IMPACT UNIT

wissenschaft : im dialog

Perspectives on science communication

Results of a survey among scientists in Germany

Executive Summary, 28th of June 2021

GEFÖRDERT VOM

Bundesministerium
für Bildung
und Forschung

The survey was carried out in cooperation by the *Impact Unit*, a project by Wissenschaft im Dialog (WiD), the National Institute for Science Communication (NaWik) and the German Center for Higher Education and Research Studies (DZHW)

wissenschaft : im dialog

NaWik
Wissenschaft.
Verständlich.

DZHW
Deutsches Zentrum für
Hochschul- und Wissenschaftsforschung

The *Impact Unit* received funding for the survey from the Federal Ministry of Education and Research

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Why study scientists' perspectives on science communication?

- For well over two decades now, a controversial debate has been taken place on whether and to what extent scientists should get involved in science communication
- This is often a debate about rather than with scientists, so it is time to ask the scientists what they think about science communication
- Science and the communication about science is becoming ever more important and societally relevant – not least during international crises such as the coronavirus pandemic
- To provide a solid evidence base for future debates on the role and engagement of scientists this survey covers a range of different aspects

Methodology

- The questionnaire was constructed by all three organizations in collaboration
- Sampling was carried out separately for scientists working at universities and at research institutes
  - Universities: E-Mail addresses collected by the DZHW for their 2019 survey wave of their bi-annual Scientists Survey were used
  - Research Institutes: The four big research institutes Max Planck society, Fraunhofer-Gesellschaft, Leibniz Association and the Helmholtz Association as partners of WiD were contacted through WiD's steering group and invitations to the individual scientists were distributed through their central administrative structures
- In total, 5688 researchers took part in the survey, which was carried out online
- The survey was in the field from the 17th of November to the 1st of December 2020
- Median response time was 11 minutes

Colour codings

strongly agree	very important	very positive	yes
agree	important	rather positive	
disagree	not very important	rather negative	
strongly disagree	not at all important	very negative	no
I don't have an opinion at the moment	don't know		

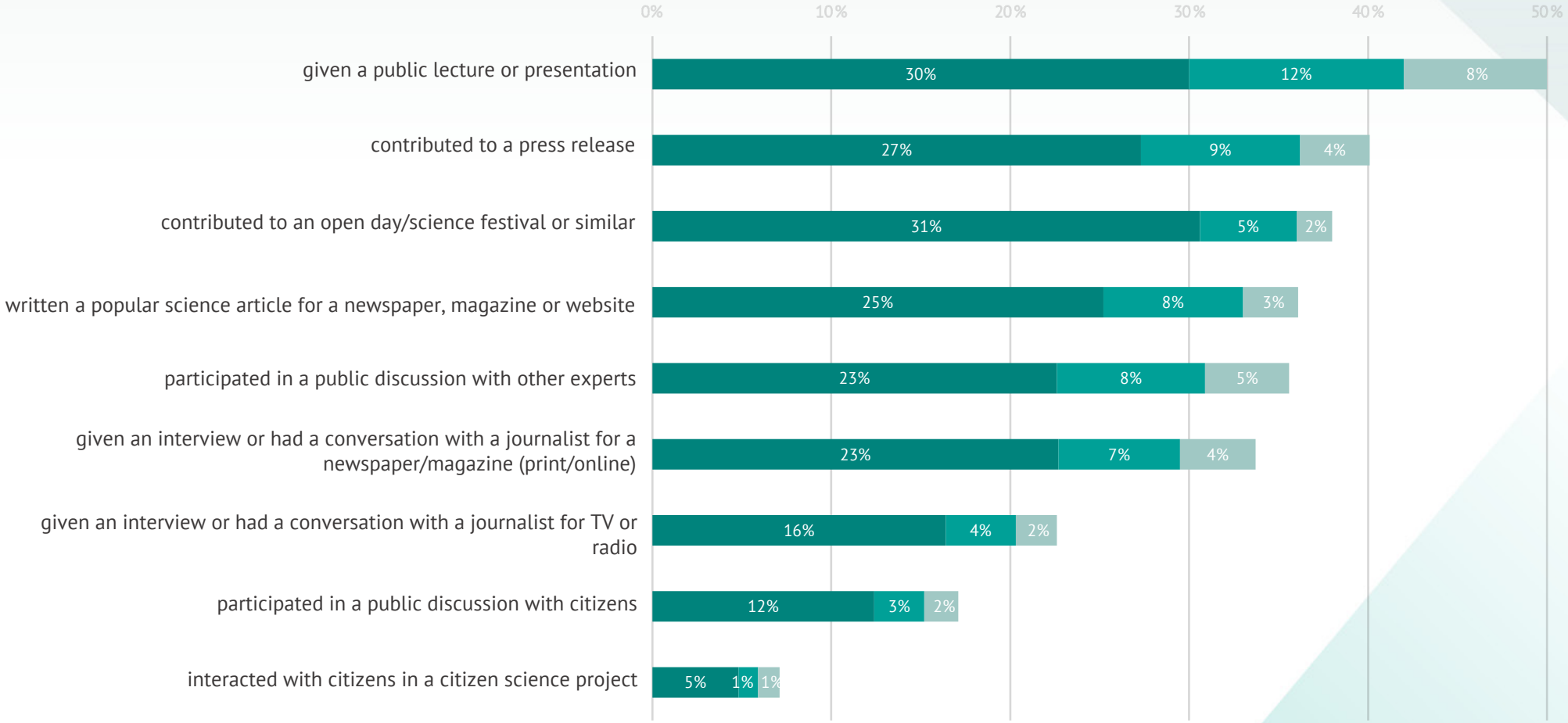
once a month or less	1-2 times
several times a month	3-5 times
several times a week	more often
daily	

social sciences and humanities	professors
life sciences	postdocs
natural sciences	predocs
engineering sciences	

university	experience
research institute	no experience

Experiences with science communication

How frequently have you engaged in the following activities in your capacity as a researcher to communicate about your research or science in general over the course of the past 24 months?

