores)

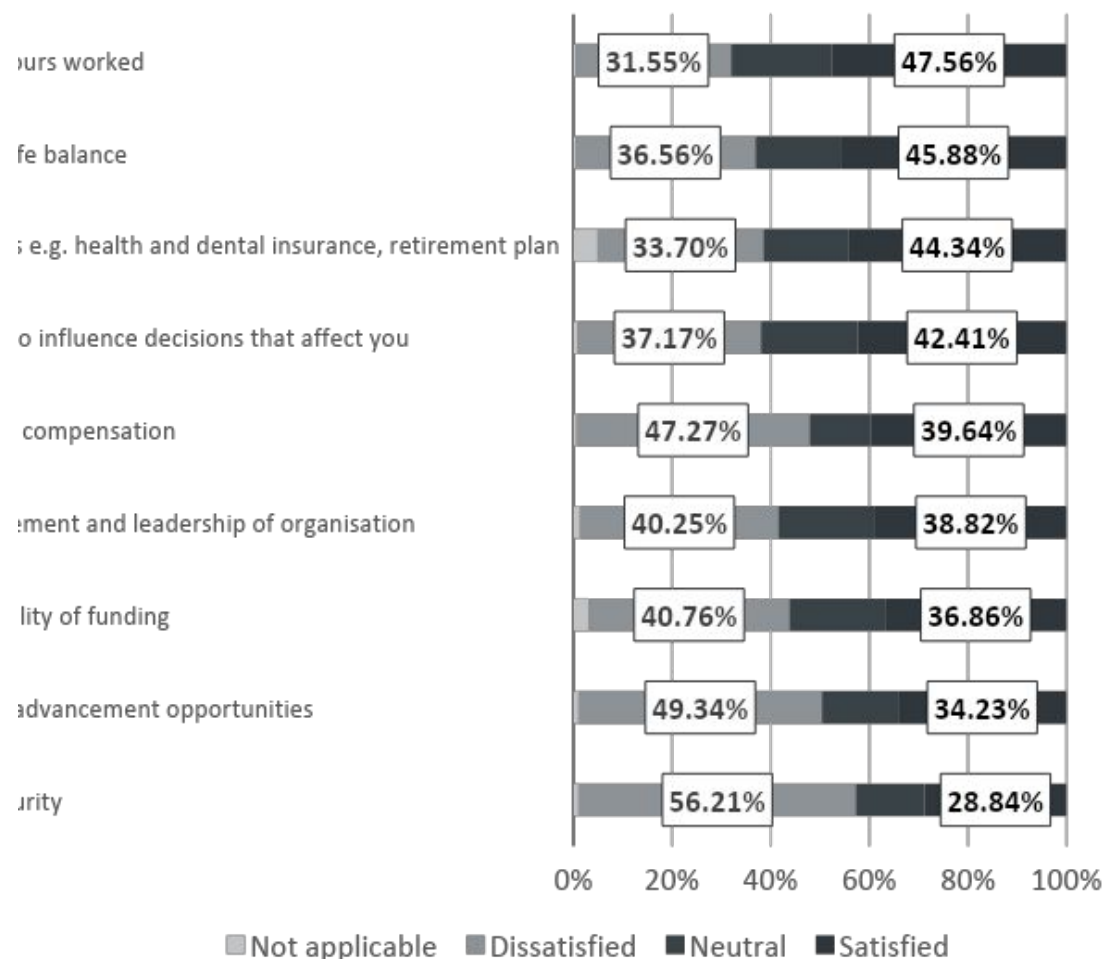


- **The job factors with the top 10 satisfaction scores mirrored the top 10 factors in 2020 exactly**, however, the degrees of agreement were slightly lower in 2023. For example, in 2020 80% of postdocs were satisfied with their interest in their work, compared to 75% in 2023.
- Those working in academia were significantly likely to be satisfied with the amount of guidance and support they received from their supervisor or PI (58%) and slightly more likely than those working in industry (53%).
- **Similarly to 2020, those aged 30 or under were significantly likely to be satisfied with nearly all job areas**, with the most satisfaction around feeling safe in the workplace (81%), opportunities to work on interesting projects (79%), and their degree of independence (78%).
- Some gaps in satisfaction between male and female postdocs have shrunk since the 2020 findings. These are outlined in the below table:

Factor	Satisfaction agreement			
	2020		2023	
	Male	Female	Male	Female
Org’s commitment to a diverse workplace	51%	46%	53%	51%
Personal sense of accomplishment	63%	58%	60%	57%
Feeling safe in the workplace	74%	71%	72%	73%

# Postdocs are least satisfied with their job security

Q: Thinking about your current postdoc, how satisfied are you with the following? (Lowest 9 satisfaction scores)

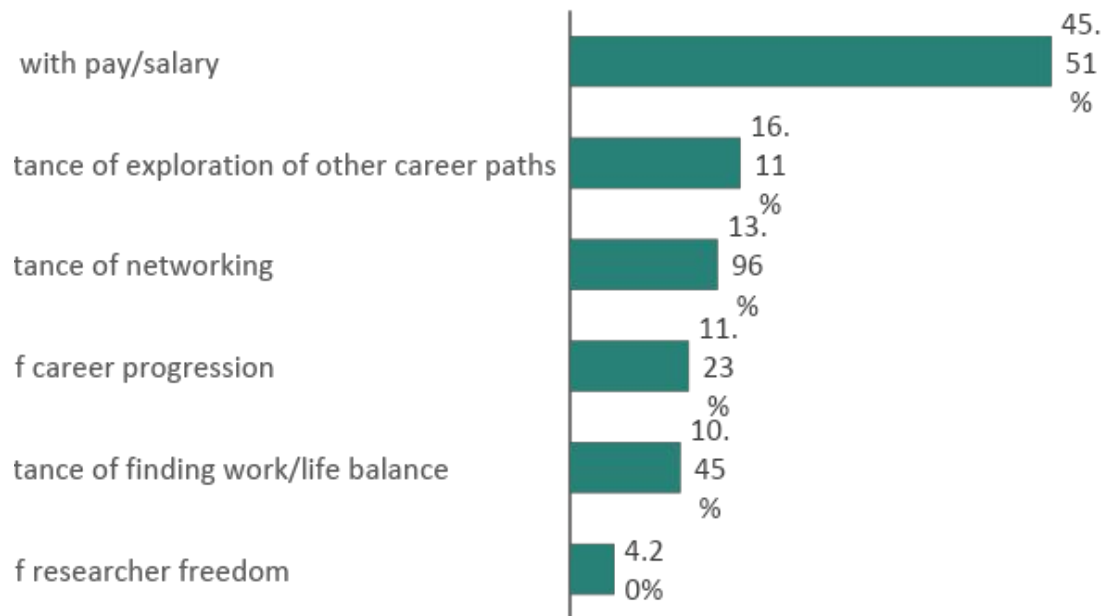


- Similarly to 2020, postdocs aged 31-40 were significantly more likely to be dissatisfied with a range of factors than their counterparts aged 30 or under. This includes job security (59% versus 47%), career advancement opportunities (51% versus 38%) and work/life balance (39% versus 28%).
- **Postdocs in Europe and Australasia were significantly likely to be dissatisfied with job security (70% and 64%), whereas those in Africa and South America were significantly likely to be dissatisfied with workplace benefits such as health insurance (58% and 59%), and those in North or Central America significantly likely to be dissatisfied with their salary or compensation (62%).**
- **Postdocs who were an ethnic minority in their country of work** were significantly more likely to be dissatisfied with a range of factors compared to their ethnic majority counterparts, including their ability to influence decisions that affect them (43% versus 35%) and their organisations commitment to diversity in the workplace (30% versus 22%).
- Similarly, **postdocs who were living with a long-term health condition or disability** were significantly more likely to be dissatisfied than their counterparts, most notably in areas such as their ability to influence decisions that affect them (46% versus 36%) and their relationship with colleagues (23% versus 13%).

Base n = 3766. 7-point scale grid question, derived into a 3-point scale with a 'not applicable' option. Not asked to unemployed respondents.

# Nearly half of postdocs wish they had been aware of issues relating to pay or salary at the outset of their role

Q: With the benefit of hindsight, what one thing do you know now which you wish you'd known about before starting work as a postdoc?



- **Postdocs working in industry were most likely to wish they had known about the importance of exploring alternative career paths (37%) and more likely than those working in academia (15%).**
- Those working in the social sciences were significantly likely to wish they had known about the lack of researcher freedom in their role (13%).
- **Postdocs working in Europe were significantly likely to wish they had known about the importance of networking at the outset of their role (20%), but interestingly this was significantly less likely to be something those working in North or Central America wish they had known (8%).**

*A career in public research has a much higher price than before on mental health and personal life plans. Thinking you're out of the woods with a Ph.D. is an illusion, the injunction to publish in order to be competitive induces years of precariousness, and the salary at the end seems disappointing. Unfortunately, the best conditions in the private sector often come at the price of restricted freedom of research, pressure, and repetitive tasks.*

Postdoc working full-time in academia, ecology and evolution, Europe

Base n = 1024. Open question. Asked to all.

## Salary and benefits

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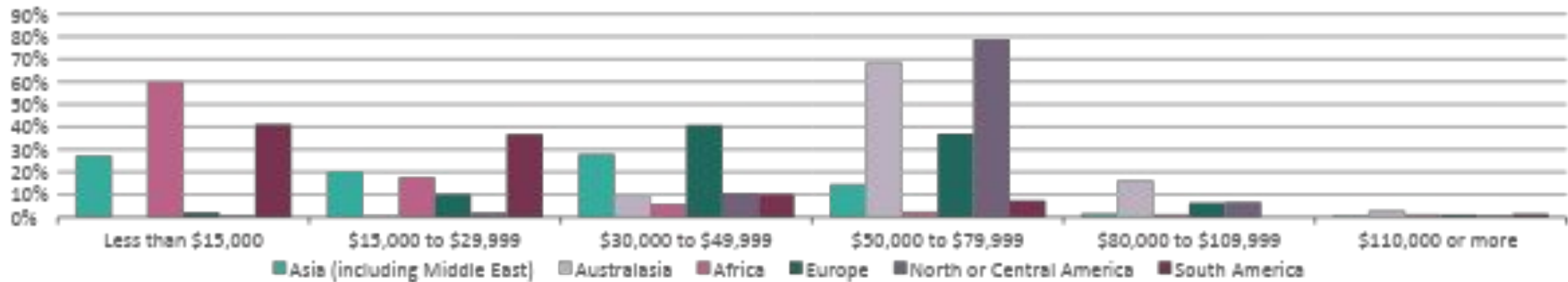
# Postdocs were most likely to earn between \$50,000 to \$79,999

Q: What is your current gross annual salary/compensation (earnings before tax or other deductions) of your primary job?



- The postdoc salary range was consistent with 2020, as respondents were most likely to report earning between \$50,000 to \$79,000 USD (42%).
- Looking at significant differences, **women were significantly more likely to earn within the range of \$50,000 - \$79,999 USD than men** (53% to 48%). Men were significantly more likely to earn less than \$15,000 USD (7% to 5%).
- Respondents in Australasia (88%) and N. and C. America (86%) were significantly more likely to have a salary over \$50,000 USD. Respondents in Asia (47%), Africa (78%) and South America (78%) were significantly more likely to earn less than \$30,000 USD.

