ROYAL SOCIETY OF CHEMISTRY

KNOWLEDGE

Researchers' voice on open access

Introduction and research methods

The Royal Society of Chemistry wants to give chemical sciences researchers a strong voice in the global conversation about open access.

As part of our work to do this, we commissioned a survey of chemical science researchers to understand the differences in their experiences of and opinions towards publishing their research, with a particular emphasis on open access publishing. Specifically we wanted to:

- discover the attitudes of chemical science researchers across different territories and at different career stages towards open access; and
- compare similarities and contrast differences in attitudes, and the emotion and reasoning behind those attitudes, between territories and career stages.

We present this research as representing the views of chemical science researchers, without interpretation or deep analysis. As both an international publisher and a leading learned society and professional body for chemical scientists, we take into account the views of the community when formulating our own positions and action plans, which we will publish separately at a later date. The research provides a base for us to conduct further detailed analysis and follow-up study.

We hope these findings will add to the conversation, along with other published research, and highlight some differences and similarities for chemical science researchers. Many will likely apply to other disciplines as well. This is one of our range of activities to inform and amplify researchers' voice in this debate; others include an animation explaining Plan S and a panel discussion with researchers which you can find at rsc.li/researchersvoice

We have picked out 10 observations and insights that may influence how researchers engage with those driving open access developments – and vice versa.

Research scope

An online survey was carried out between 1 October and 15 October 2019. The survey was emailed to authors in the chemical sciences around the world. After data cleansing, the sample used for compiling the results was n=1,263. For further details, see the Appendix: data and methodology.

About the Royal Society of Chemistry

The Royal Society of Chemistry is an international not-for-profit organisation connecting chemical scientists with each other, with other scientists, and with society as a whole.

Founded in 1841 and based in London, UK, we have an international membership of over 50,000. We use the surplus from our global publishing and knowledge business to give thousands of chemical scientists the support and resources required to make vital advances in chemical knowledge.

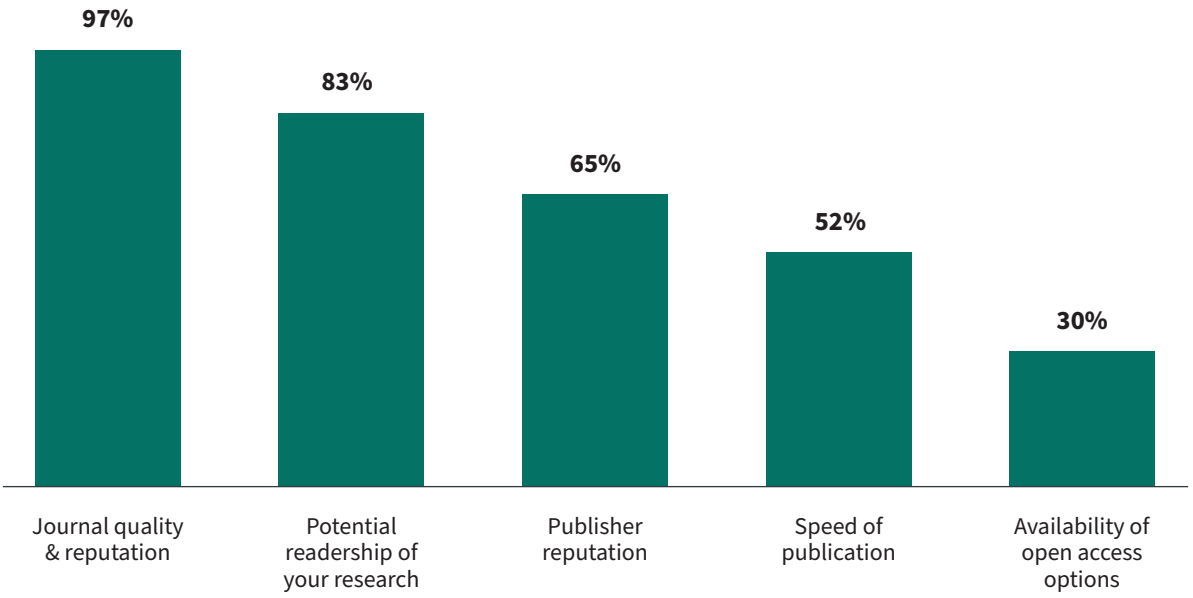
We develop, recognise and celebrate professional capabilities, and we bring people together to spark new ideas and new partnerships. We support teachers to inspire future generations of scientists, and we speak up to influence the people making decisions that affect us all.

We are a catalyst for the chemistry that enriches our world.

1. Open access options are currently bottom of the list of publishing venue considerations for chemistry researchers

For all regions and career stages sampled, open access options ranked bottom of this list of influential factors on where to publish their work.

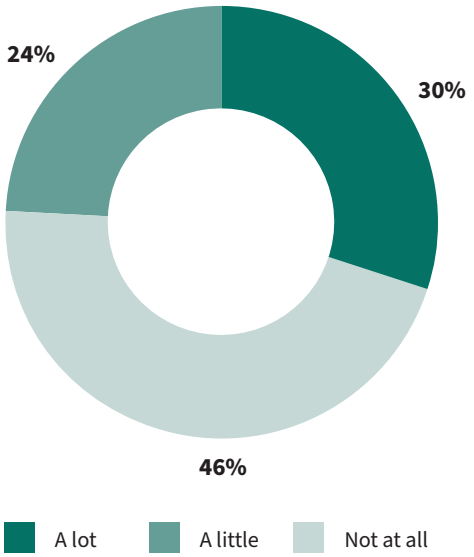
Q: When choosing where to publish your research, to what extent do the following factors influence your decision: Journal quality & reputation / Publisher reputation / Availability of open access options / Potential readership of your research / Speed of publication



Percentage of respondents globally who think the factor (x-axis) influences their decision to publish 'a lot'

Base: Journal quality & reputation n=1,256; Publisher reputation n=1,234; Availability of open access option n=1,242; Potential readership n=1,245; Speed of publication n=1,241

There was very little variation in respondent's answers to how open access options influence their decisions on where to publish.