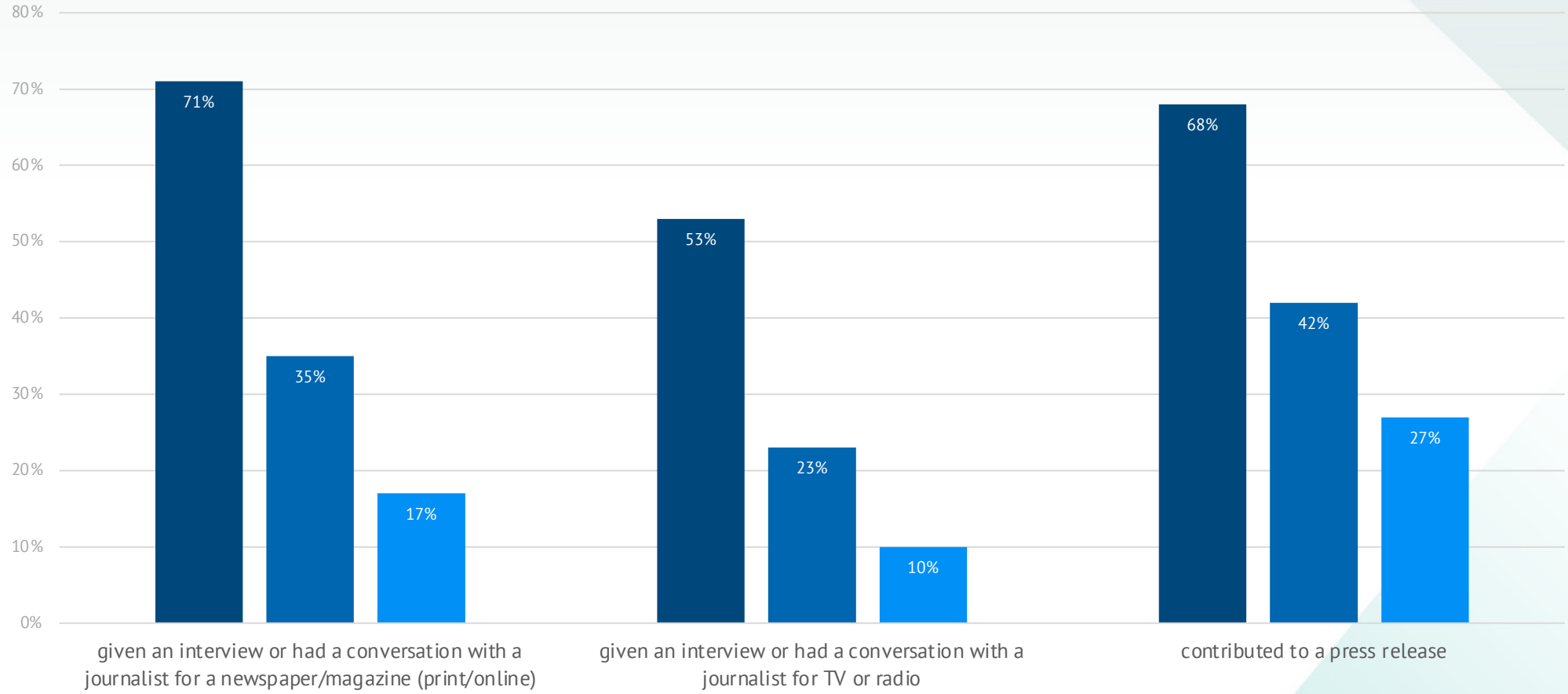


All those who have selected “not at all” are not displayed in this diagram.

1-2 times
3-5 times
more often

(n ⩾ 5.536)

Experience with science communication according to academic position

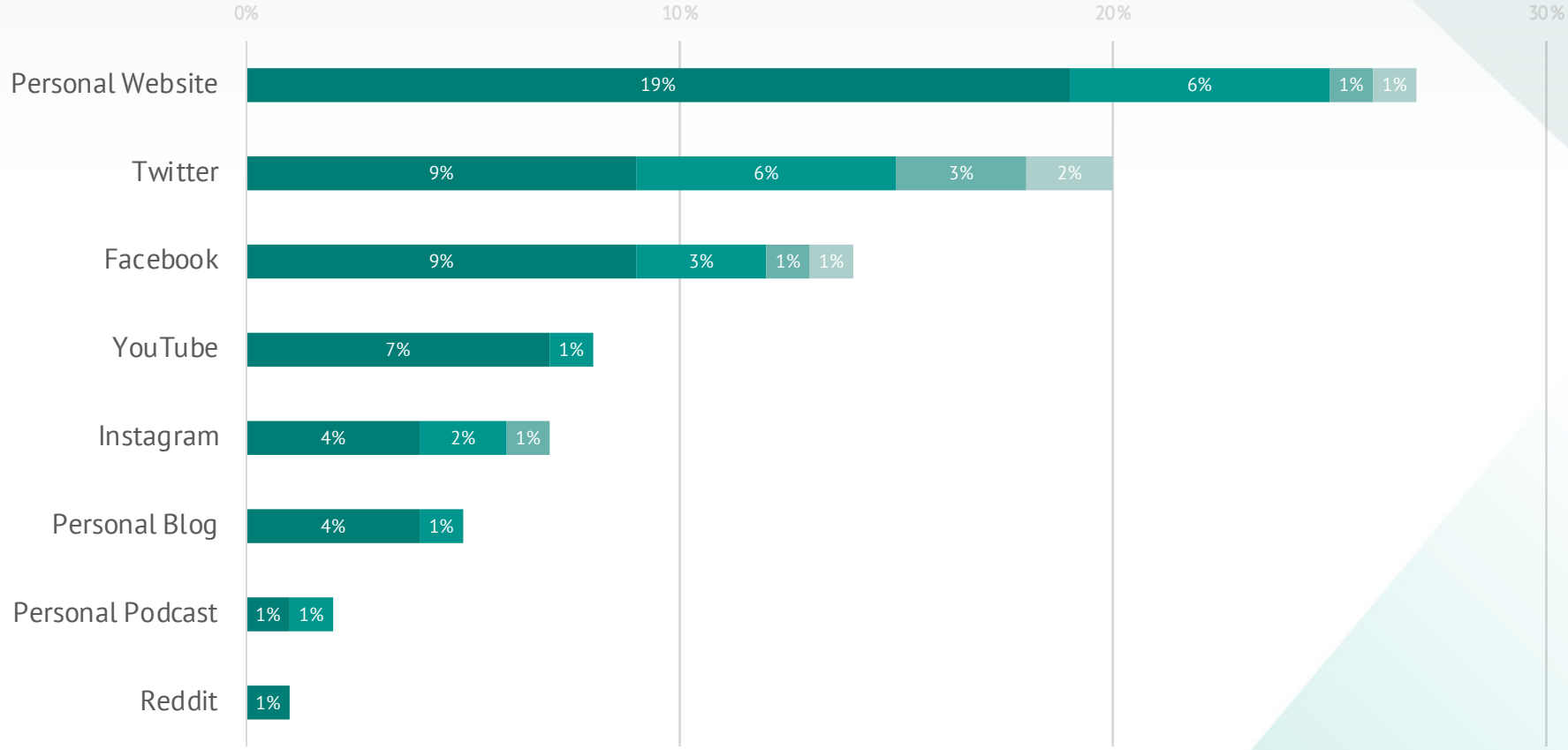


The diagram aggregates all those who answered “strongly agree” and “rather agree”, and excludes those who answered “rather disagree”, “strongly disagree” and “I don’t have an opinion at the moment”.