Current gross salary from primary job by continent (USD)

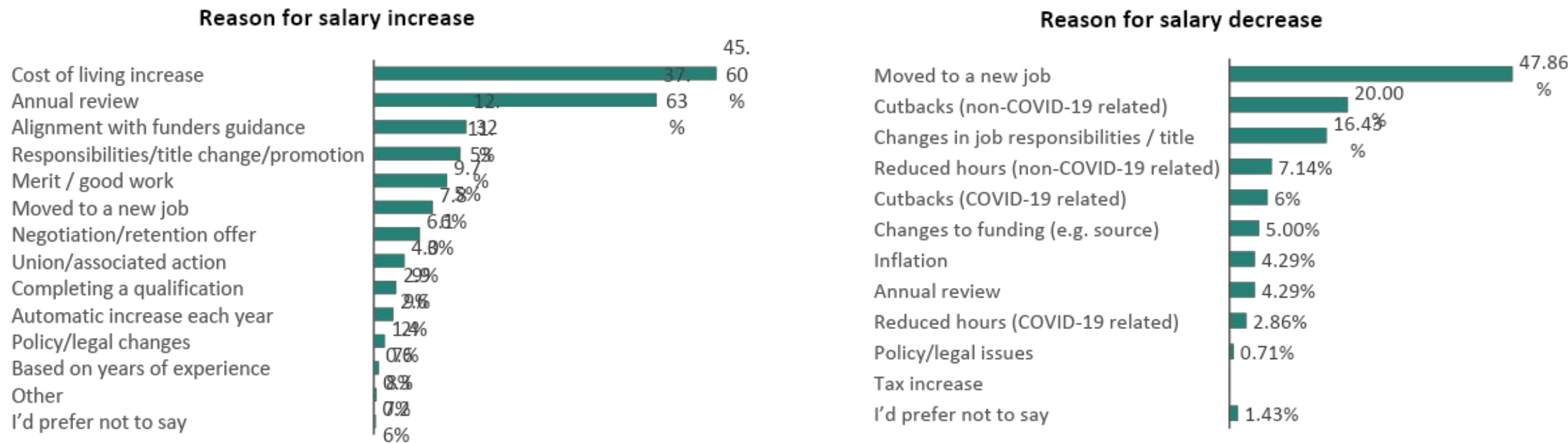


Base n= 3766. Single choice question. Not asked to unemployed respondents.



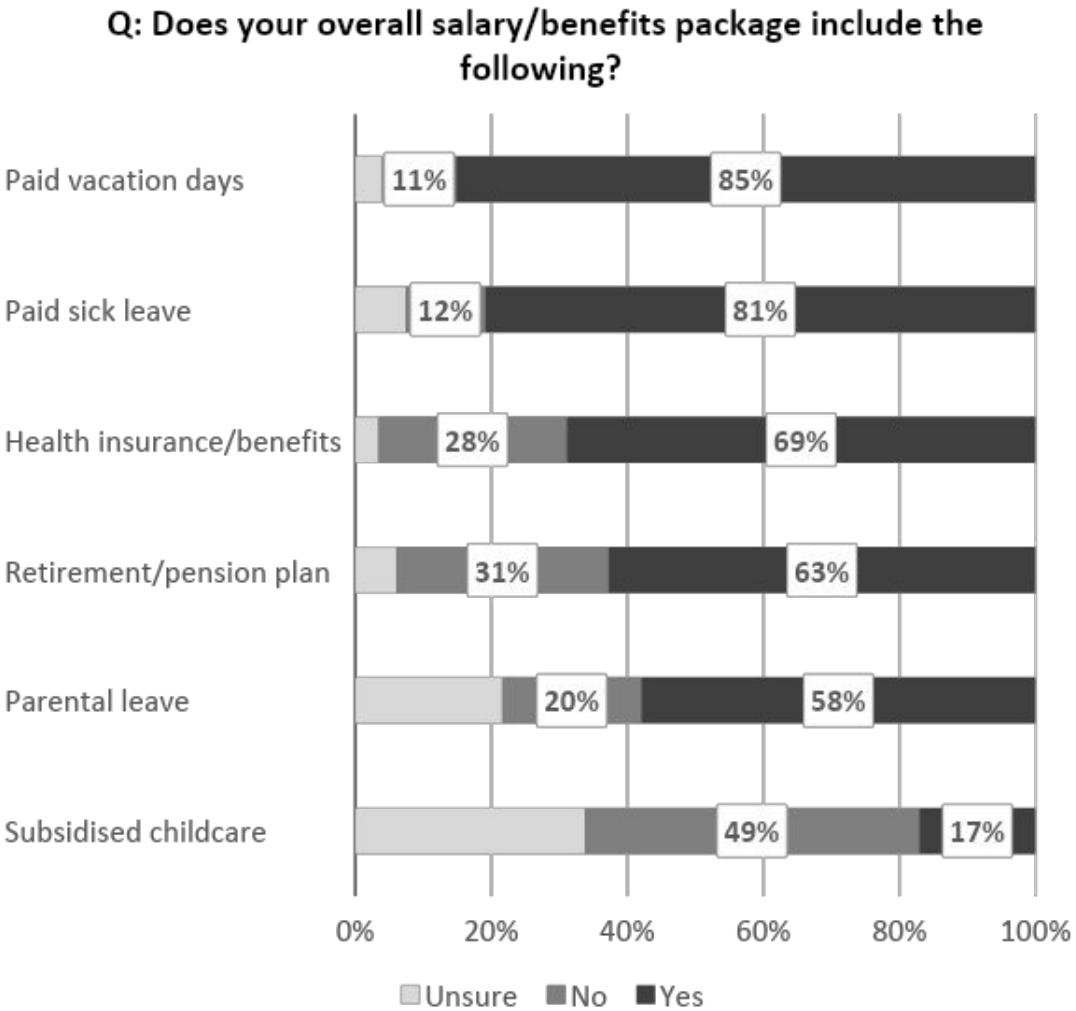
# Just over half received a salary increase in the last 12 months

- **Half of respondents (51%) had received a salary increase to their annual salary base in the last 12 months;** in 2020 only 40% experienced an increase indicating that postdoc salary may have risen. In 2023, 39% indicated that their salary had remained the same and 4% had experienced a decrease.
- Respondents in North and Central America (58%) and Australasia (68%) were significantly likely to have received an increase to their salary which is consistent with findings in 2020. Those based in Asia (6%), Africa (9%) and Europe (5%) were significantly likely to indicate a decrease; in 2020, respondents in Asia (9%) experienced a decrease, as did those in S. America (10%).
- **Just under half indicated their salary increase was as a result of the cost of living (46%);** this was significant for respondents based in Europe (55%). Of those that experienced a decrease the most common reason was moving to a new job (48%). Respondents based in Australasia were significantly more likely to cite ‘Reduced working hours (non-COVID-19 related)’ as a reason for a salary decrease (75%)

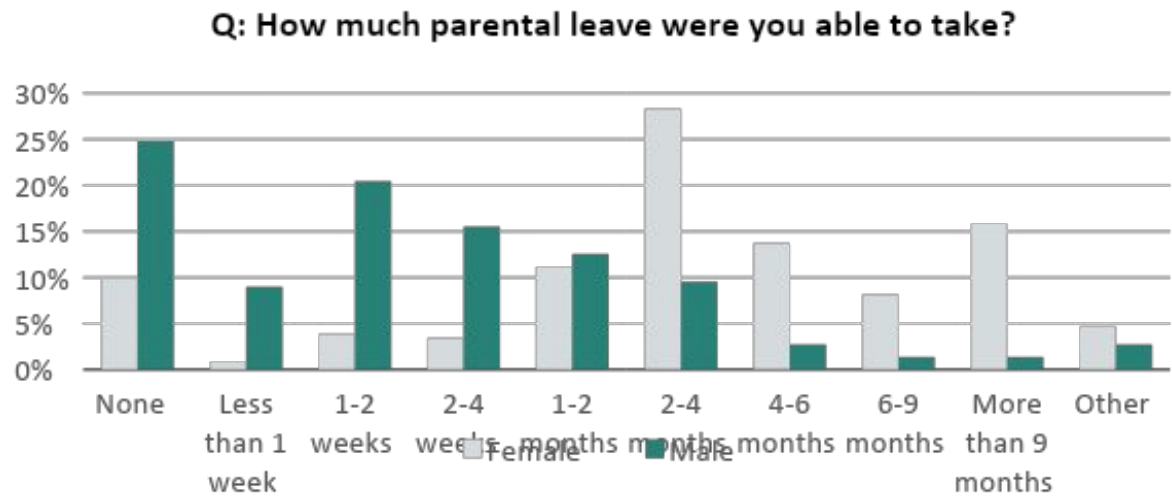


Unshown question: “Have you received an increase or decrease to your annual (base) salary/compensation in the last 12 months?” Base n= 3766  
Salary increase base n= 1908. Multi-choice question. Asked to those who had received a salary increase.  
Salary decrease base n= 140. Multi-choice question. Asked to those who had received a salary decrease.

# Paid vacation and sick leave among top benefits postdocs receive



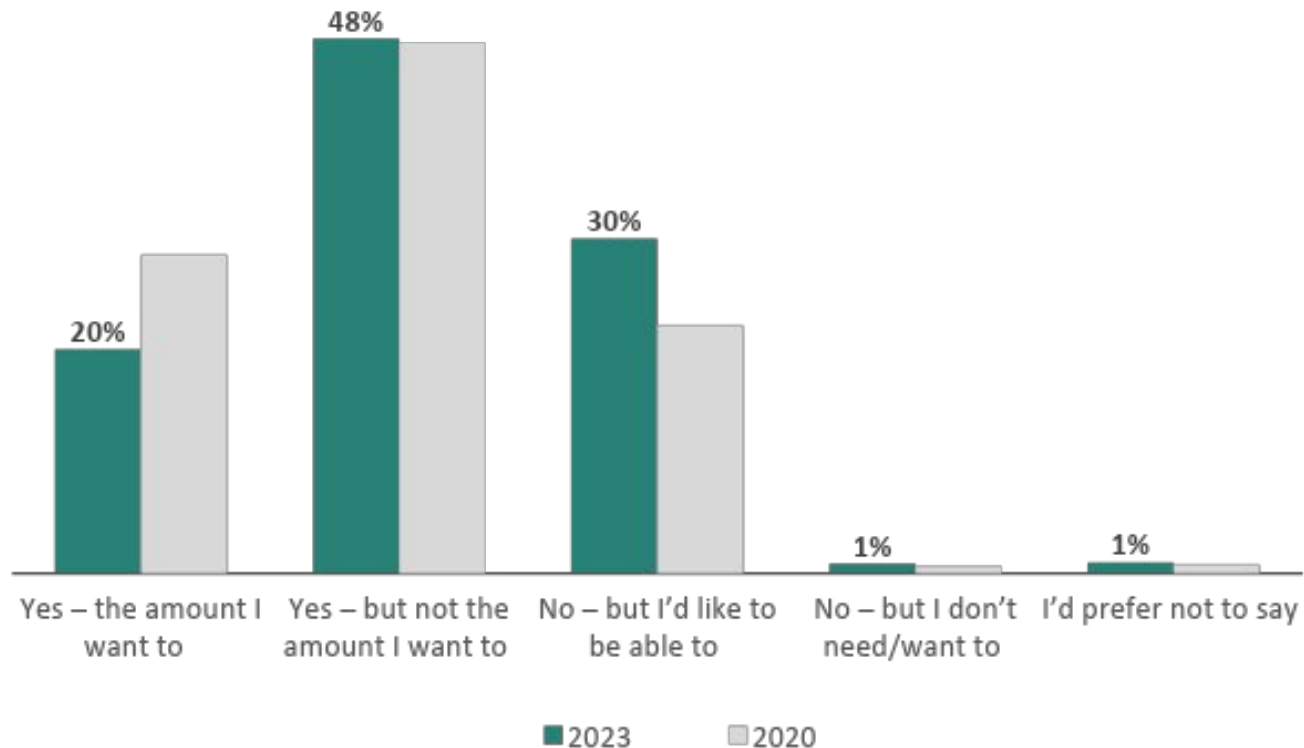
- **Postdocs were most likely to have paid vacation days (85%) and paid sick leave (81%);** in 2020, only 79% indicated having paid sick leave. There has been a slight rise in those who receive subsidised childcare; this year it was received by 17%; in 2020 this was 14%.
- 16% indicated they had become a parent or had a child during their current postdoc: significantly more male respondents became a parent (21%) than female (12%). 83% indicated that they had not become a parent.
- Male respondents were significantly more likely not to receive any parental leave (25%). This is an increase since 2020 (21% not able to take parental leave).



Benefits package base n = 3766. Single choice questions. Not asked to unemployed respondents.  
Unshown question: "Have you become a parent / had a child during your current postdoc?" Base n = 3761. Single choice question. Not asked to unemployed respondents.  
Parental leave base n = 611. Single choice questions. Asked to those who had become a parent during their postdoc.