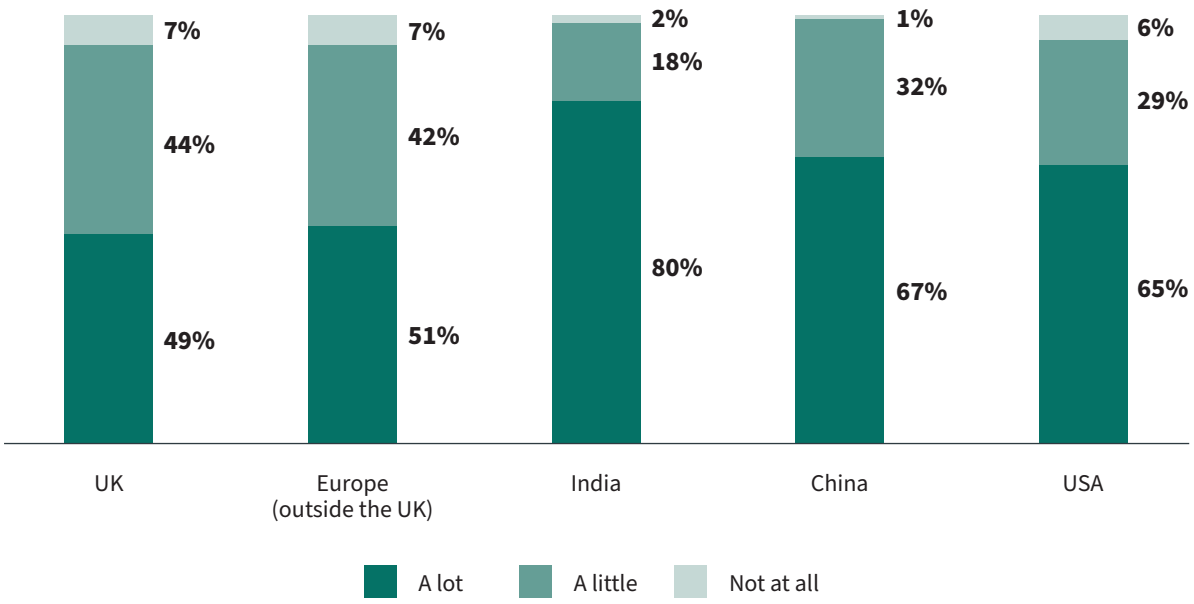


Extent to which availability of open access options influence researchers' decisions on where to publish

Base: n= 1,242

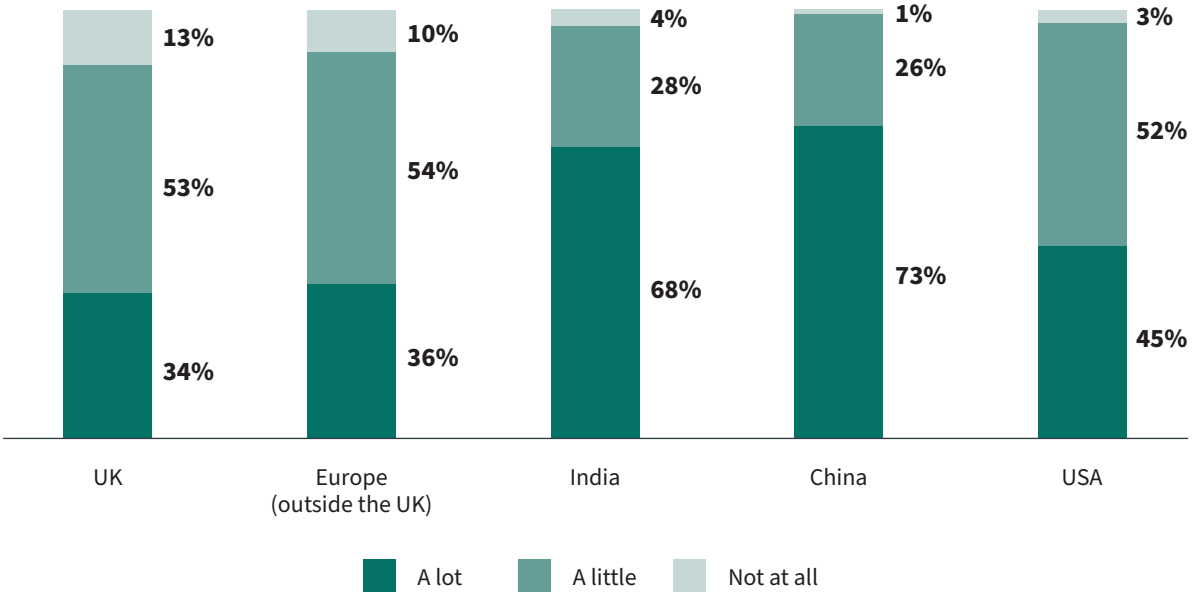
2. The importance of publisher reputation and speed of publishing varies by region

Far more researchers in India said that publisher reputation influences their decision "a lot". In India and China, speed of publication was reported as significantly more important than in other regions.



Extent to which publisher reputation influences decision of where to publish

Base: UK n= 198; Europe n=335; India n=449; China n=89; USA n=163



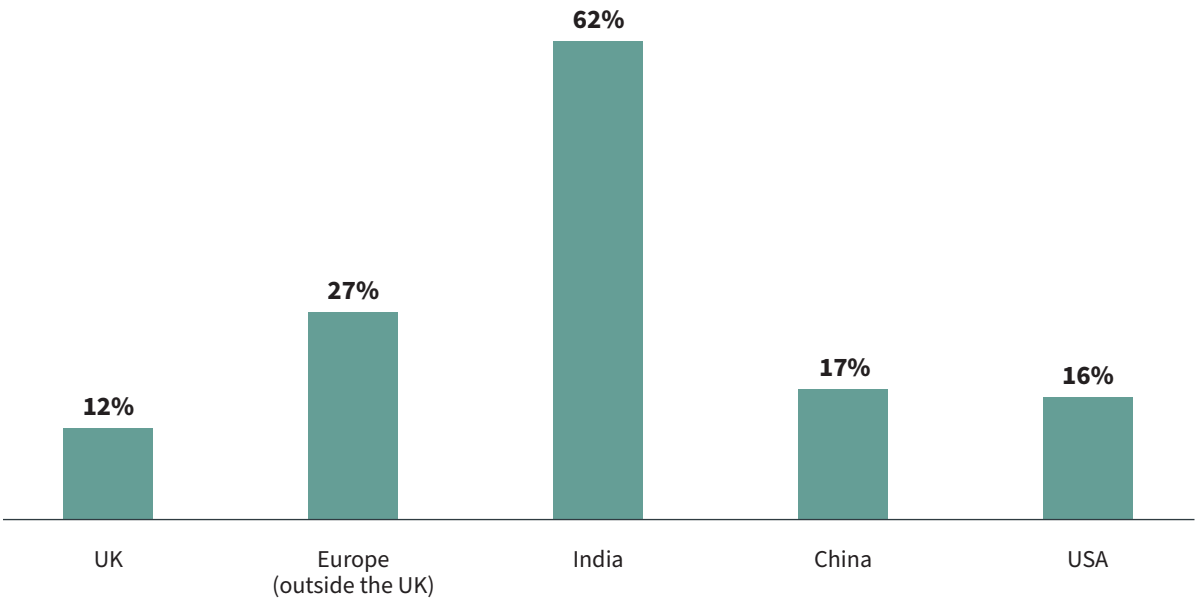
Extent to which speed of publication influences decision of where to publish

Base: UK n= 199; Europe n=337; India n=451; China n=91; USA n=163

3. Nearly two thirds of chemistry researchers from India say they incur no APCs

In further comments, Indian researchers said they choose to publish in venues with no APCs payable. Of those who do pay APCs, some said they pay out of their own pockets.