- Professors
- Postdocs
- Predocs

(n ⩾ 5.515)

How often do you actively use the following online communication channels in your role as a scientist to communicate with people outside of academia?

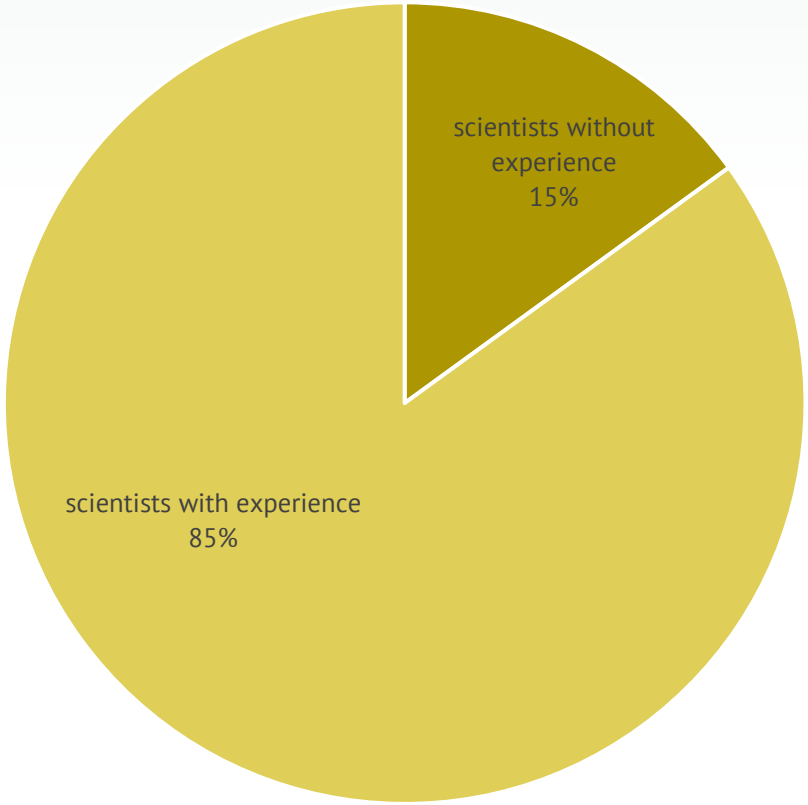


All those who have selected “not at all” are not displayed in this diagram.
Due to rounding, values below 0.5% are not displayed in this diagram.

- once a month or less
- several times a month
- several times a week
- daily

(n ≥ 5.490)

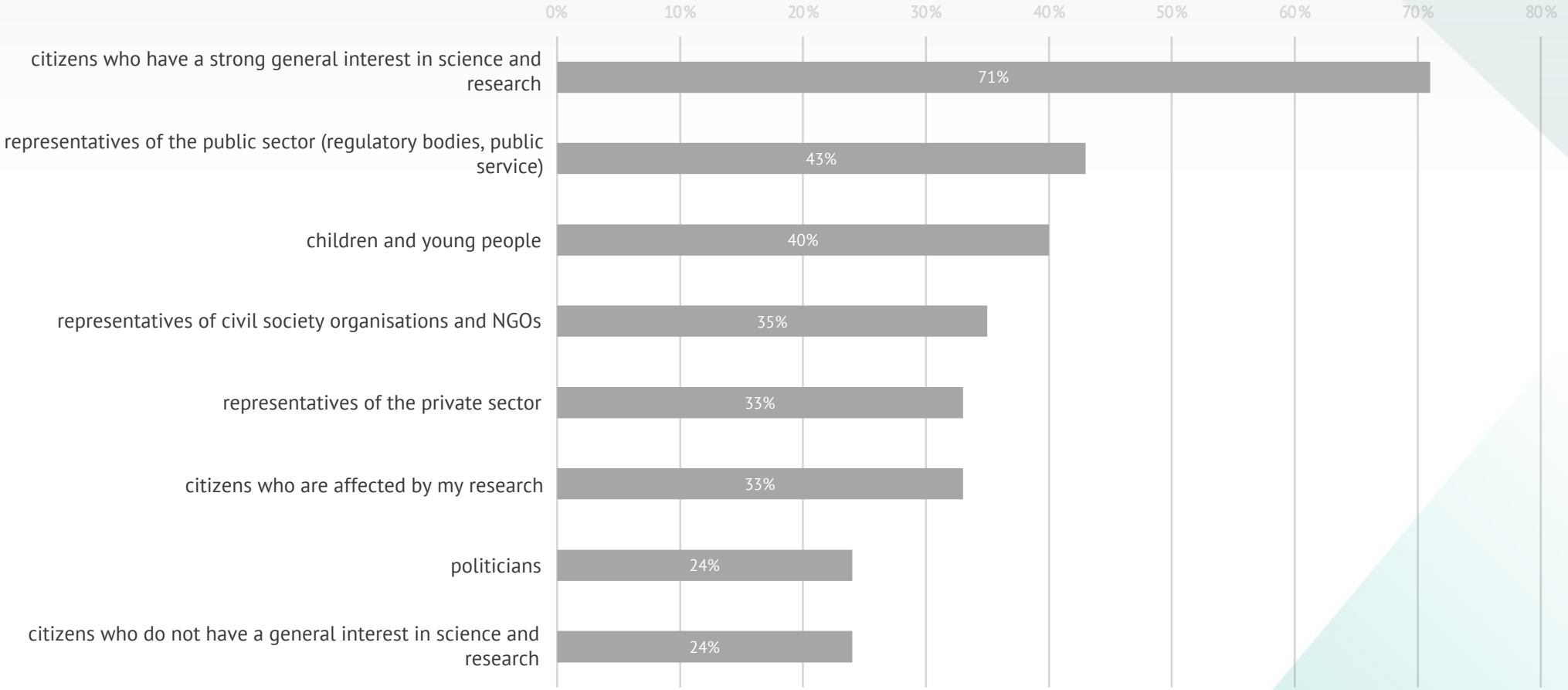
Experience with science communication



The diagram aggregates all scientists who have not participated in any of the science communication activities, online or offline, in the category of “scientists without experience”.