# Fewer postdocs were able to save money in 2023 than in 2020

Q: Can you currently save / put money aside from your salary?

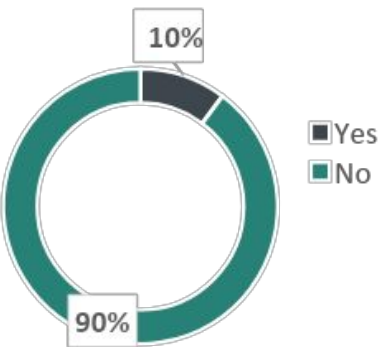


- **Overall 20% of respondents indicated that they could save the amount they wanted to with their current salary.** This is a lower proportion than in 2020, where 29% of respondents were able to save the amount they wanted to.
- Respondents based in Australasia (36%) and Europe (28%) were significantly more likely to select this.
- Interestingly, **despite reported increases in salary, exactly the same proportion of respondents were able to save, but not the amount they wanted to in 2023 as in 2020 (48% both years)**, suggesting saving money is an ongoing issue for postdocs. Respondents based in Europe were more likely to select this (50%).
- In 2023, a higher proportion of respondents reported not being able to save, but wanting to, than did in 2020 (30% to 22%). Respondents in Africa (58%), N. and C. America (41%) and S. America (50%) were significantly more likely to select this.
- Respondents earning between \$30,000 to \$49,999 USD were significantly more likely to be able to save, selecting: 'Yes – but not the amount I want to'.

Base n: 3766. Single choice question. Not asked to unemployed respondents.

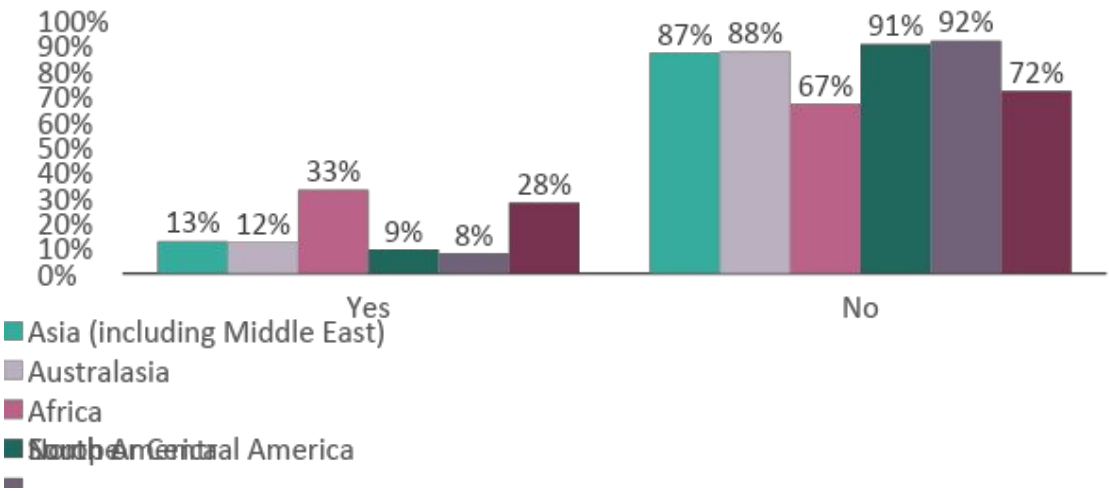
# A higher proportion indicated having a second job in 2023

Q: Do you have a second job, alongside your postdoc?

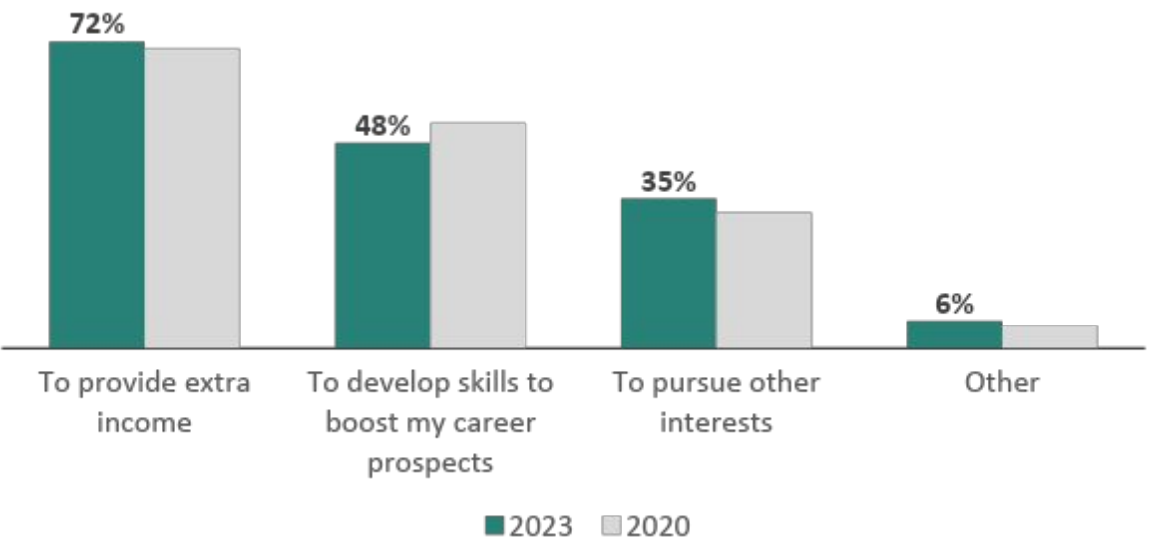


- **10% of respondents reported having a second job alongside their postdoc.** In 2020, only 6% reported having a second job suggesting postdocs increasingly feel the need to supplement their income; indeed, the most common reason for their second job was to provide extra income (72%).
- Postdocs in Africa (33%) and S. America (28%) were significantly more likely to have a second job than those based elsewhere.
- Respondents earning less than \$15,000 USD and between \$15,000 to \$29,999 USD were also significantly more likely to have a second job (22% and 18%).

Respondents who have a second job by continent



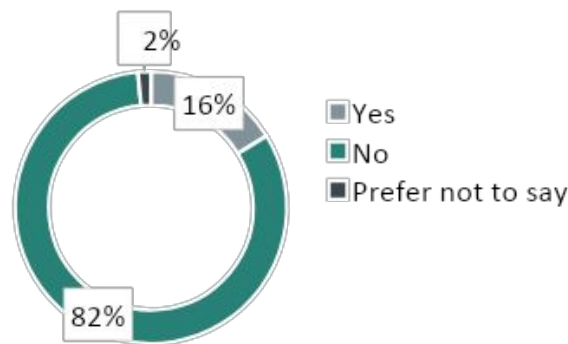
Q: Why do you have a second job?



Second job base n: 3766. Single choice question. Not asked to unemployed respondents.  
Reason for second job base n: 384. Single choice question. Asked to those with a second job.

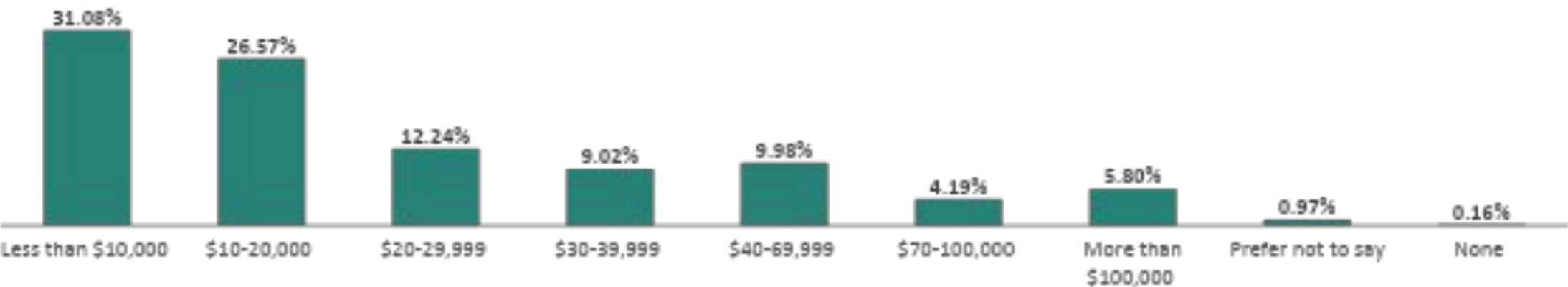
# Postdocs were most likely to incur debts under \$20,000 USD

Q: Do you have debts as a result of your Masters and PhD studies?



- Respondents based in Australasia (34%), Africa (29%) and N. or C. America (19%) were significantly more likely to have incurred debts as a result of prior study.
- Women (84%) were significantly less likely to have incurred debts as a result of their Masters and PhD.
- Respondents based in N. and C. America were significantly more likely to have incurred debts amounting to more than \$100,000 USD (11%). Respondents based in Asia (51%) and Africa (65%) were significantly more likely to have incurred debts amounting to less than \$10,000 USD.

Q: How much debt have you incurred as a result of your Masters and PhD studies?



Debts base n: 3838. Single choice question. Asked to all.  
Amount of debt base n: 621. Single choice question. Asked to those with debt.

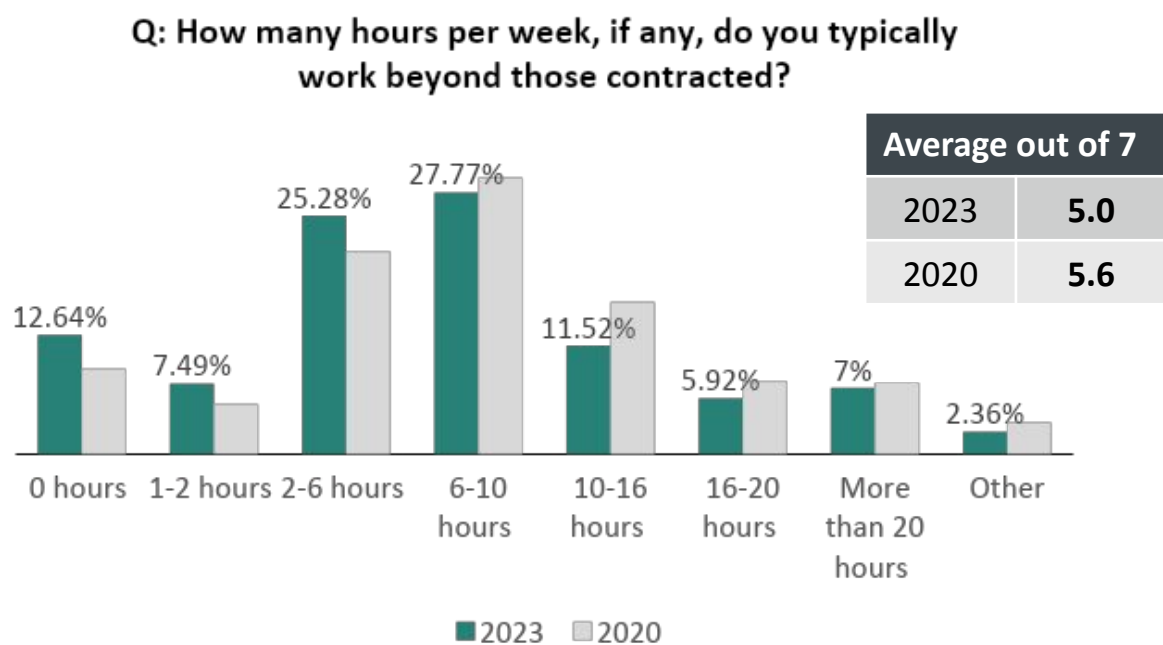
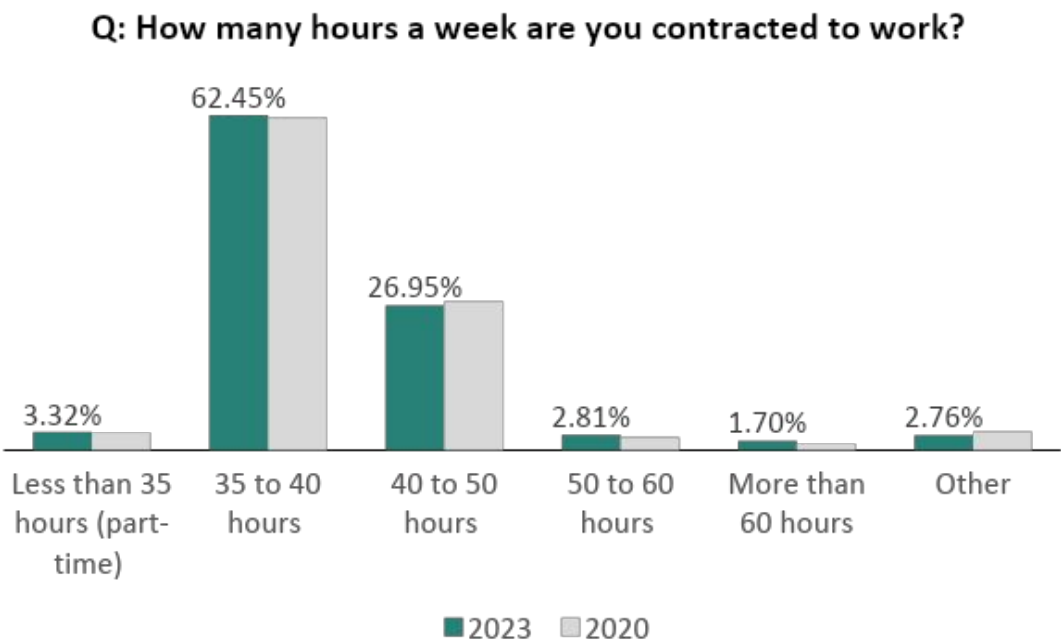