Q: Who funds any article processing charges (APCs) you incur? [Tick all that apply] your funding body / your institution / other (please state) / I do not incur any article processing charges



Percentage of respondents who say they **do not** incur APCs

Base: UK n=203; Europe n=340; India n=459; China n=93; USA n=165

> *"There is no financial support for any article processing charges incurred. So I prefer to publish in journal that do not have any article processing charges."*
>
> **Respondent in India**

4. There is wide regional variation, and apparent confusion, in how researchers perceive mandatory open access requirements

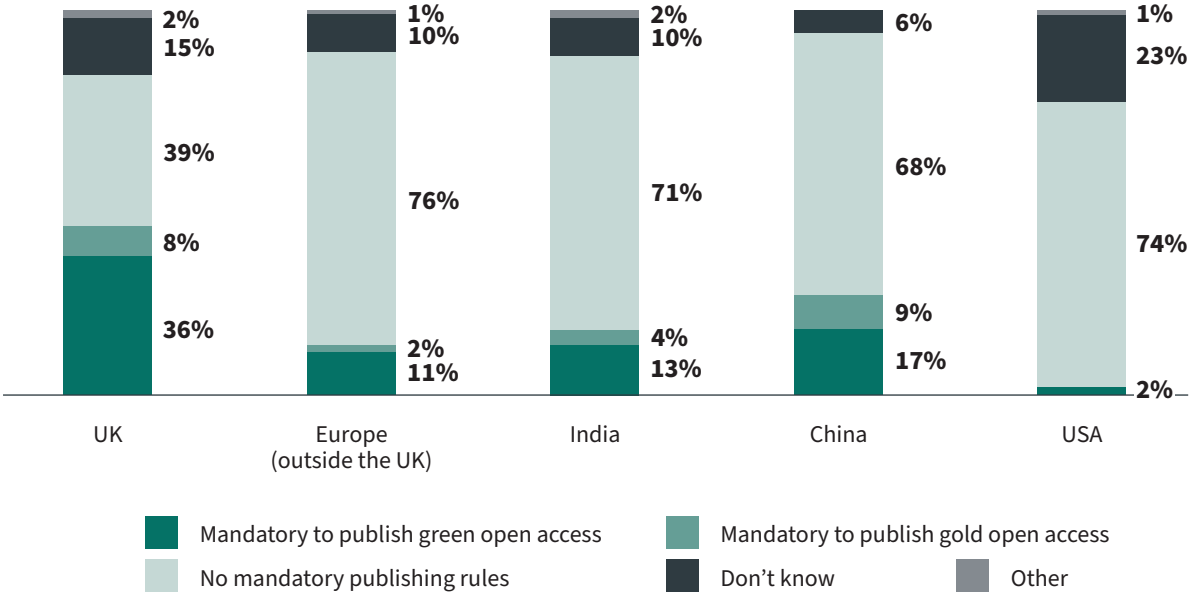
Respondents reported a wide range of answers for the open access mandates their research is subject to. In free text comments, particularly from Europe, some noted that open access is "strongly encouraged" rather than mandated.

There are significant proportions of "don't know" answers for all groups, particularly the UK and USA.

Even accepting that Europe has a mix of national approaches to open access, it appears that regions that have a stronger focus on open access returned a larger "don't know" response.

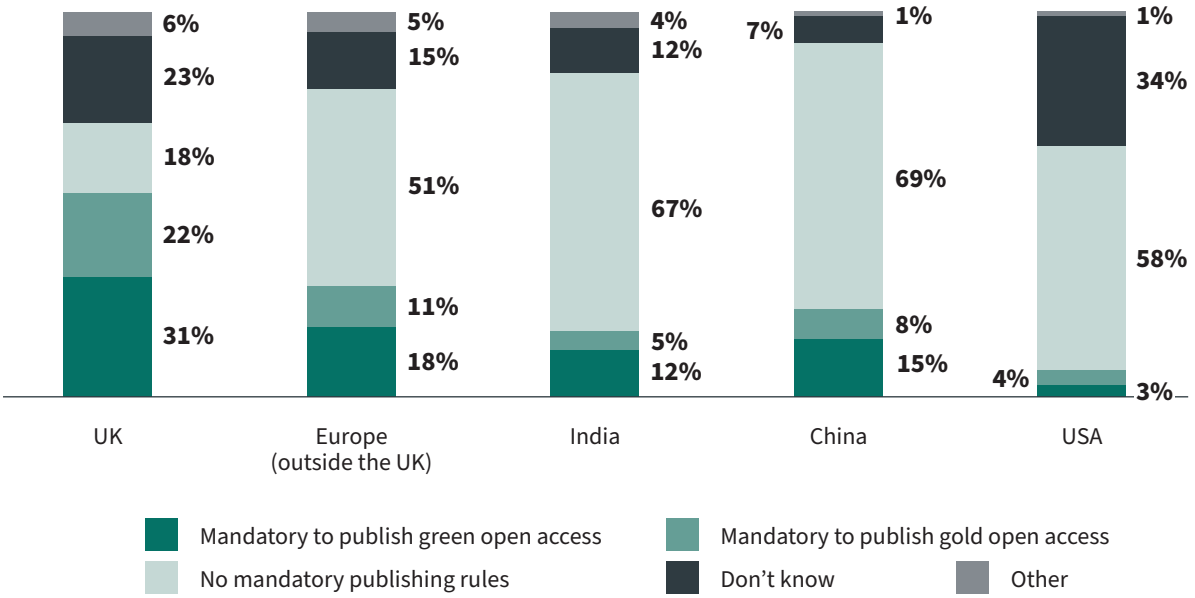
Q: How do the following organisations mandate how your research must be published? Mandatory to publish Green open access / Mandatory to publish Gold open access / No mandatory publishing rules / Don't know; Your institution / Your funding body / Your national government / Other

Institutions



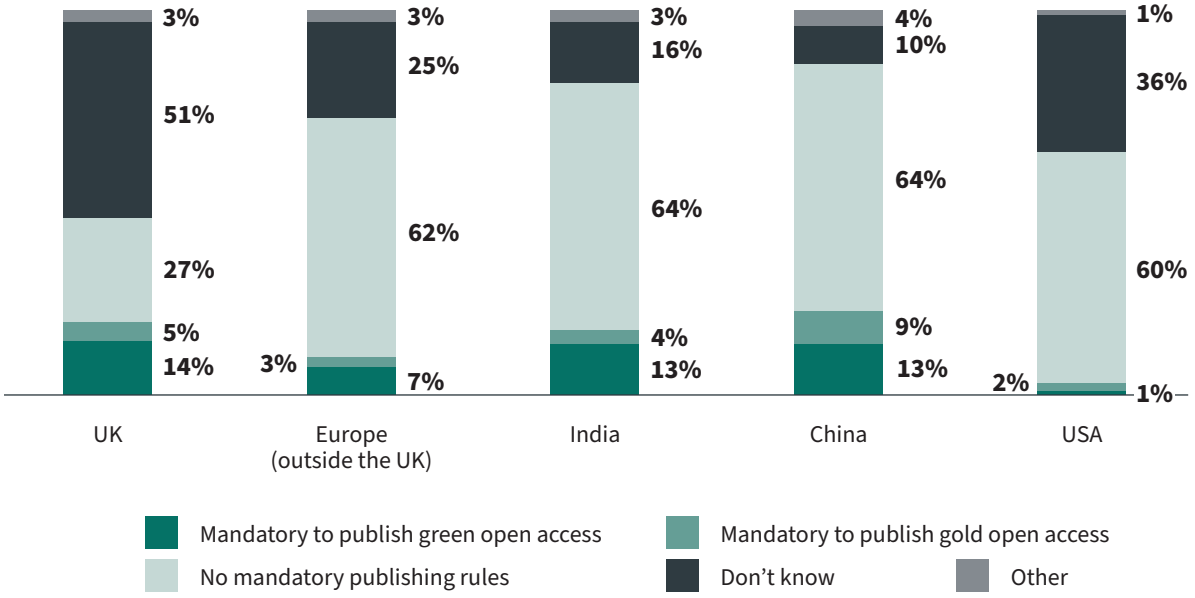
Base: UK n=199; Europe n=340; India n=447; China n=91; USA n=163