(n = 5.688)

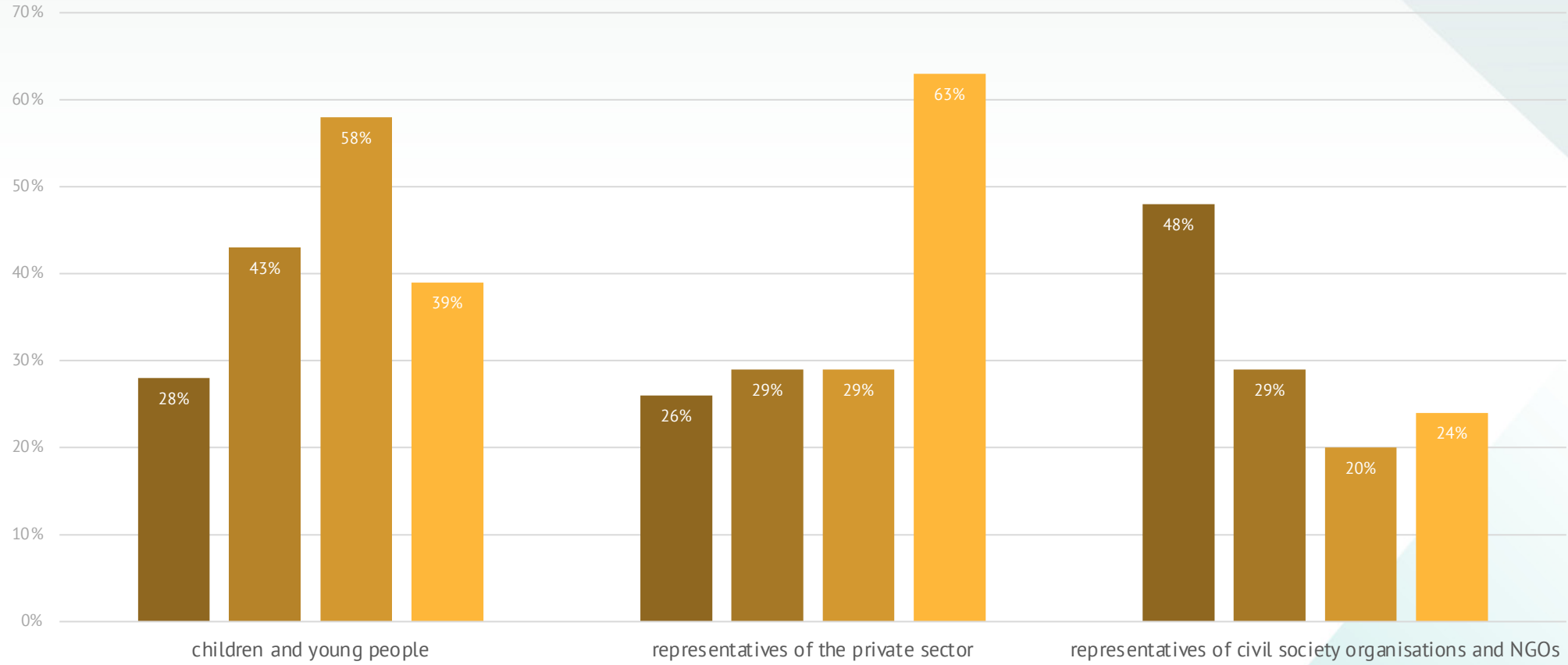
Which of the following groups of people have you come into contact with during your science communication engagement in the past 24 months?



This question was only posed to those scientists who have experience with science communication. Multiple selection was possible.

(n = 4.133)

Contact to different target groups according to research discipline

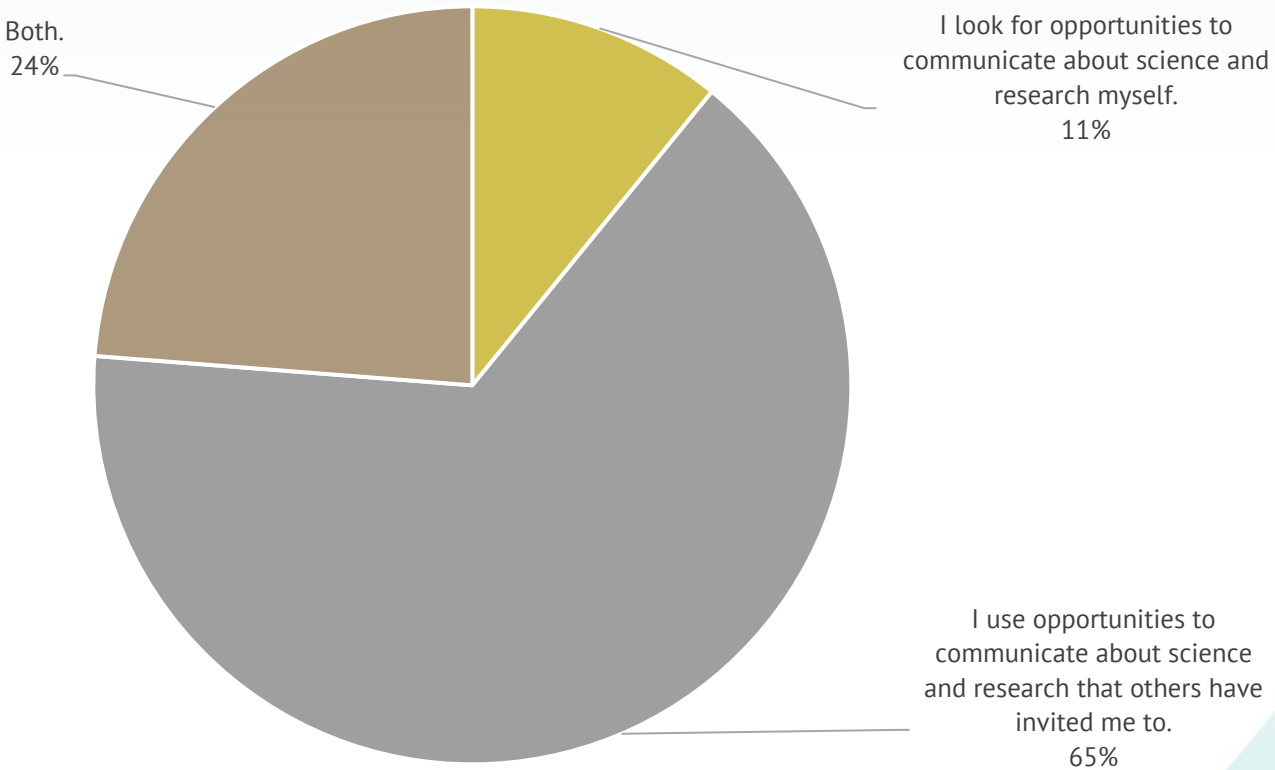


The diagram aggregates all those who answered “strongly agree” and “rather agree”, and excludes those who answered “rather disagree”, “strongly disagree” and “I don’t have an opinion at the moment”.