## Postdocs experiences

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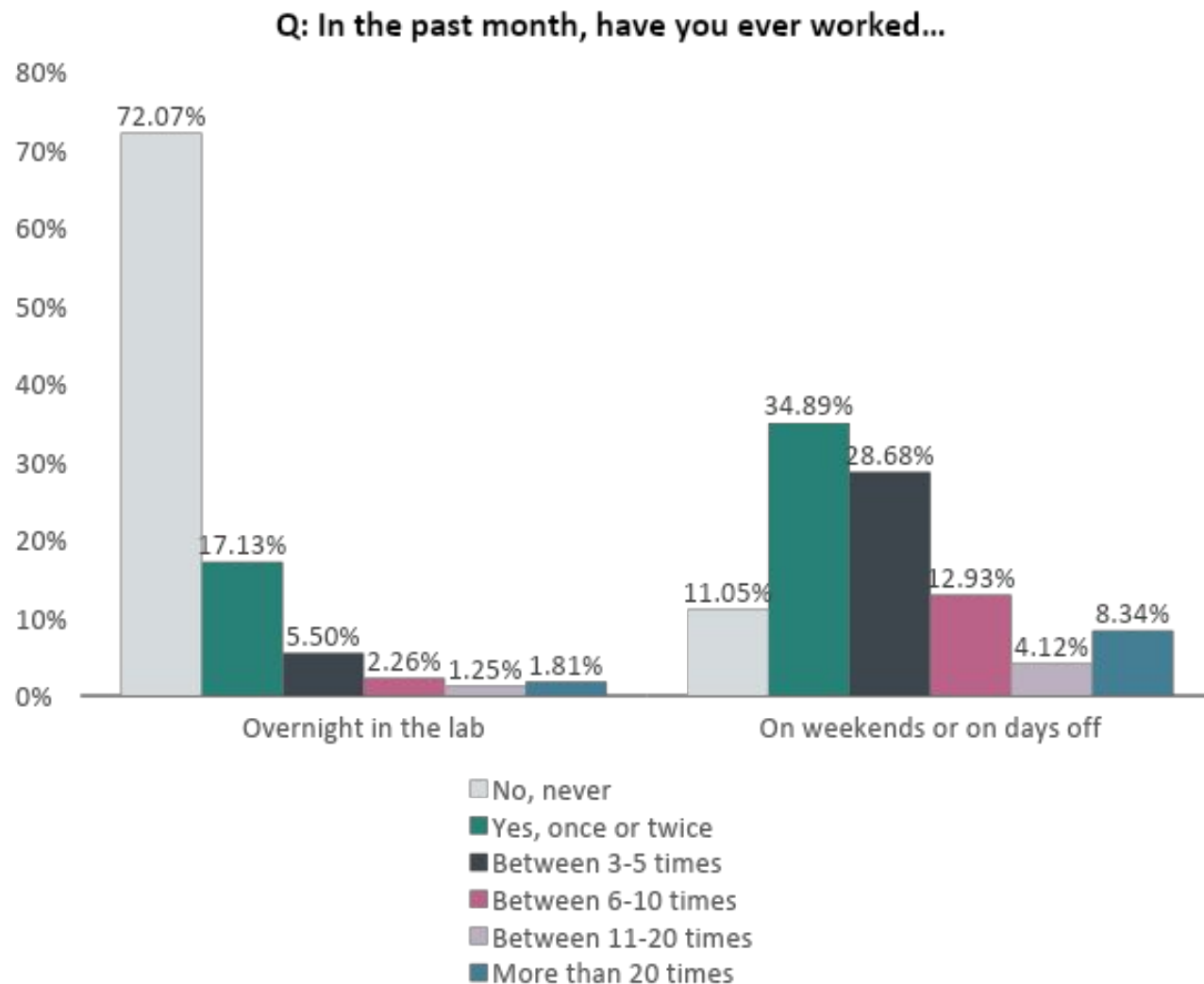
# Postdoc working hour patterns have remained similar to 2020

- **Both contracted and overtime hours worked by postdocs closely paralleled 2020 figures.** Most postdocs were contracted to work between 35 to 40 hours (62%) and this was consistent across sector and discipline. Also, similarly to 2020, postdocs in Asia and North or Central America were significantly likely to be contracted to work between 40 and 50 hours (35% and 40%).
- **The number of overtime hours worked by postdocs overall has lowered slightly since the 2020 findings.** This is most strongly illustrated by the percentage of postdocs who worked no overtime raising from 9% to 13%, as well as the percentage of those working 1-6 hours of overtime increasing while those working 6 or more hours of overtime decreased.
- Those working in industry were more likely to work 2-6 hours overtime (35%) compared to those in academia (25%), whereas those in academia were more likely to work 8-10 hours overtime (28%) compared to those working in industry (22%).



Base n: 3766. Single choice questions. Not asked to unemployed respondents.

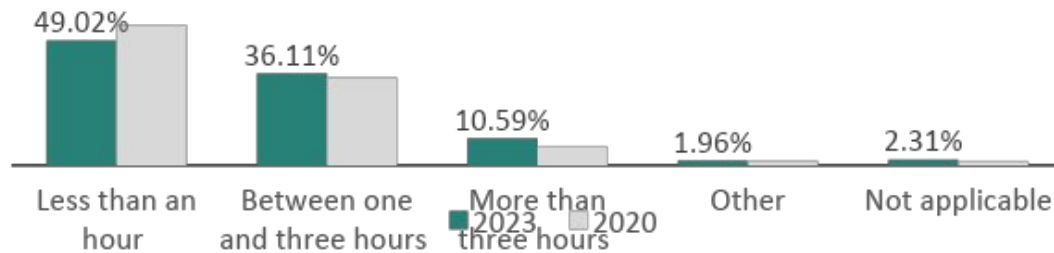
# Those working in Asia and the biomedical sciences were most likely to have worked overtime



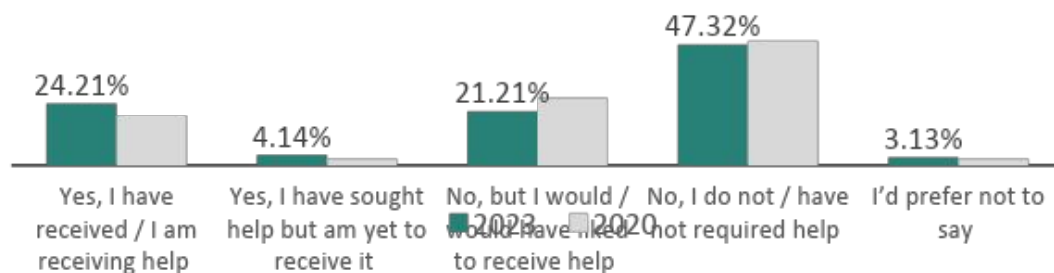
- In order to analyse results across a more precise and reliable time period, this iteration of the survey asked respondents if they had worked overnight or on weekends or days off in the past month, whereas in 2020 they were asked if they had done this in the past year. Although focused on a different time period, results were consistent with 2020 findings.
- **Those working in Europe were the most likely to have not worked overnight in the lab (78%) and those in Asia were least likely to not have (58%).** Those working in Asia were most likely to have worked overnight (4%) and on weekends or days off (12%) compared to those in other regions.
- Those working in industry were more likely than those working in academia to have not worked overnight in the lab (21% versus 10%).
- **Those working in biomedical or clinical sciences were more likely to have worked both overnight (55%) and on weekends or days off (54%) than those from other disciplines.** By comparison, the next most likely were those working in chemistry, at 6% and 5% for each type of overtime.
- Male postdocs were slightly more likely to have worked more than 20 times both overnight (3%) and on weekends or days off (10%) than female postdocs (1% and 7%).

# There has been a slight increase in supervisor contact time and uptake of mental health support since 2020

Q: On average, how much one-on-one contact time do you spend with your manager/supervisor/PI each week?



Q: Have you sought or received professional help for depression or anxiety related to your work?

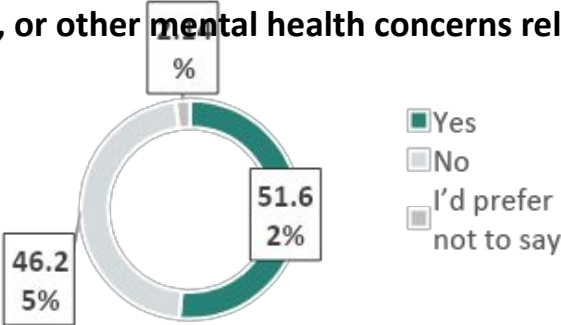


- The percentage of postdocs receiving less than an hour of one-on-one contact time with their supervisor per week has fallen slightly from 55% in 2020 to 49% this year. This has translated into a **slight increase in those receiving contact time** between 1-3 hours (from 34% to 36%) and more than 3 hours (from 7% to 11%).
- Similarly, **the percentage of those who would like to receive mental health support has decreased slightly** from 26% in 2020 to 21% this year, translating into an increase of those who have or are receiving mental health support from 20% in 2020 to 24% this year.
- Interestingly, **those working in industry and academia reported exactly the same levels of contact time with supervisors** and similar levels of mental health support access.
- **Just over half of postdocs in Europe reported receiving less than an hour of supervisor contact time per week** (54%). Postdocs were most likely to receive more than 3 hours of contact time if they were working in South America (26%) and Asia (19%).
- The proportion of those who would like to receive mental health support was consistent across all regions, ranging from 20% in Europe, to 23% in Australasia and Asia. Those working in North or Central America were most likely to be receiving mental health support (28%).

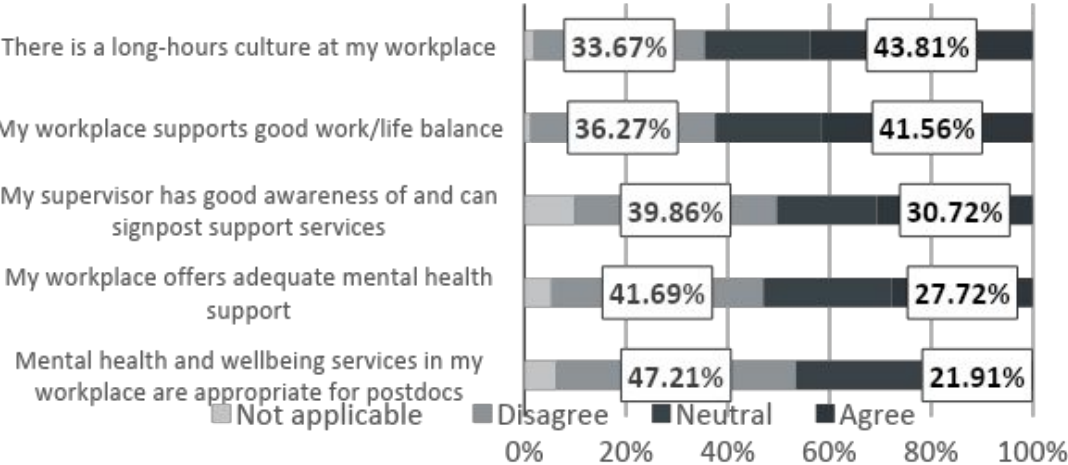
Contact time base n: 3766. Single choice question. Not asked to unemployed respondents.  
Seeking professional help base n: 3838. Single choice question. Asked to all.