Funding bodies



Base: UK n=195; Europe n=332; India n=439; China n=88; USA n=164

National governments

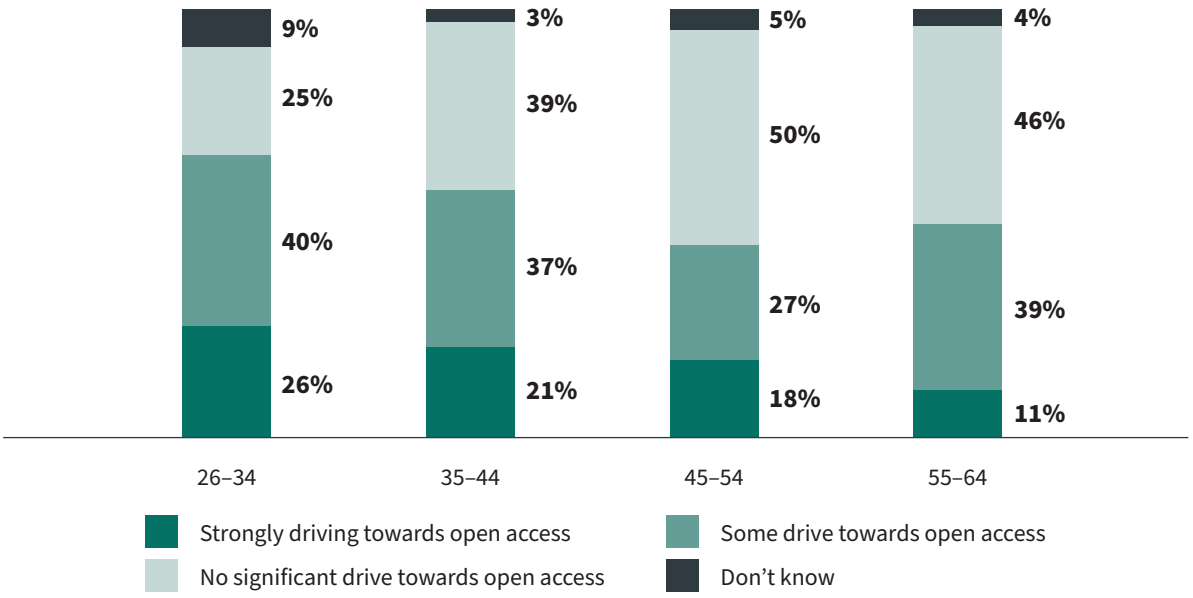


Base: UK n=189; Europe n=328; India n=431; China n=89; USA n=164

5. Younger researchers are more likely to want peers to do more to drive a transition open access

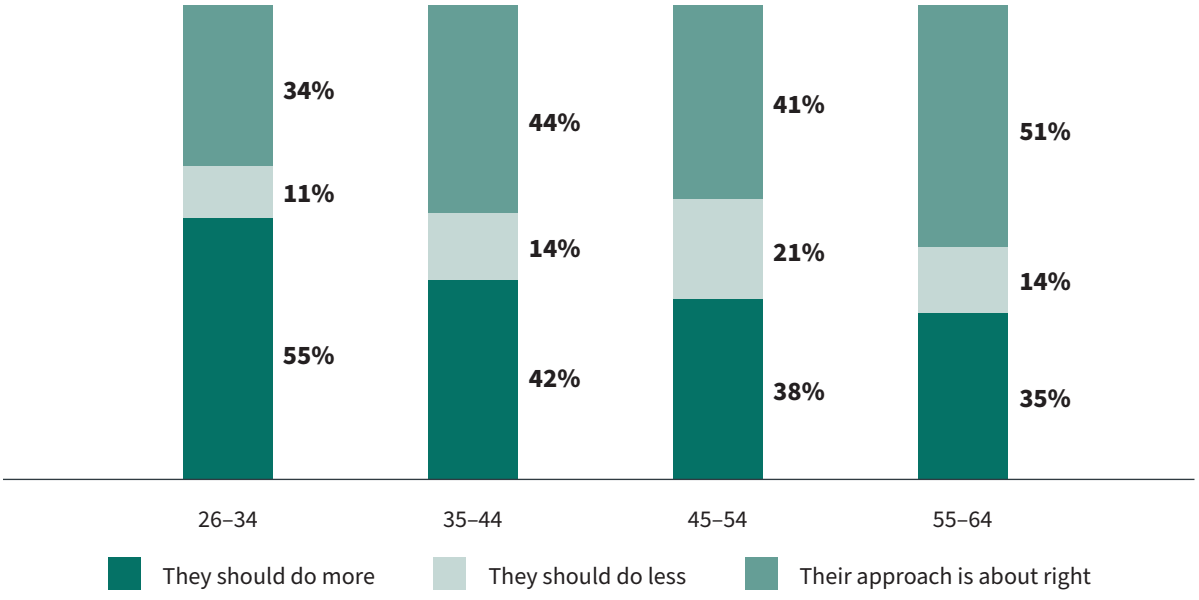
While there was little regional variation in how people believe their peers are driving a transition towards open access, there was a difference between age groups.

To what extent do you feel your peers are currently driving a transition towards open access publishing?



Base: 26–34 n=559; 35–44 n=294; 45–54 n=150; 55–64 n=102

And to what extent do you feel your peers ought to drive the transition to open access publishing?