- social sciences and humanities
- life sciences
- natural sciences
- engineering sciences

(n ⩾ 3.936)

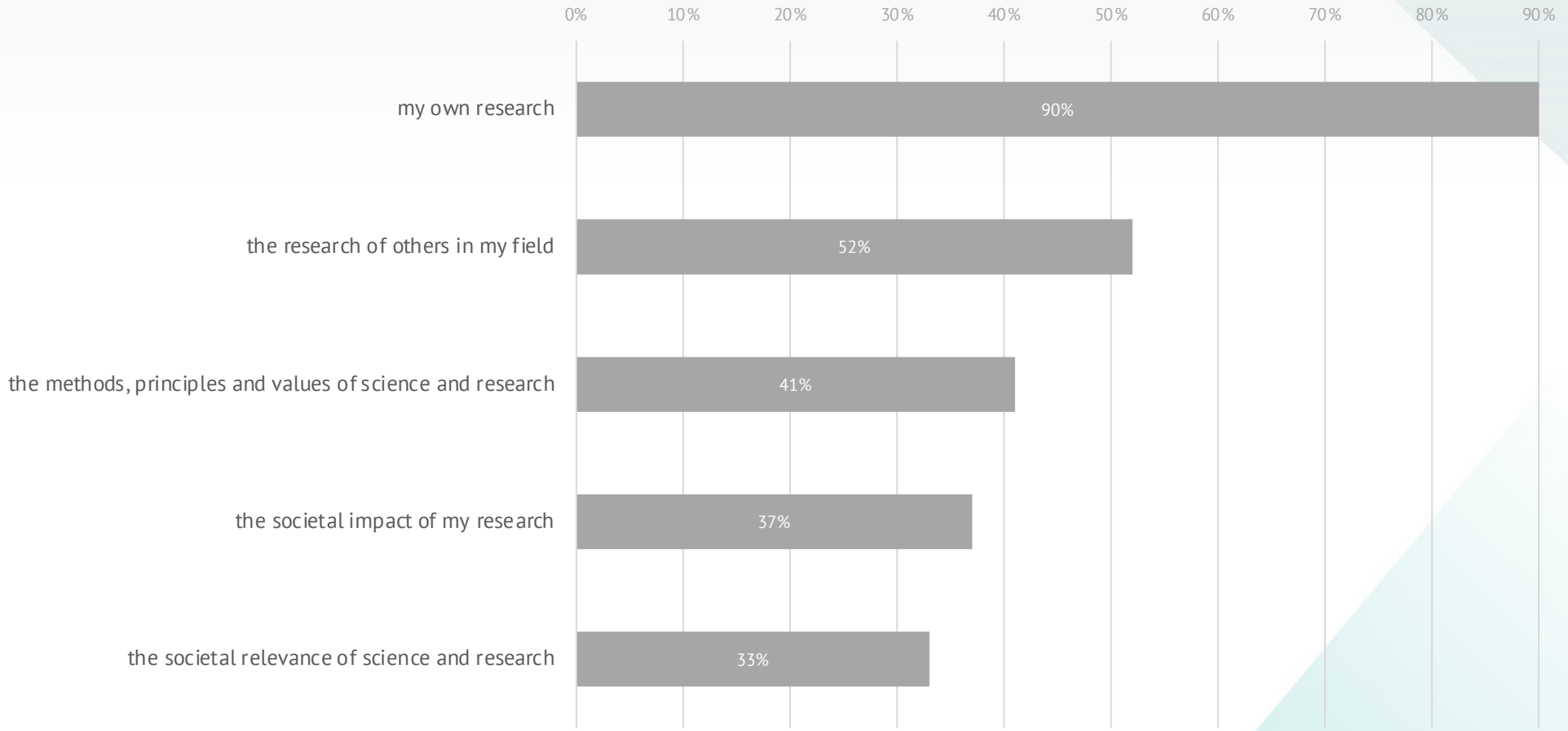
How would you best describe your own science communication engagement?



This question was only posed to those scientists who have experience with science communication. Deviations in the sum total are due to rounding.

(n = 4.435)

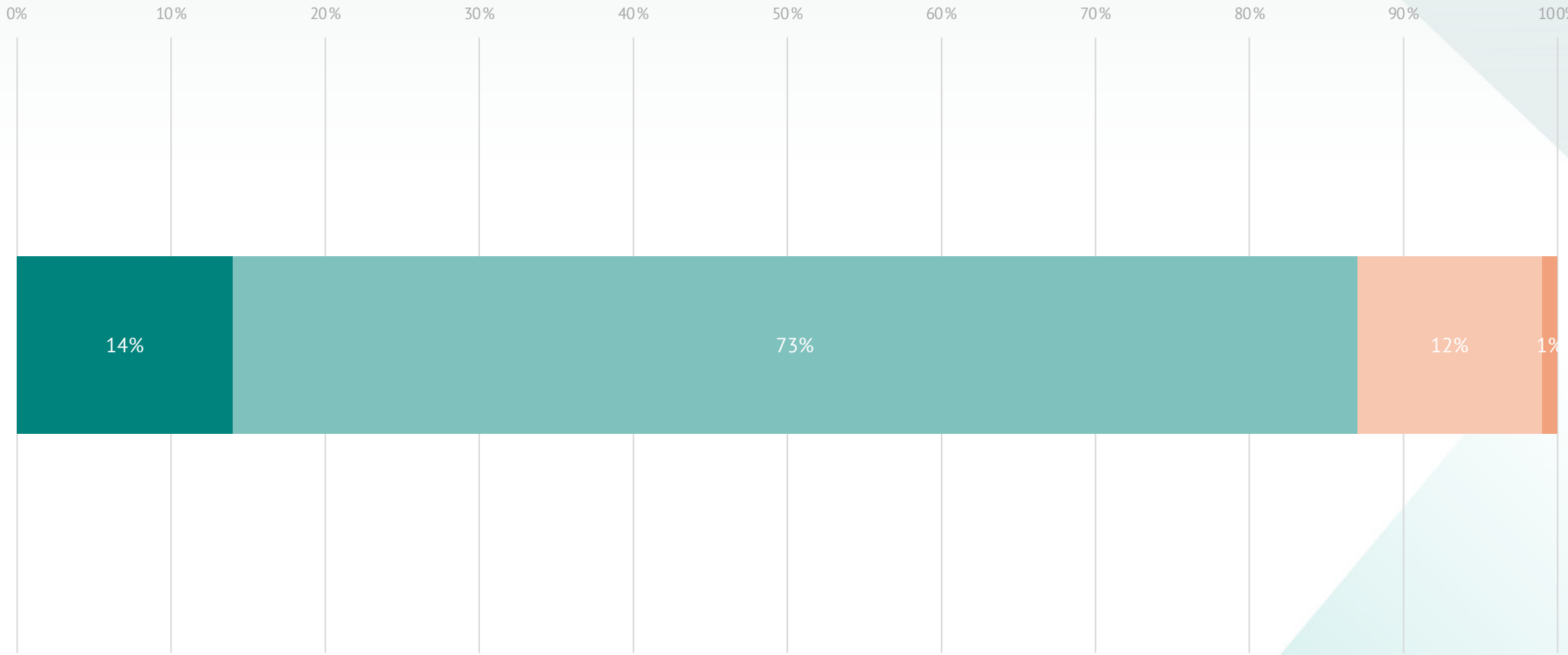
What are the topics that you publicly communicate about?