# Mental health support provision has improved slightly since 2020

Q: Have you considered leaving science because of depression, anxiety, or other mental health concerns related to your work?



Q: To what extent do you agree or disagree with the following statements?



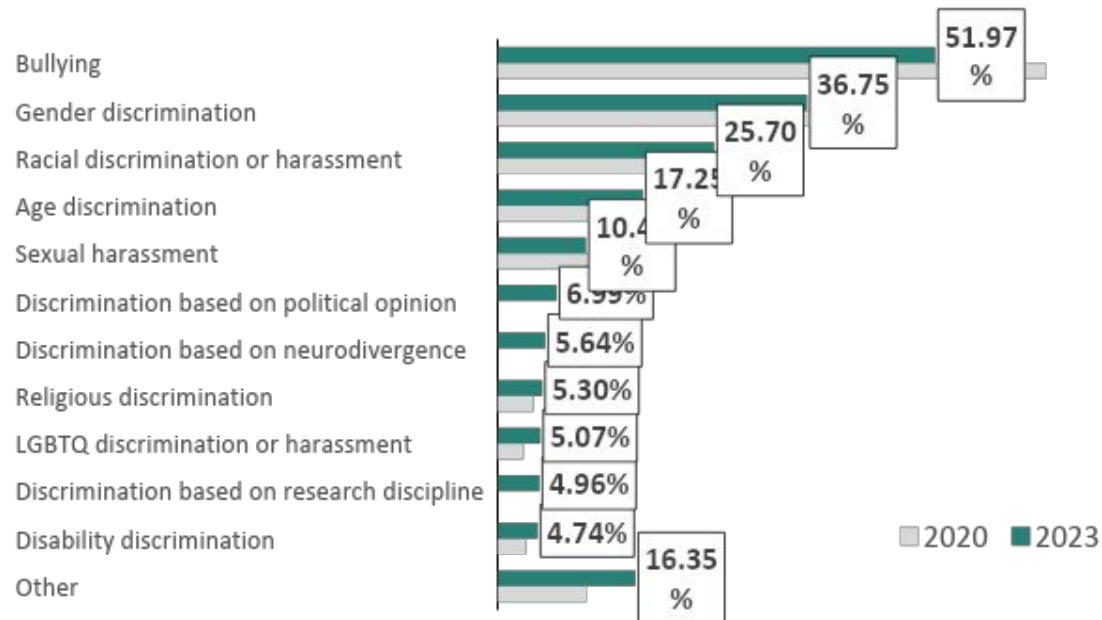
- Closely echoing the 2020 results, **just over half of postdocs (52%) have considered leaving their scientific field due to mental health concerns**. These results were consistent across sector and discipline.
- Postdocs were more likely to have considered leaving science due to mental health concerns if they are **female (56%), an ethnic minority in their country of work (56%) or living with a disability (69%)** compared to their counterparts who are male (46%), the ethnic majority in their country (50%) or living without a disability (48%).
- **44% of postdocs feel there is a ‘long-hours culture’ at their workplace, a slight decrease on the 2020 figure of 47%.** 42% feel their workplace supports a good work/life balance, a slight increase on the 2020 figure of 36%.
- **Those working in industry were more likely to agree with these statements**, apart from the long-hours culture statement, than those working in academia. The difference in agreement was around workplaces supporting a good work/life balance, agreed with by 63% of those in industry and 40% of those in academia.
- Interestingly, although postdocs from Asia reported working the longest hours, they also tended to have some of the highest agreement around mental health support provision from their workplace. In most cases, this level of agreement was higher than those in Europe and North or Central America.



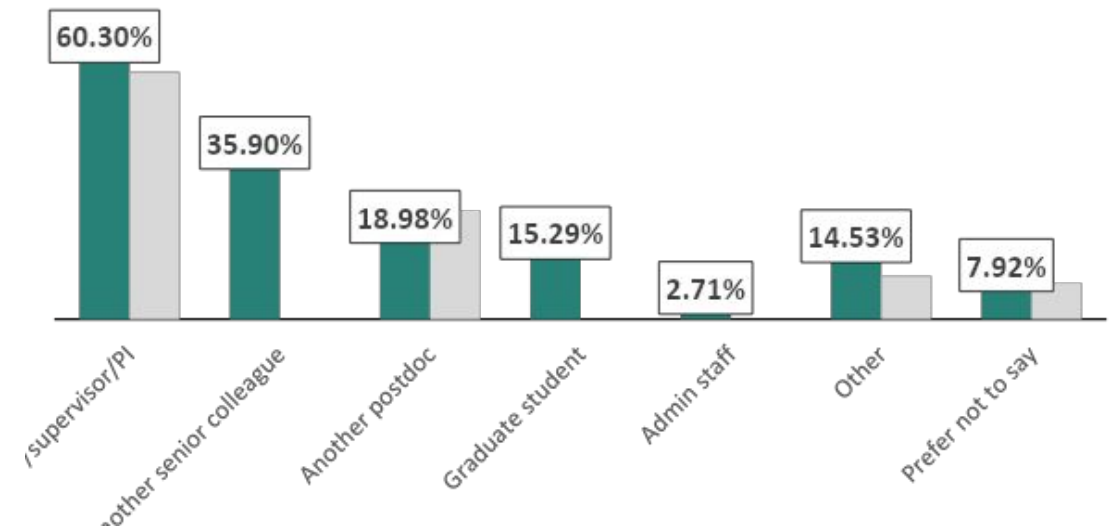
# Patterns in discrimination and harassment of postdocs have remained similar to 2020

- **24% of postdocs reported having experienced discrimination or harassment in their current or previous postdoc position – the same proportion as in 2020.** The types of discrimination and harassment they had experienced also closely mirrored 2020, with bullying being the most common, followed by gender and racial discrimination.
- Postdocs were more likely to have experienced these behaviours if they are female (28%), an ethnic minority in their country of work (31%) and living with a disability (40%), compared to their counterparts who are male (19%), part of the ethnic majority (21%), or not living with a disability (21%).
- **87% of those who had experienced gender discrimination and 81% of those who had experienced sexual harassment were female.** This is consistent with the 2020 figures.

Q: Which of the following have you experienced directly?



Q: Who was the perpetrator(s)?



Unshown question: "Do you feel that you have experienced discrimination or harassment in your current or previous postdoc position?" Base n: 3838. Single choice question. Asked to all.

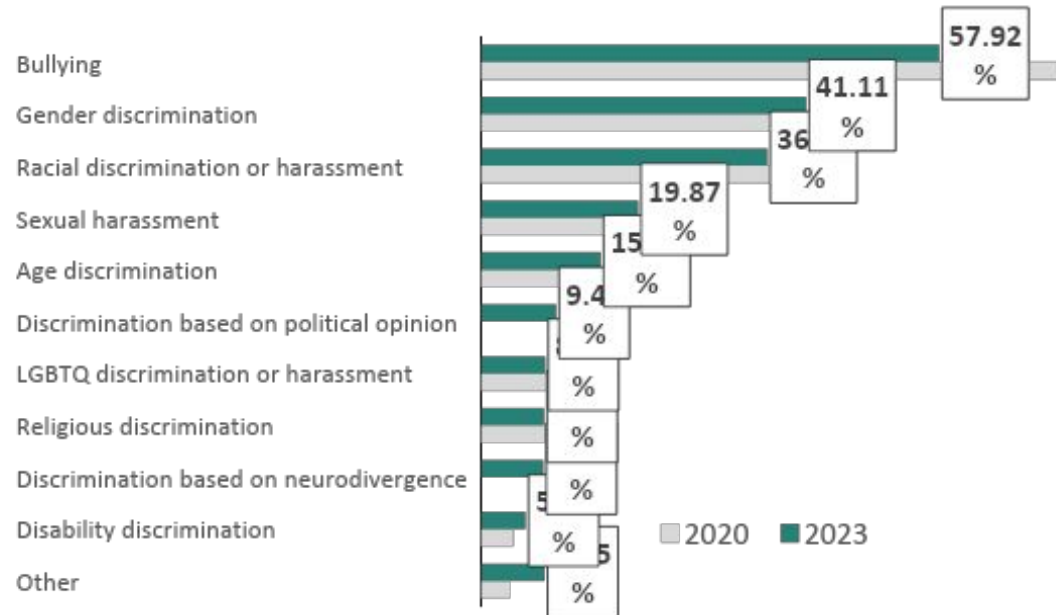
Behaviour experience base n: 887. Multi-choice question. Asked to those who had experienced discrimination or harassment.

Perpetrator base n: 922. Multi-choice question. Asked to those who had experienced discrimination or harassment.

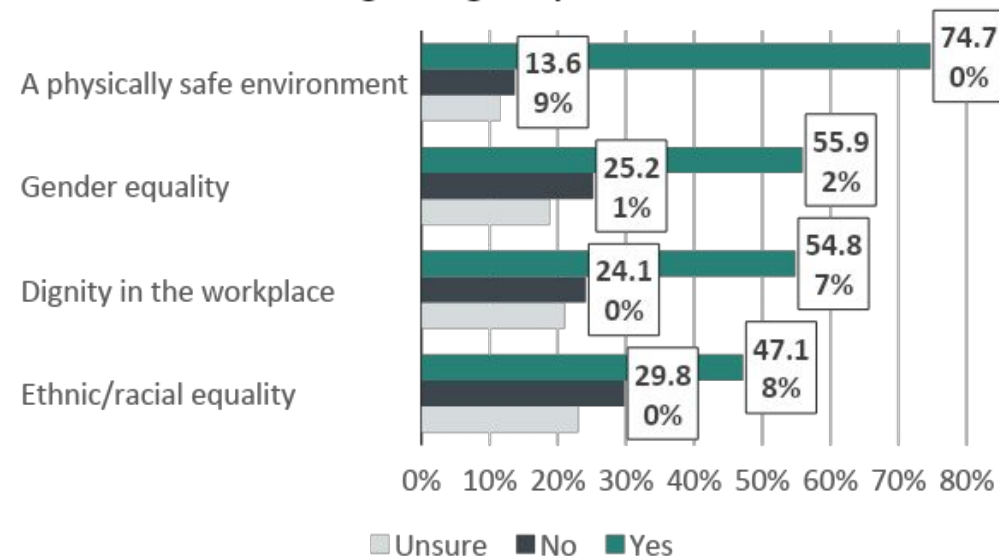
# Over half of postdocs had observed bullying at work

- **32% of postdocs had observed discrimination or harassment towards others**, whilst 62% had not. This is a slight decrease on the percentage who had in 2020 (37%). Similarly to 2020, they were most likely to report seeing bullying (58%), discrimination relating to gender (41%) and racial discrimination (36%).
- Those working in academia were more likely to have observed these behaviours (33%) than those working in industry (25%). **Postdocs in industry were also significantly more likely than those in academia to feel that their workplace promotes a physically safe environment (83% versus 74%) and dignity in the workplace (65% versus 54%).**
- Female postdocs were significantly more likely to feel that their workplace was not doing enough to promote gender equality (31%) than male postdocs (19%). Similarly, postdocs who identified as an ethnic minority in their country of work were significantly more likely to feel their workplace was not doing enough to promote racial equality (36%) than their ethnic majority counterparts (27%).

Q: Which of the following have you observed?



Q: Do you believe that your postdoc workplace is doing enough to promote...