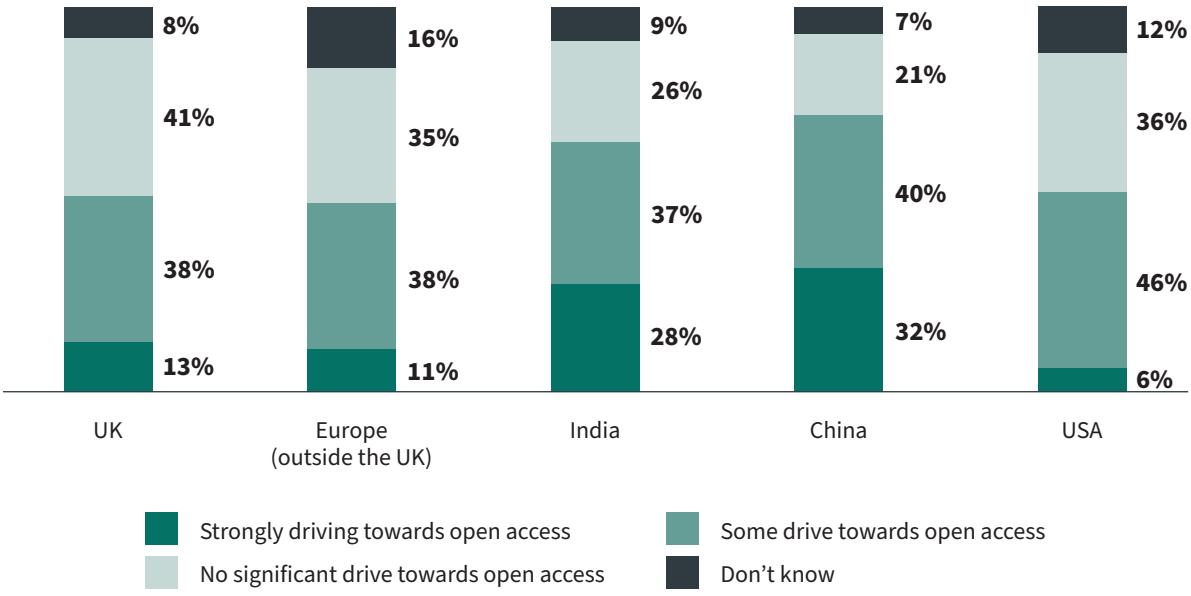


Base: 26–34 n=551; 35–44 n=291; 45–54 n=152; 55–64 n=103
NB: 25 and under, and 65 and over age groups excluded from analysis due to very small sample sizes.

6. Perceptions of strongest current drivers of a transition towards open access vary by region

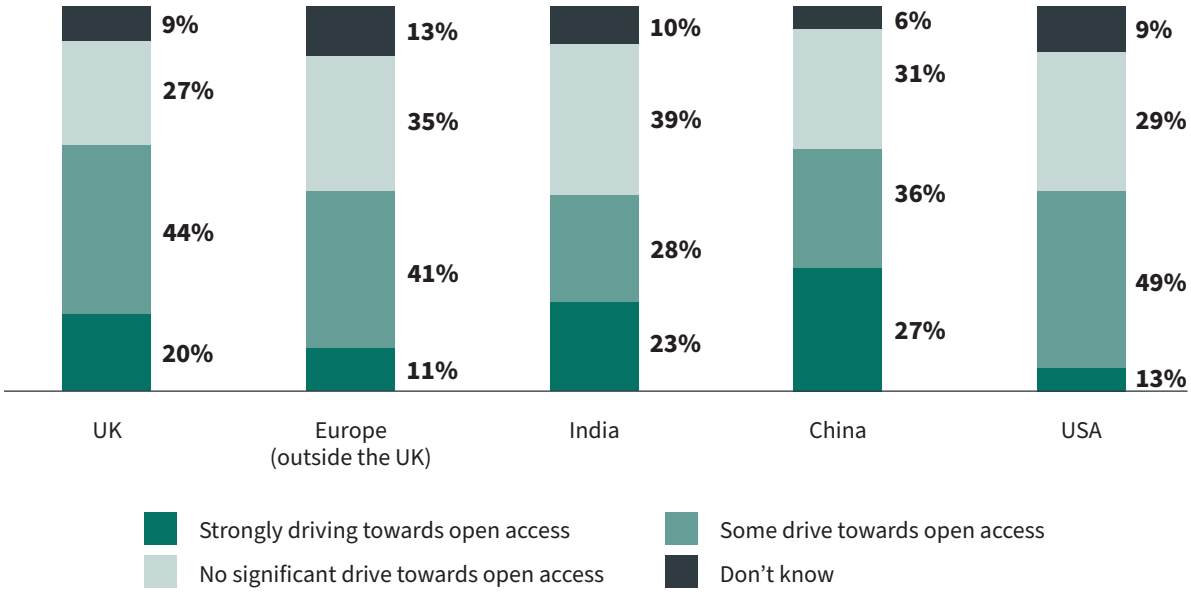
Depending on their region, researchers see different types of organisation as the stronger drivers of a transition to open access. Chinese and Indian researchers said publishers and learned societies / professional bodies were the strongest drivers, whereas UK and European researchers said research institutions and funders were driving the transition most strongly.

To what extent do you feel your **publishers** are driving the transition to open access?

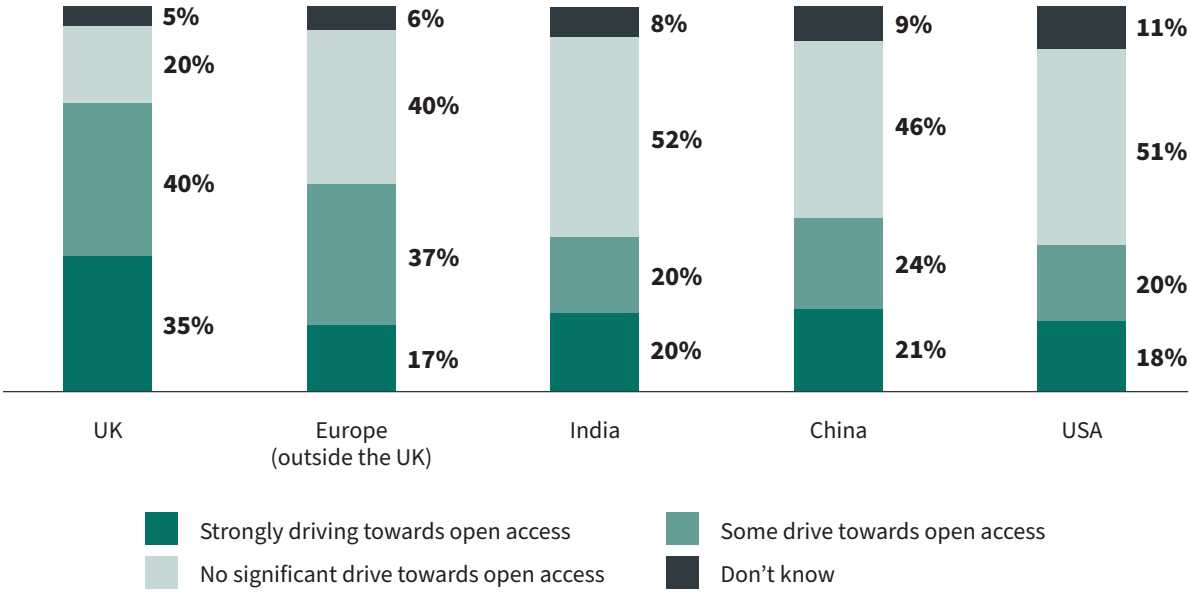


Base: UK n=198; Europe n=336; India n=442; China n=90; USA n=165

To what extent do you feel your **society/ professional body** is driving the transition to open access?