This question was only posed to those scientists who have experience with science communication. Multiple selection was possible.

(n = 4.557)

How would you rate your overall experience with science communication so far?



This question was only posed to those scientists who have experience with science communication.

- very positive
- rather positive
- rather negative
- very negative

(n = 4.677)

Interpretation and reflection

The first section on science communication experience clearly shows that a majority of the scientists (85 percent) has experience with science communication. Their experiences vary according to the topics they communicate about, the target groups they are in contact with and the type of communication they use. The scientists mostly communicate about their own research and concentrate mostly on target groups that are easy to reach. The overwhelming majority of scientists has a positive perception of their science communication experiences.

Differences according to research discipline become apparent when looking at the target groups scientists come in contact with. Engineering is typically a discipline with a focus on applied research, accordingly scientists from this research field are more often in contact with representatives of the private sector. Scientists from the social sciences and humanities are more frequently in touch with representatives of civil society organisations, whereas scientists from the natural sciences engage more frequently in science communication geared towards children and young people.

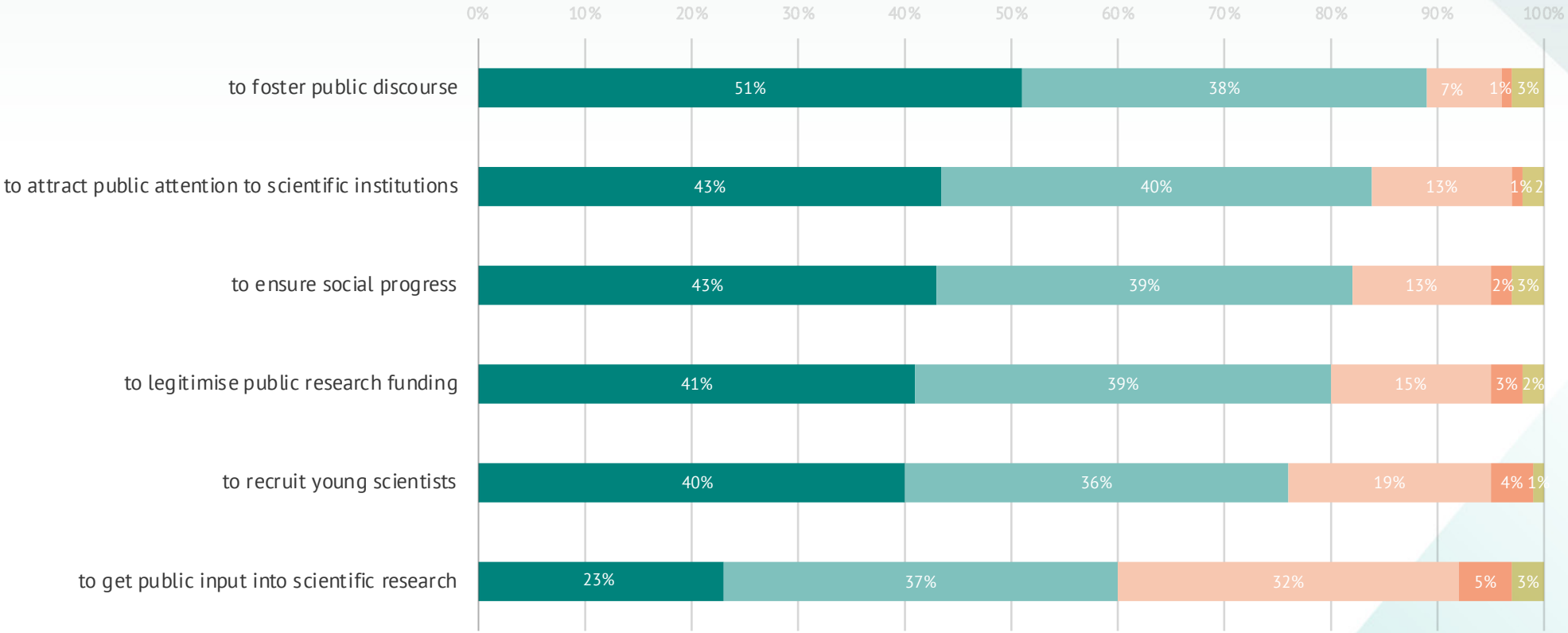
Only a third of the scientists actively looks for opportunities to take part in science communication and the majority of communication that takes place is centered around the transmission of information rather than interactions with the public. Lectures and press releases are the dominant forms of science communication while public discussions and citizen science projects are mentioned least frequently.

This is confirmed by the observation that more interactive online media channels, such as Twitter, Facebook or Instagram are rarely used for science communication (each by less than 20 percent).

The type of science communication scientists engage in also seems to be determined by their academic position. Professors more often give interviews or contribute to press releases than their younger colleagues.

Goals and relevance of science communication

How would you rate the relevance of science communication in the following areas?