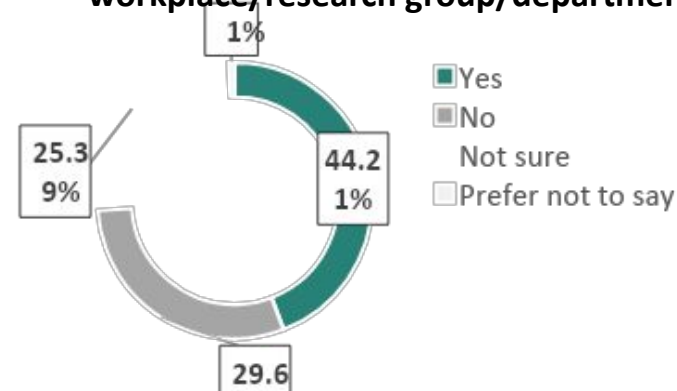
Unshown question: "Have you observed discrimination or harassment at your current or previous postdoc?" Base n: 3838. Single choice question. Asked to all.

Behaviour observation base n: 1243. Multi-choice question. Asked to those who had observed discrimination or harassment.

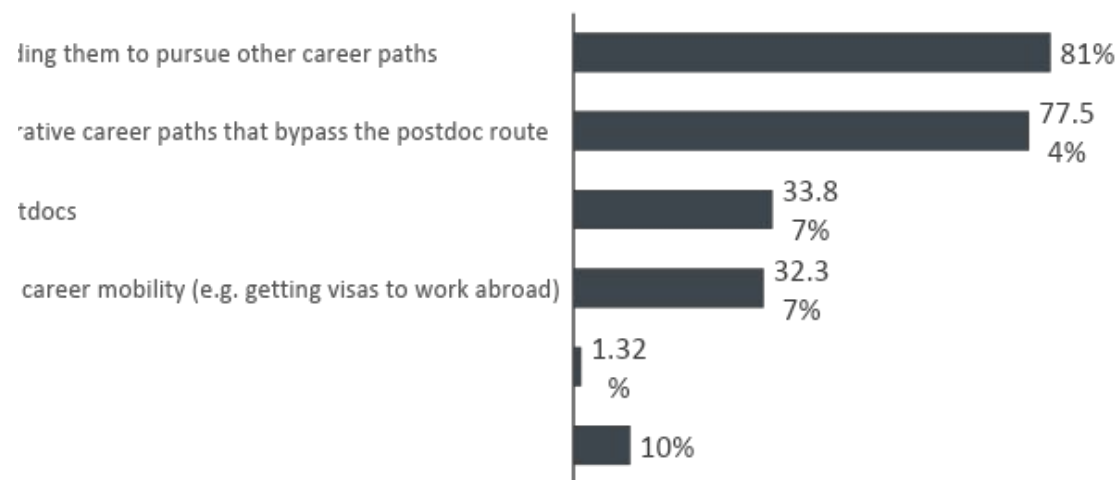
Agreement statements base n: 3766. 7-point scale grid question derived into a 3-point scale with an 'unsure' option. Not asked to unemployed respondents.

# A lack of career stability for postdocs was the most reported reason for struggles to fill postdoc vacancies

Q: Are you aware of any struggles to fill postdoc vacancies in your workplace/research group/department?



Q: What do you think is the reason for the postdoc shortage?



- Postdocs working in academia were more likely to report struggles to fill postdoc vacancies (45%) than those working in industry (34%). They were significantly more likely to report that this is **due to the lack of career stability for postdocs (82%)** than those in industry (**69%**). Postdocs in industry were significantly more likely to report geopolitical factors limiting career mobility (46%) than those in academia (32%).
- Postdocs working in North or Central America (51%) and Europe (43%) were most likely to report struggles filling vacancies. **The most frequently reported reason for the postdoc shortage in North/Central America was graduate students choosing more lucrative career paths (87%),** whereas in Europe it was the lack of career stability (86%).
- Those in Africa were the least likely to report struggles filling vacancies (29%), and over a third of those in Asia were not sure if there were struggles in their workplace (36%). Institutions having less budget to hire postdocs was the most commonly reported reason for a postdoc shortage in Australasia (63%), South America (62%), and Asia (56%).
- Postdocs aged 30 or under were most likely to report other more lucrative career paths as their perceived reason for the shortage, whereas for those aged 31-40, it was the lack of career stability (both 84%).

Awareness of struggles base n: 3766. Single choice question. Not asked to unemployed respondents.  
Reason for shortages base n: 1665. Multi-choice question. Asked to those aware of a struggle to fill vacancies at their workplace.

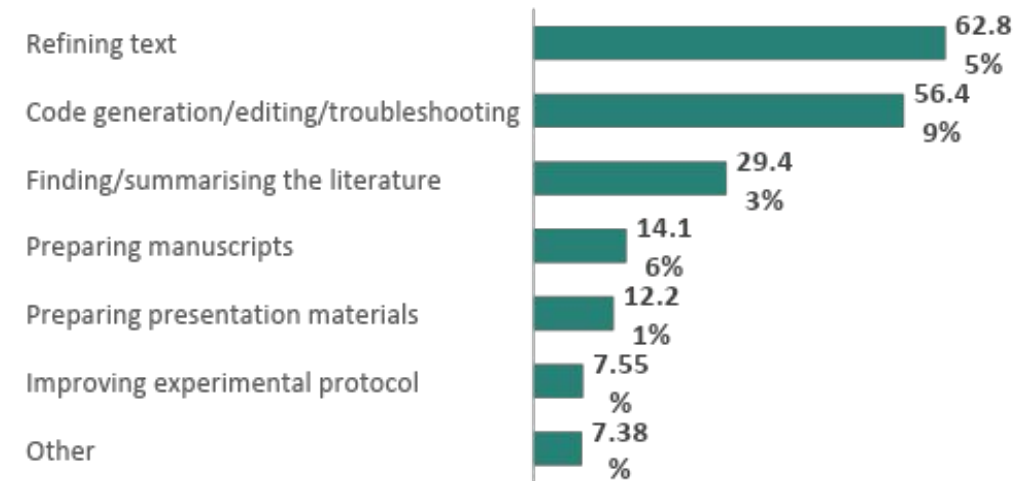
# Impact of AI and sustainability policies

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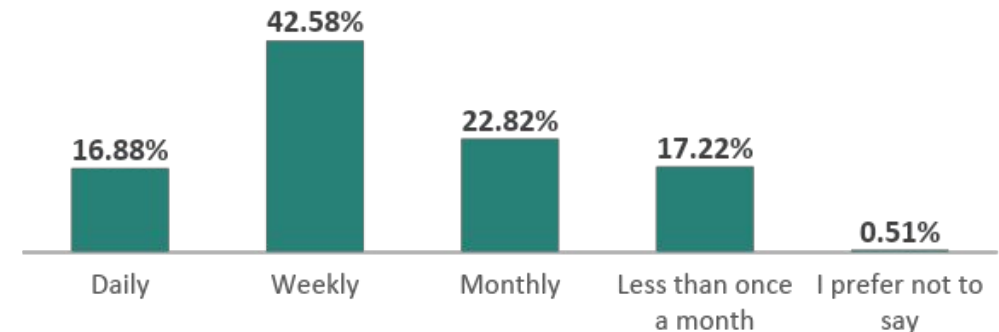
# A third of early-career postdocs use AI chatbots

- **31% of all respondents used AI chatbots as part of their work.**
- There was a **slightly higher proportion of use among male postdocs (35%)**, as well as notably higher use among those working in **engineering (44%) and social science (41%)** related fields.
- Early-career postdocs (33%) were also much more likely to use AI than their more senior counterparts (8%).
- Where AI chatbots were used, it was **mostly for refining text (63%) and code generation, editing and troubleshooting (56%)**, followed by finding and summarising literature (29%).
- A particularly high proportion of engineering postdocs that used AI used it for refining text (81%), whereas ecology and evolution postdocs were more likely to use it for code generation, editing and troubleshooting (72%), compared to those in other fields.
- **Postdocs in health care** that use AI were significantly **more likely to use it for preparing manuscripts (28%) and presentation materials (25%)**, compared to an average of 14% and 12% respectively.
- **Those that used AI most commonly used it on a weekly basis (43%).** 17% used it daily, with this proportion rising to 20% among men. Nearly a quarter used it on a monthly basis (23%), with 17% using it less than once a month.

Q: What do you use them for?



Q: On average, how often do you use artificial intelligence-based 'chatbots' in your work?



Unshown question: "Do you use artificial intelligence-based 'chatbots', such as ChatGPT, in your work?" Base n: 3766. Single choice question. Not asked to unemployed respondents.

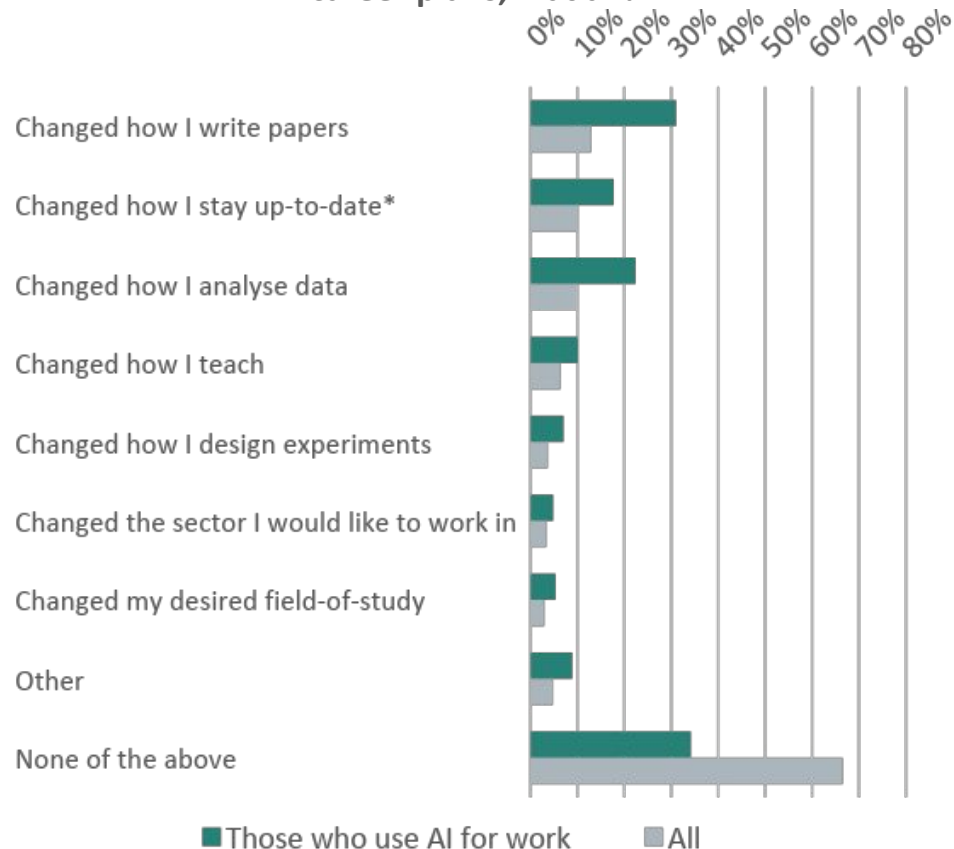
Reason for AI use base n: 1179. Multi-choice question. Asked to those who had used AI in their work.

Average use of AI base n: 1179. Single choice question. Asked to those who had used AI in their work.