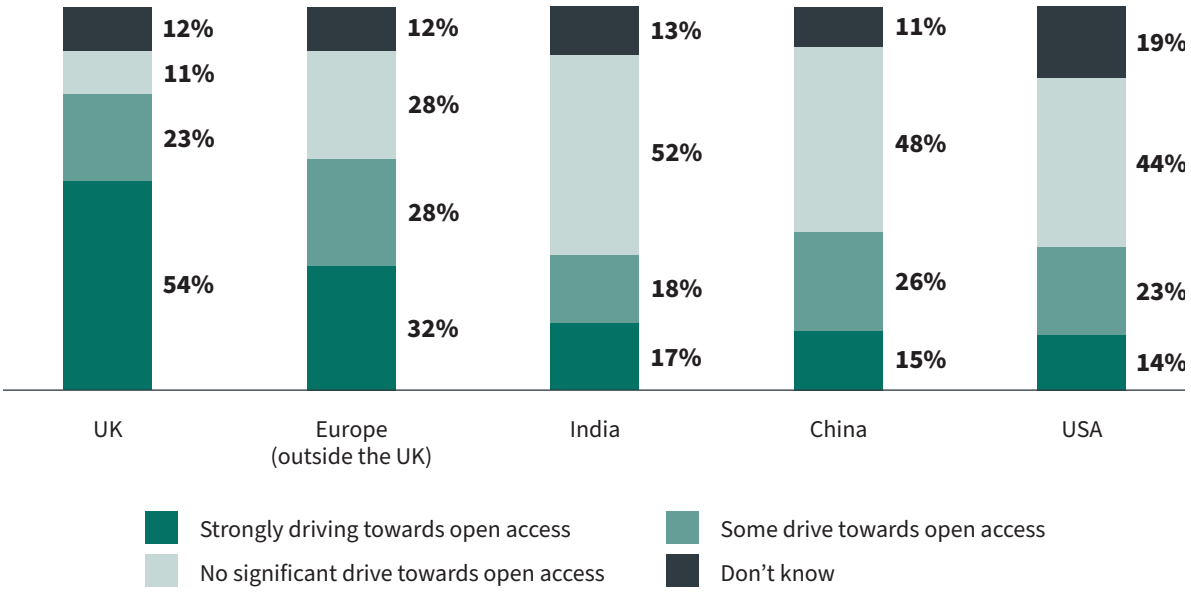


Base: UK n=199; Europe n=334; India n=441; China n=90; USA n=164



To what extent do you feel your **institution** is driving a transition towards open access?

Base: UK n=201; Europe n=337; India n=444; China n=87; USA n=164

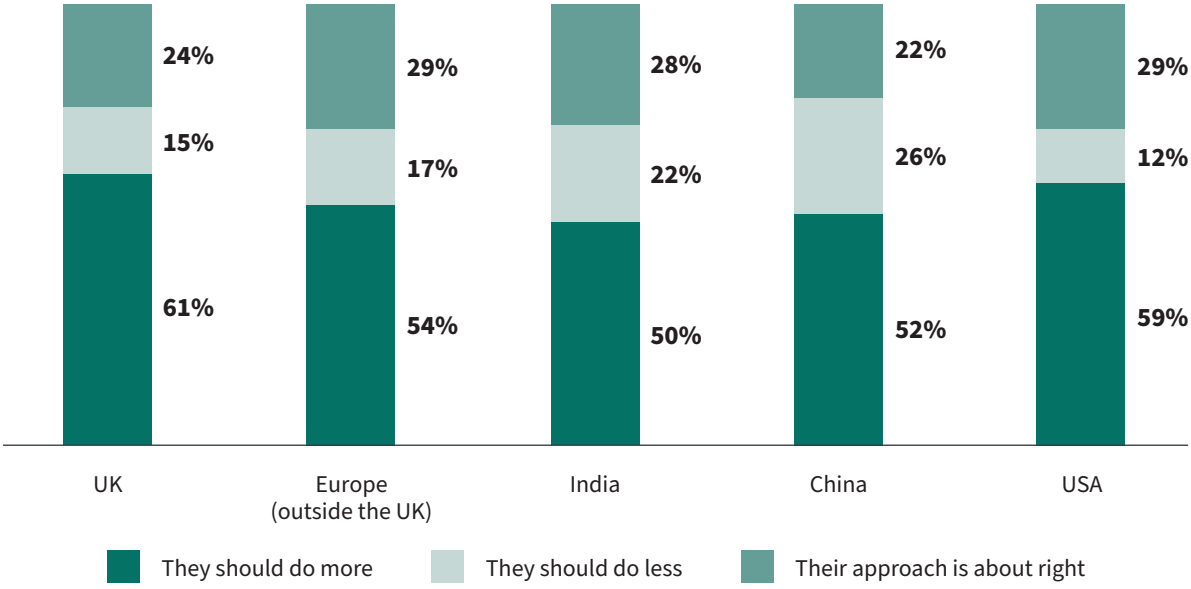


To what extent do you feel that your **funding body** is driving a transition towards open access?

Base: UK n=201; Europe n=337; India n=444; China n=87; USA n=164

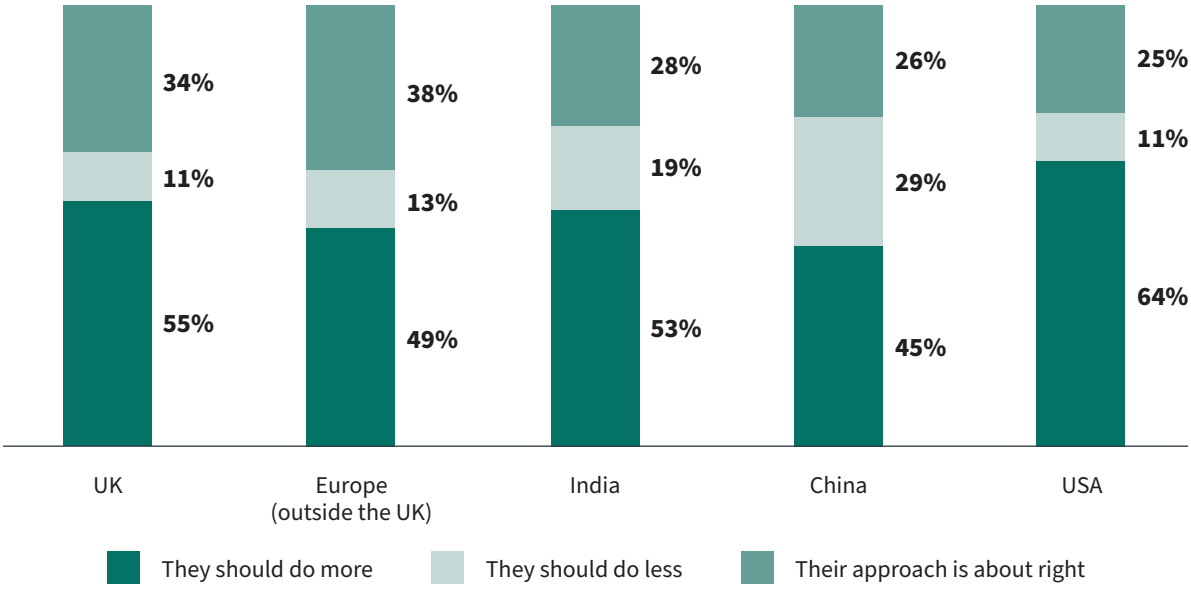
7. There is a strong desire for organisations to do more to drive OA

Researchers in the US were least likely to say their institutions and funders were strongly driving a transition to open access, and most likely to say those groups should be doing more.