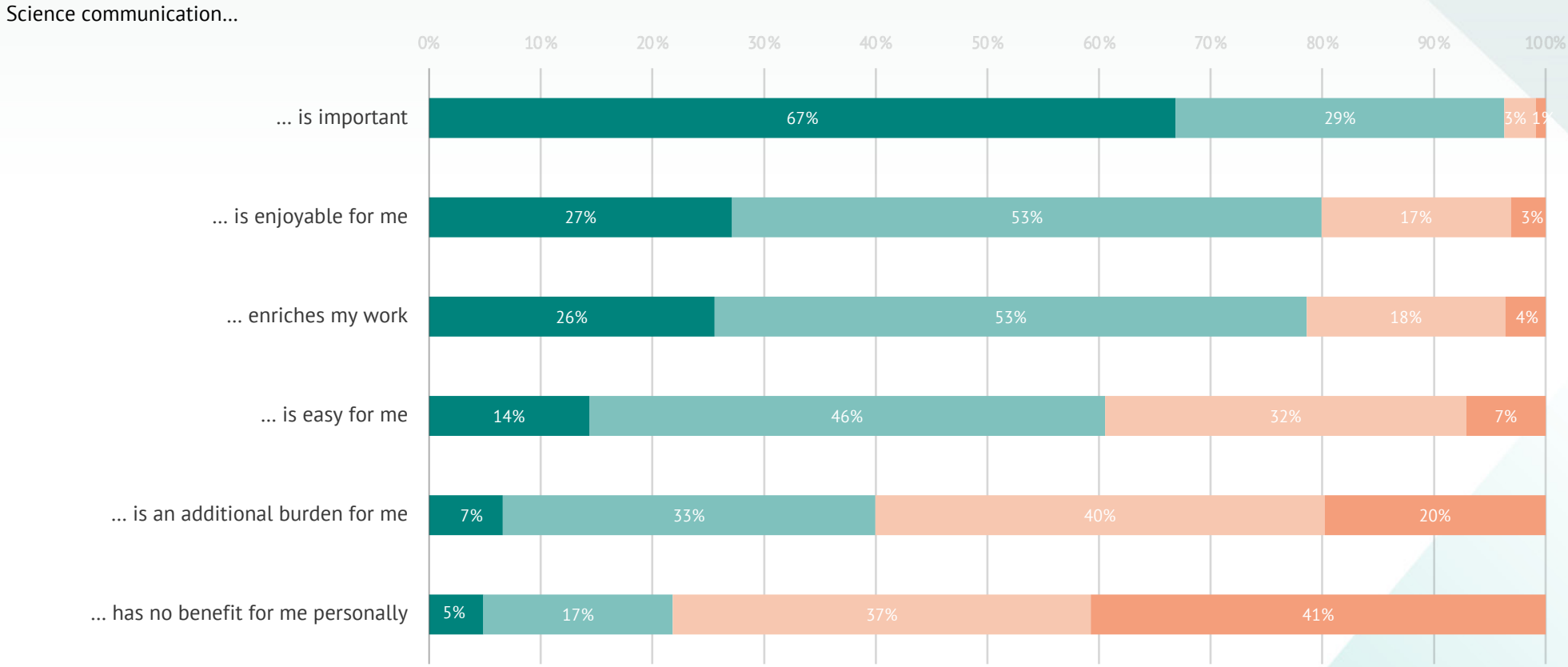


Deviations in the sum total are due to rounding..

very important
important
not very important
not at all important
don't know

(n ≥ 5.662)

How would you describe your personal relationship to science communication?

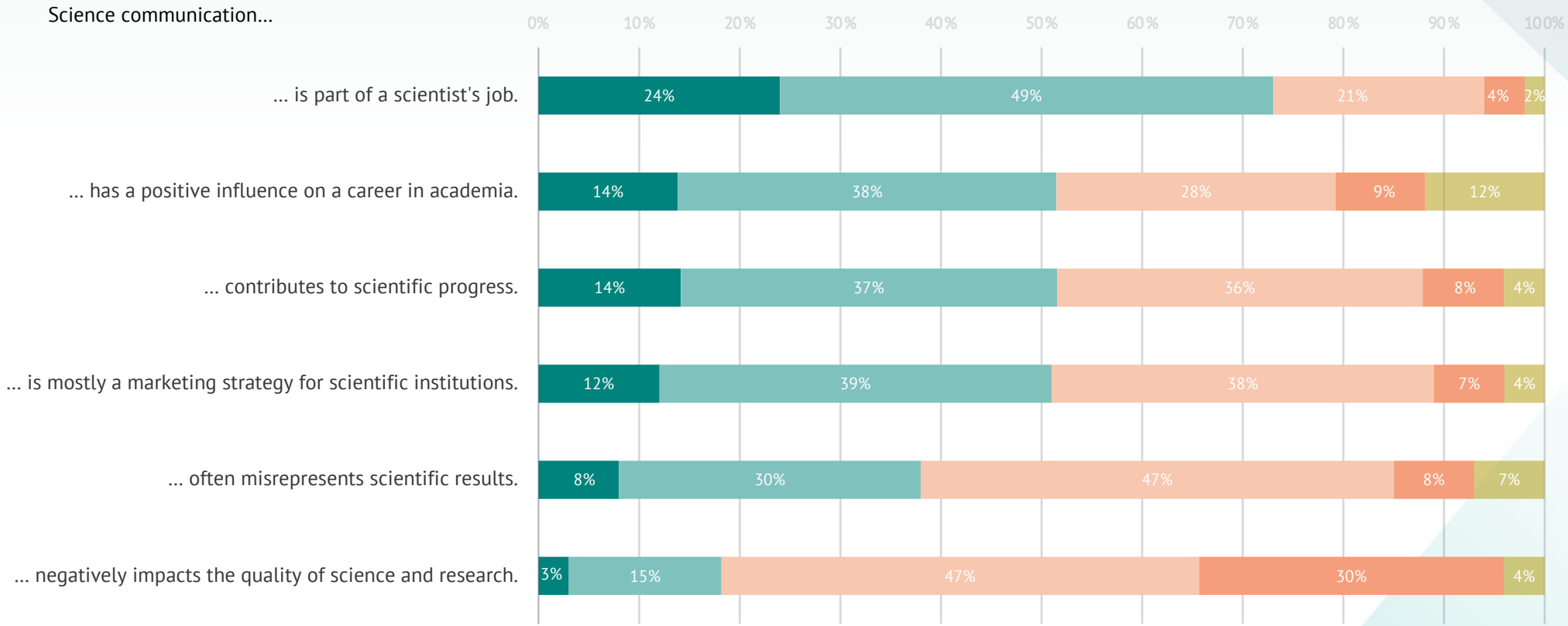


This question was only posed to those scientists who have experience with science communication.
Deviations in the sum total are due to rounding.

- strongly agree
- agree
- disagree
- strongly disagree

(n ≥ 4.483)

What is your opinion on the role of science communication in science and research?