# Postdocs in engineering and social sciences were most likely to believe that AI had changed their day-to-day work

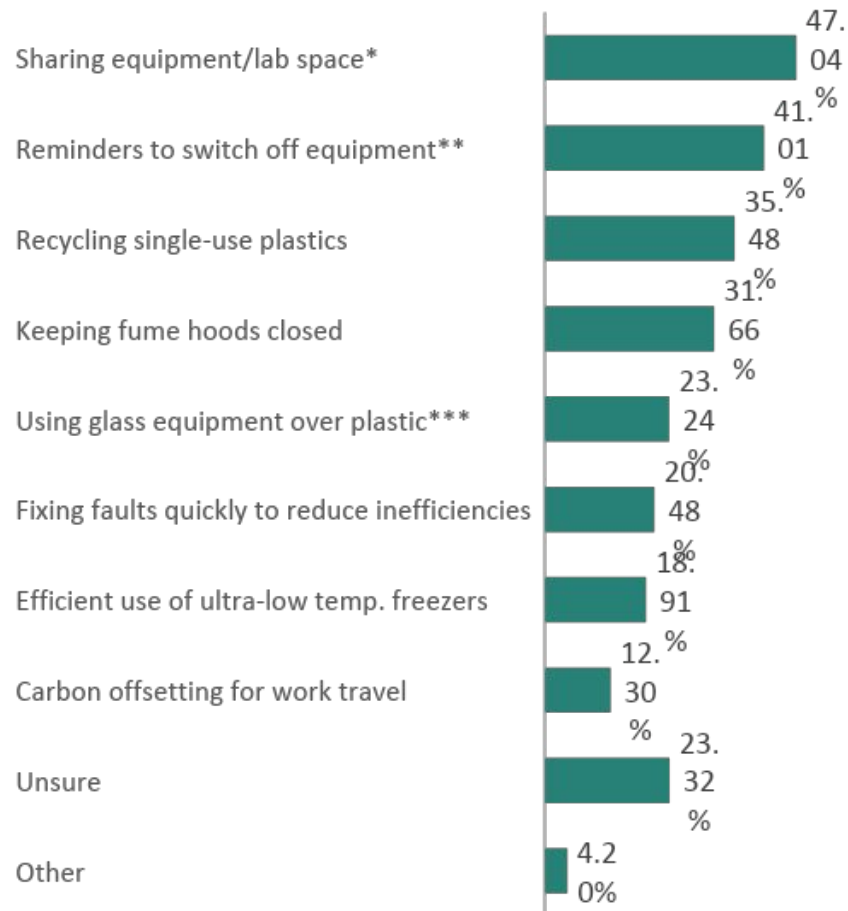
Q: How has the evolution/rapid adoption of artificial intelligence-based 'chatbots' changed your day-to-day work or career plans, if at all?



- **67% of respondents did not feel that AI had changed their day-to-day work** and career plans in relation to any of the activities listed. This proportion was **higher among postdocs in biomedical and clinical sciences (70%)**, and **lower among postdocs in engineering (54%) and social sciences (52%)**, suggesting that AI has had a more significant impact on work research in these fields.
- However, only **34% of those who answered previously that they do use AI chatbots** in their work said it had not changed their day-to-day tasks or career plans, meaning two thirds of those that used AI found it impactful on how they complete these tasks.
- Of the activities listed, the **highest proportion of postdocs felt that AI had changed how they write papers (13%)**, stay up-to-date on literature (10%) and analyse data (10%).
- For those who said they did use AI as part of their work, while 'changed how I write papers' was still the most common response (31%), respondents were more likely to say that it had changed how they analyse data (22%) rather how they stay up-to-date with literature (17%).
- **Men were notably more likely to say that AI had changed how they completed all the activities listed**, with the exception of 'changed how they teach', which was more consistent among gender identities.

# Sustainability policies were most likely to be in place in European workplaces

Q: Which of the following does your employer/research group/department have policies to support?



- **Sharing equipment or lab space with other teams or research groups (47%) was the most common policy** among postdoc's workplaces, followed by reminders to switch off equipment, to save power (41%).
- Postdocs in the **biomedical and clinical sciences were significantly more likely to answer that their workplaces employed all of these policies**, with the exception of carbon offsetting for work travel, where the prevalence of this policy was largely consistent with other fields. As may be expected, postdoc chemists were also more likely to have workplace policies around keeping fume hoods closed (48%) and using glass equipment over plastic (31%). Those working in **computer sciences and maths (40%)** and **social science-related fields (41%)** were most likely to be 'unsure' if their workplace had any of these policies in place.
- While **23% of the total sample of postdocs answered that they were 'unsure' what policies were in place, this was notably lower in Europe (19%)** where postdocs were most likely to have all of these policies in place, with the exception of sharing equipment/lab space and fixing faults quickly. Postdocs in Asia were mostly likely to have policies around fixing faults to reduce inefficiencies (27%, compared to an average of 20%). Postdocs in **North or Central America were most likely to be 'unsure' if their workplace had these policies (28%)**, with lower than average uptake across all policies, except sharing equipment/lab space and keeping fume hoods closed.

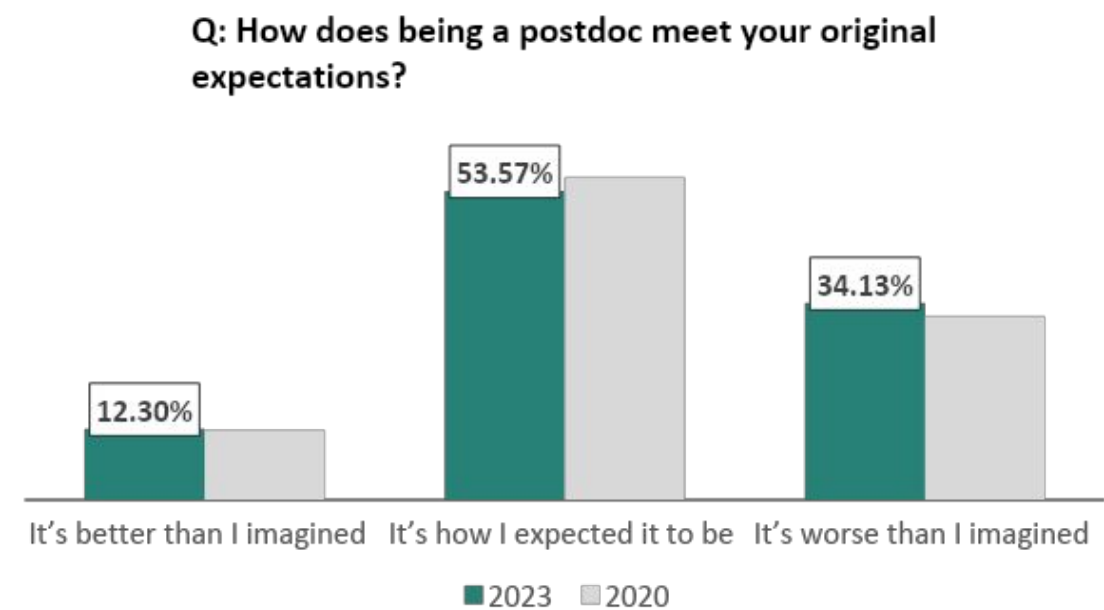
Base n: 3765. Multi-choice question. Not asked to unemployed respondents. \*This option was labelled 'Sharing equipment/lab space with other teams/research groups' in the survey. \*\* This option was labelled 'Reminders to switch off equipment to save power, where appropriate' in the survey. \*\*\* This option was labelled 'Using glass equipment, where appropriate, rather than plastic' in the survey.

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## Future prospects

# Just over half of postdocs feel the experience meets their expectations

- The ways in which expectations of being a postdoc have been met were almost identical to the 2020 findings, with **just over half feeling that the role is how they expected it to be.**
- For the approximately one third of postdocs who feel it is worse than they expected, the most commonly cited reason for this was **the poor salary offered, especially in relation to the expected workload**; only 2% of those who chose to provide a reason why the role was better or worse than they expected said that the salary was better than they expected.

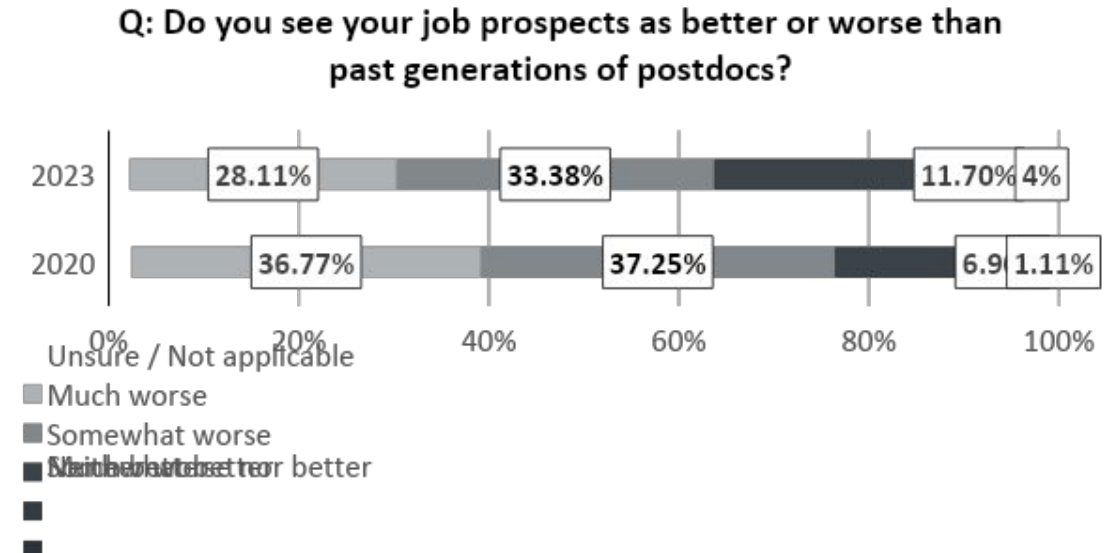
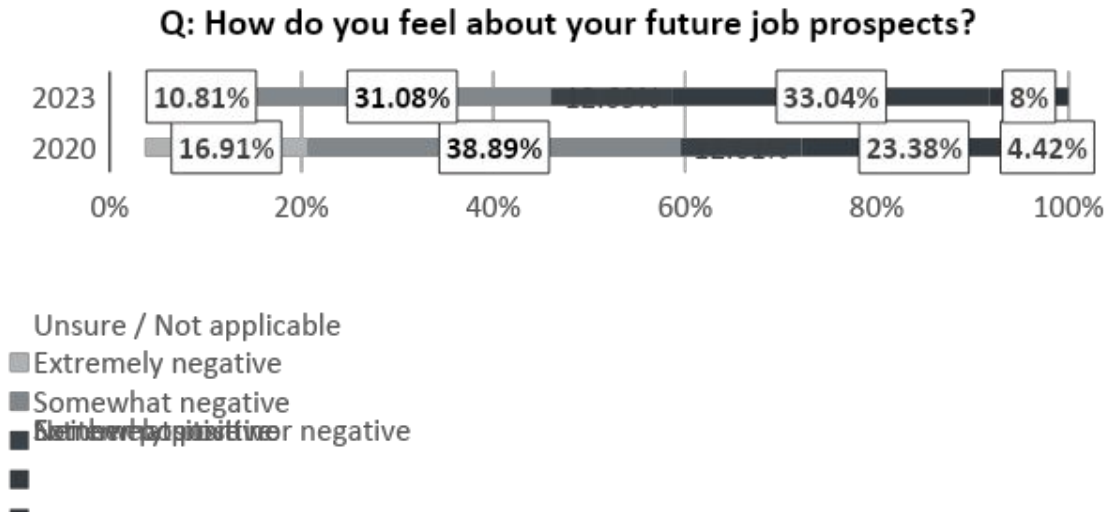


Base n: 3838. Single choice question. Asked to all.  
Reasons base n: 949. Open question. Asked to all.