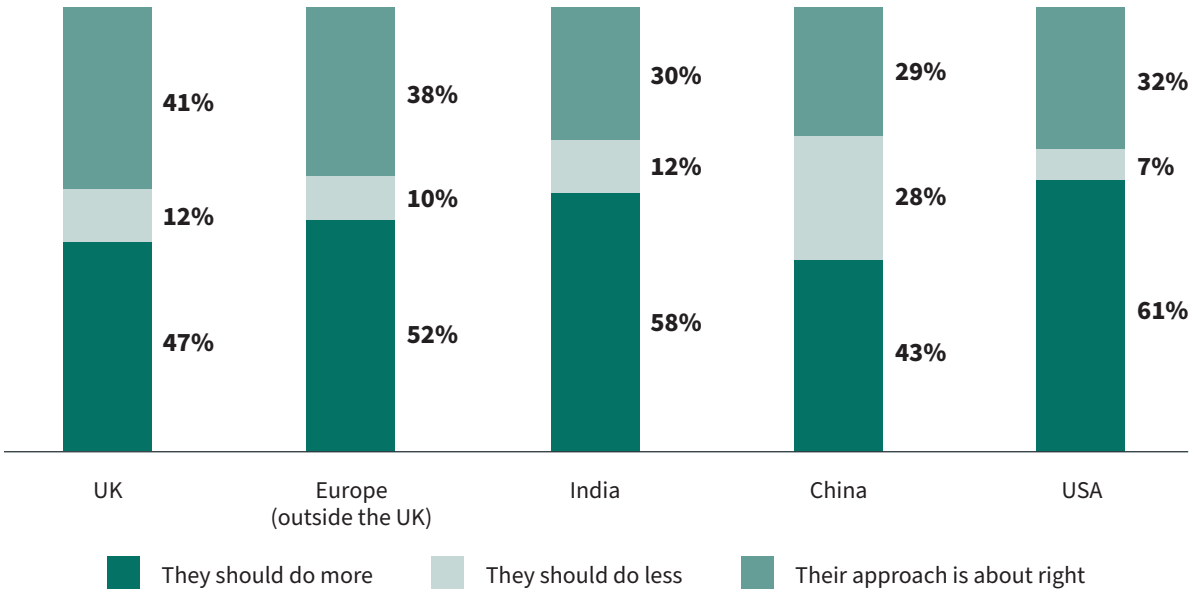
To what extent do you feel your **publishers** ought to be driving the transition towards open access?

Base: UK n=199; Europe n=334; India n=434; China n=91; USA n=163



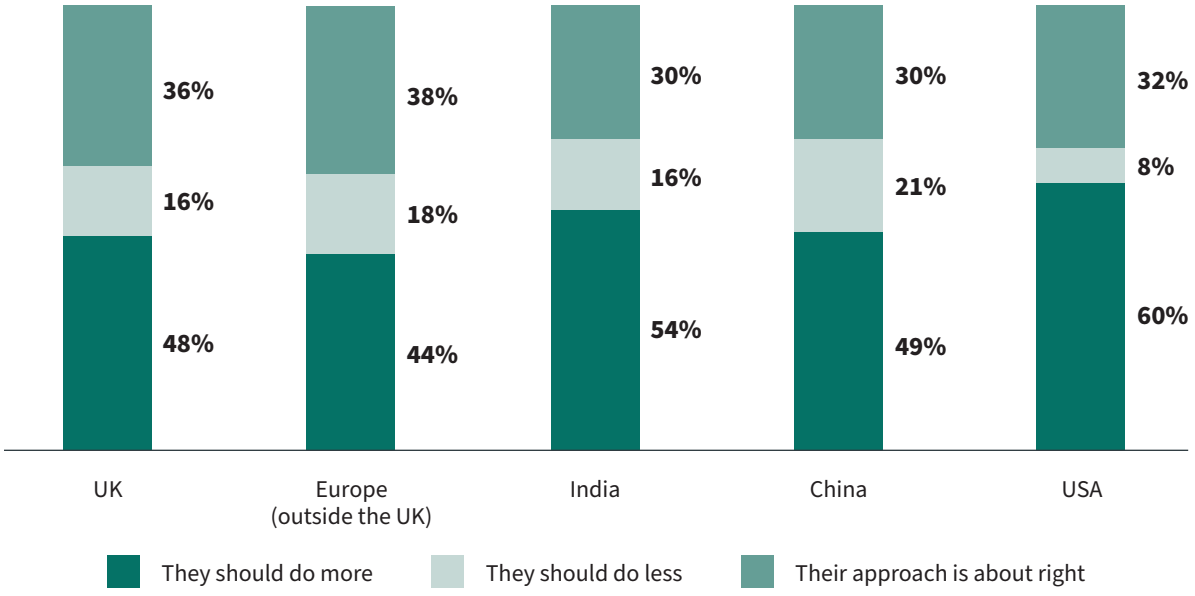
To what extent do you feel your **society/ professional body** should be driving the transition to open access?

Base: UK n=200; Europe n=331; India n=425; China n=90; USA n=162



To what extent do you feel your **institution** should be driving a transition towards open access?

Base: UK n=200; Europe n=332; India n=425; China n=89; USA n=163



To what extent do you feel that your **funding body** should be driving a transition towards open access?