It's better than I imagined	
Level of freedom in research	9%
Support from supervisor/research team/workplace	4%
Salary/compensation is better than expected	2%

It's worse than I imagined	
Salary/compensation is worse than expected	31%
Lack of freedom in research	21%
Lack of support from supervisor/research team/workplace	15%
Lack of career progression	5%
Experienced poor mental health or burnout as a result of role	4%
Lack of job security/stability	4%
Poor work/life balance	3%
Sector is overly competitive	3%
Burdensome admin responsibilities	3%
Experienced discrimination or similar behaviours	2%
The bureaucracy/politics of the academic system	1%

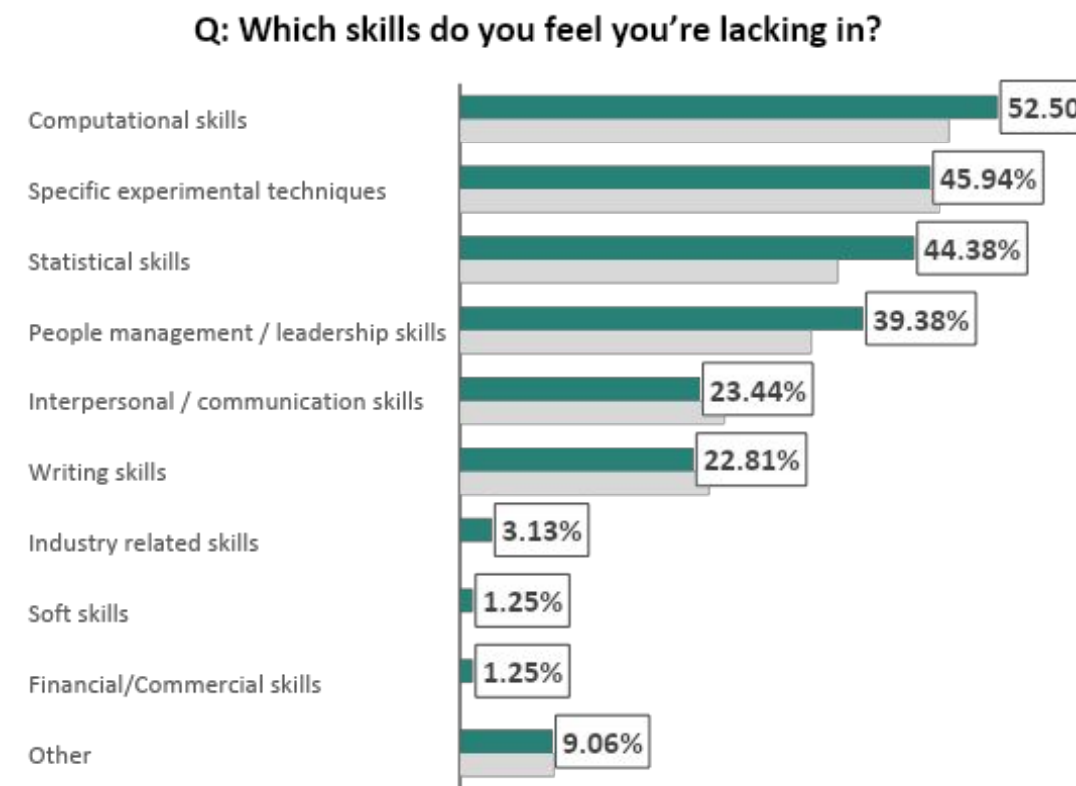
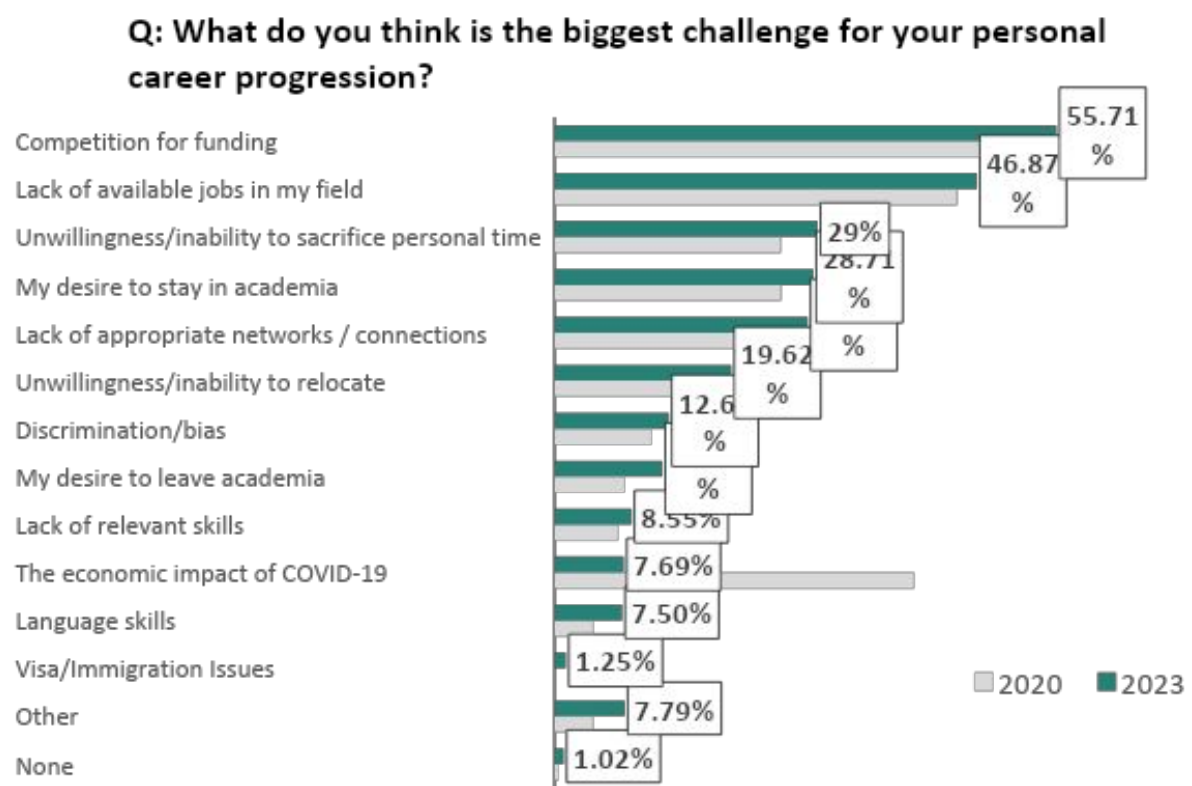
# Postdocs feel more positive about their future job prospects than in 2020



- **65% of postdocs were planning to base their career within academia, similar to the 2020 figure of 63%.** 27% were planning on a career within industry instead, and a further 5% were planning to work part-time in industry and part-time in academia.
- Postdocs were most likely to be considering a career in academia if they were currently working in social sciences or ecology and evolution (both 79%), and were most likely to be considering a career in industry if they were currently working in biomedical or clinical sciences (32%).
- Interestingly, **postdocs tended to feel more positive about their future prospects and feel their prospects were better than previous postdocs than in 2020.** The net figure of those who feel positive about their prospects has increased from 27% to 41%, and the net figure of those who feel their prospects are better than previous postdocs has nearly doubled from 8% to 15%.
- Consistent with the theme found elsewhere in these findings, those working in industry were more positive than those in academia about their future prospects (62% versus 40%). They were also more likely to feel their prospects are better than postdocs before them (23%) than those in academia (15%).
- Postdocs in Africa had the most positive outlook across all regions. 64% felt positive about their future job prospects, and 42% feel their prospects are better than previous postdocs.

# Competition for funding and a lack of computational skills are obstacles for over half of postdocs

- The obstacles to postdocs career progression have remained fairly consistent with 2020 although, **as may be expected, the impact of COVID-19 has dropped greatly (from a concern for 40% to 8% of postdocs)**. Interestingly, the impact of COVID-19 was more likely to be seen as an obstacle for those in industry (14%) than those in academia (7%).
- The percentage of those who feel they lack some skills has steadily increased, the most notable examples being **computational skills (48% to 53%), statistical skills (37% to 44%), and people management skills (34% to 39%)**.

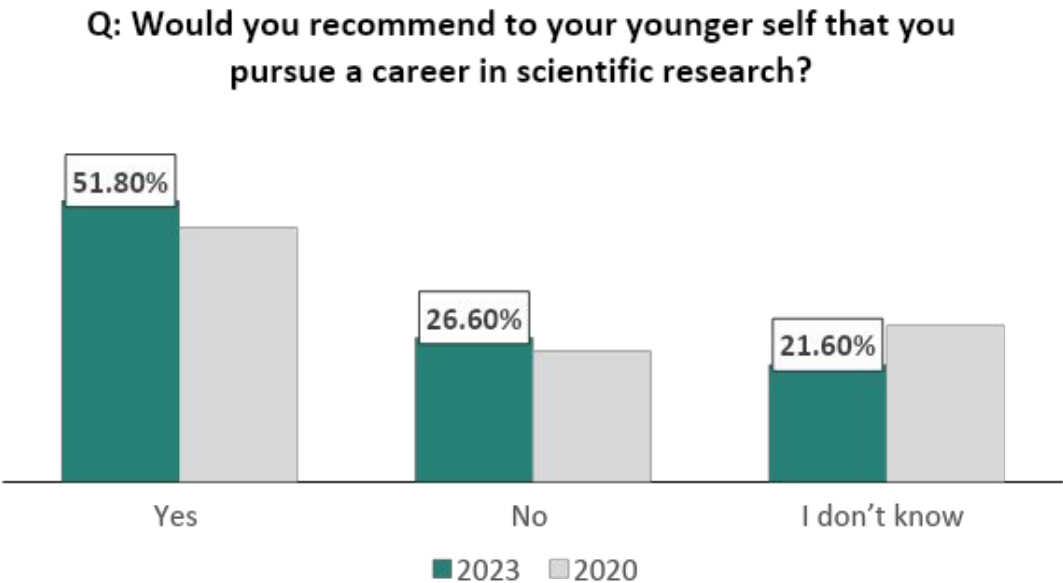
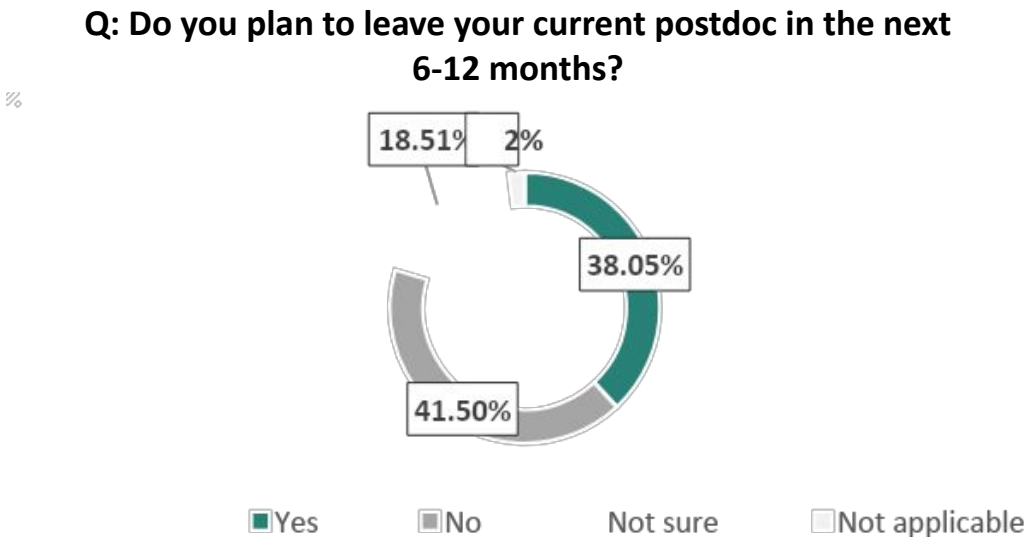


Biggest challenge base n: 3838. Multi-choice question with a 3 response limit. Asked to all.  
Lacking skills base n: 320. Multi-choice question. Asked to those who felt that a lack of skills was a challenge to their career progression.



# Just over half of postdocs would still recommend a scientific research career to their younger self

- The rates at which postdocs were considering leaving their current position were almost identical to the 2020 rates – with 38% considering leaving (compared to the 2020 figure of 39%).
- Postdocs who identified as an ethnic minority in their country of work were significantly more likely to be considering leaving (43%) than those who were part of the ethnic majority (36%). In a similar vein, just under half of those who had experienced discrimination or harassment were considering leaving (49%), and the figure rises to just over half for those who had experienced racial discrimination (53%).
- There has been a slight increase in the percentage of postdocs who would recommend a scientific research career to their younger self than in 2020 (from 47% to 52%). Postdocs working in industry were more likely than those in academia to recommend it (63% versus 51%).
- Postdocs working in Africa (75%) and Asia (60%) were most likely to recommend the career to their younger self, and those in South America were most likely to not (31%).



Plan to leave postdoc base n: 3766. Single choice question. Not asked to unemployed respondents.  
Recommend to younger self base n: 3838. Single choice question. Asked to all.

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