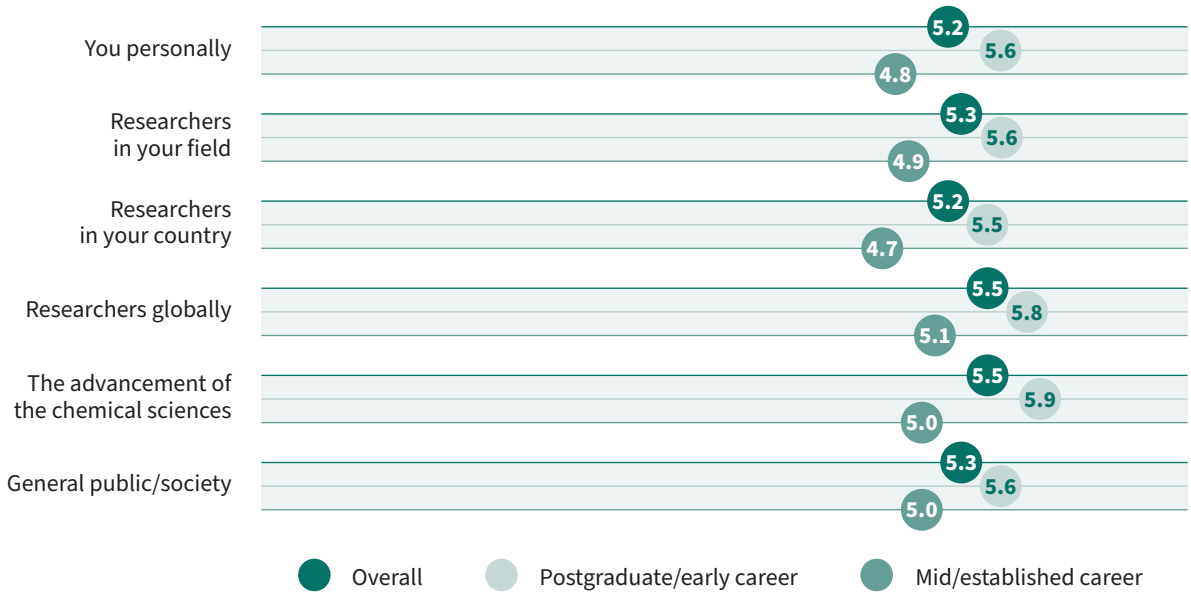
Base: UK n=201; Europe n=331; India n=422; China n=92; USA n=161

8. There is an positive overall view of the impact of a global drive towards open access

The perceived impact is positive for all groups. Postgraduate and early career researchers were more positive across all areas than mid-career and established career researchers.

Q: What impact do you think a global drive towards open access publishing in the chemical sciences would have on the following?

Please answer on a scale of 1 to 7 where 1 is a very negative impact and 7 is a very positive impact.



Base

Combined

You personally n=1,224; Researchers in your field n=1,222; Researchers in your country n=1,218; Researchers globally n=1,224; The advancement of the chemical science n=1,229; General public/society n=1,226

Postgraduate/Early Career

You personally n=689; Researchers in your field n=684; Researchers in your country n=683; Researchers globally n=687; The advancement of the chemical science n=689; General public/society n=686

Mid/Established Career

You personally n=505; Researchers in your field n=508; Researchers in your country n=505; Researchers globally n=509; The advancement of the chemical science n=510; General public/society n=511

9. Researchers in the UK and Europe respond more negatively to a scenario where open access is globally mandated with no change in the publishing industry

Respondents were asked to react to the following scenario (Scenario 1):

> *Your funder/research institution has just mandated that **all** funded research **must** be published open access. The way the publishing industry operates, and the publication options they offer, have not changed at all.*

Q: How would you feel about this?

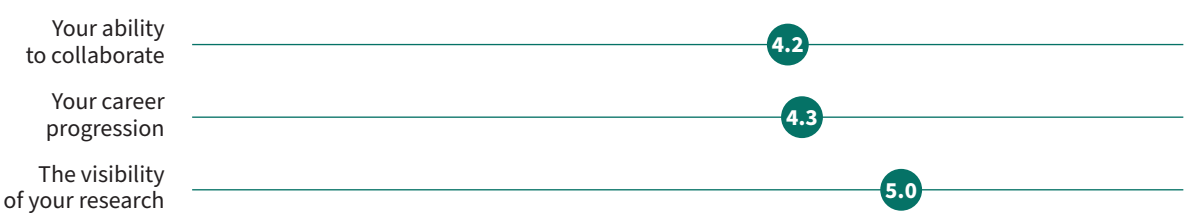
Please answer on a scale of 1 to 7 where 1 is very negatively and 7 is very positively.

Base: UK n=185; Europe n=298; India n=432; China n=90; USA n=153

When asked about specific impacts, views were generally neutral. Researchers in the UK and Europe were likely to be slightly more negative, and in India slightly more positive.

Q: What would be the impact on: your ability to collaborate; your career progression; the visibility of your research?

Please answer on a scale of 1 to 7 where 1 is very negative and 7 is very positive.



Base: Your ability to collaborate n=1,189; Your career progression: 1,191; the visibility of your research n=1,200

10. There is global increased positivity about an open access scenario where funders/ institutions pay APCs

Respondents were asked to react to a modified version of the scenario (Scenario 2):

> *Global funders and research institutions have just mandated that **all** funded research **must** be published open access.*
>
> ***However** The publishing industry has responded by making all journals open access in some way. Funders and institutions will cover APCs for research they fund.*

Compared with Scenario 1, researchers were overall more positive, with larger positive changes in the UK and Europe than elsewhere.

Q: How would you feel about this?

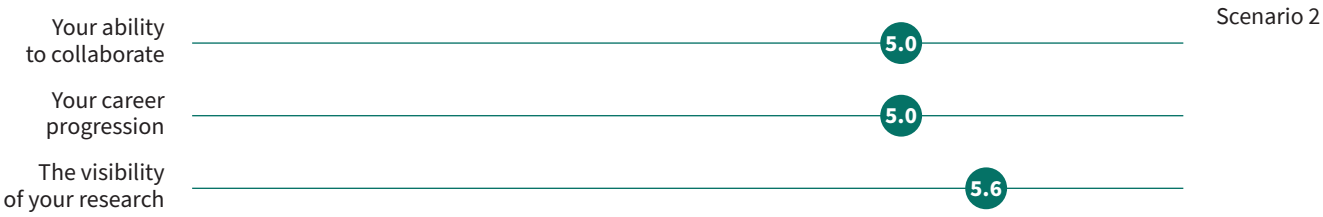
Please answer on a scale of 1 to 7 where 1 is very negatively and 7 is very positively.

Base: UK n=198; Europe n=325; India n=436; China n=92; USA n=162

When asked about specific impacts, views were generally more positive than for Scenario 1, with early career researchers being most positive about the impact on career progression.

Q: What would be the impact on: your ability to collaborate; your career progression; the visibility of your research?

Please answer on a scale of 1 to 7 where 1 is very negative and 7 is very positive.



Base: Your ability to collaborate n=1,224; Your career progression: 1,227; the visibility of your research n=1,229

Appendix: data and methodology

The survey was mailed to 40,000 researchers spread internationally who had recently published with the Royal Society of Chemistry.

A total of 1,300 responses were received. 37 of these responses were from countries outside the scope of this research study and were subsequently excluded from the data analysis.

Sample sizes

No questions in the survey were compulsory, which means that the sample achieved for each question varies slightly. The base data for all questions is included on a question-by-question basis.

Overall, a sample size of around 1,250 was achieved for most questions, giving an average confidence interval of +/- 2.8 at a 95% confidence level.

At regional level, there was a much more varied response, with better response rates received for some regions compared to others, therefore care should be taken when interpreting the results. China, in particular, had a low response rate. This may, to some extent, reflect interest in the subject matter and those who responded may be self-selecting on the basis of interest in open access issues.

Regionally, average confidence intervals at a 95% confidence level are:
UK: +/- 6.9; Europe: +/- 5.3; India: +/- 4.6; China: +/- 10.1; USA: 7.6

These have been taken into account when interpreting regional variations.

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