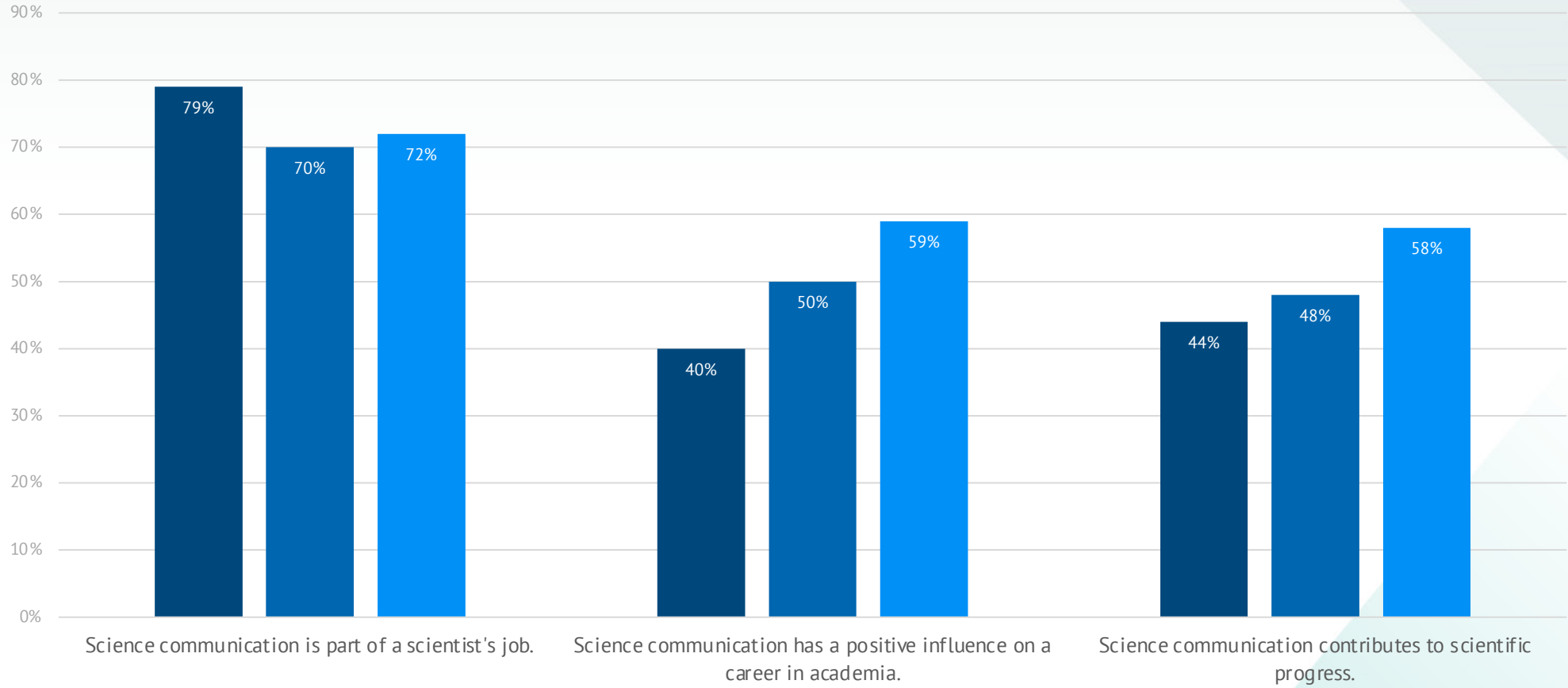


Deviations in the sum total are due to rounding.

- strongly agree
- agree
- disagree
- strongly disagree
- I don't have an opinion at the moment

(n ⩾ 5.659)

Agreement according to academic position

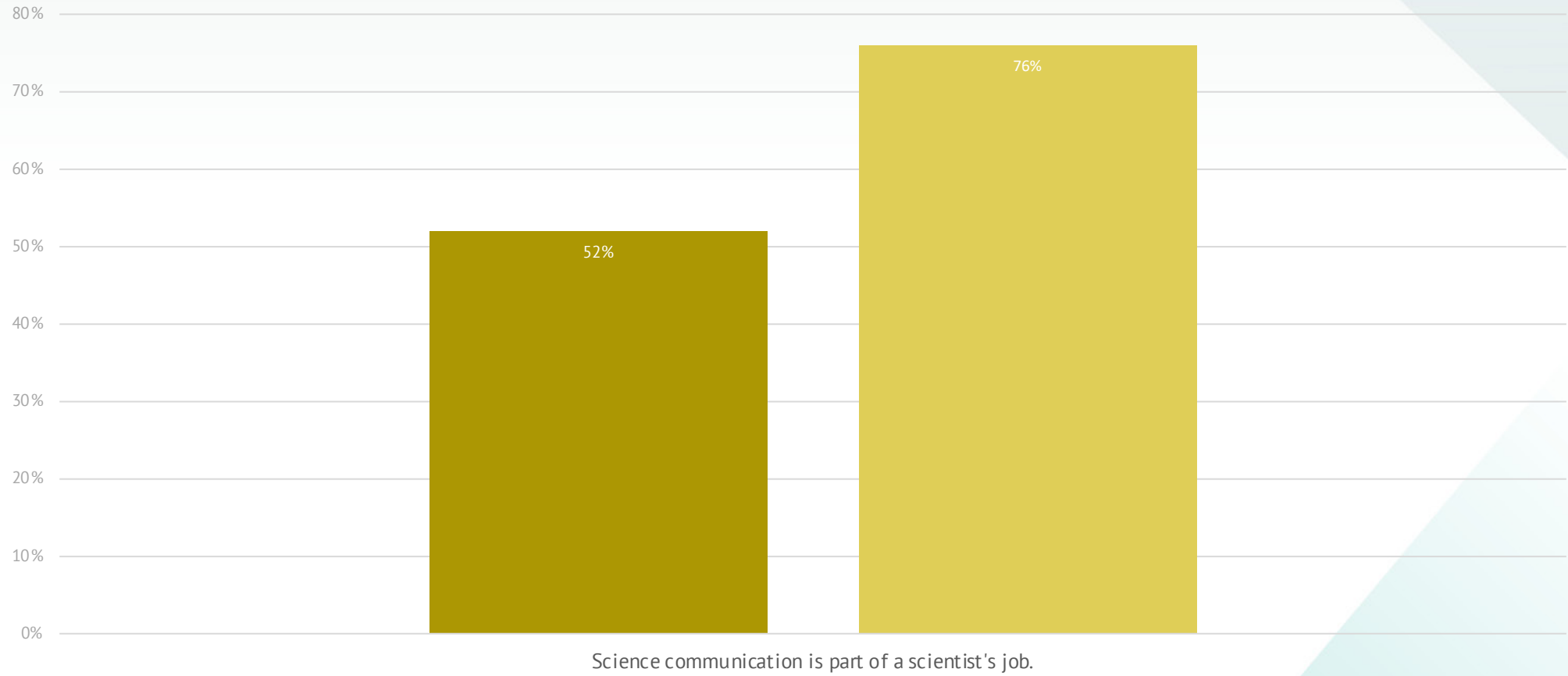


The diagram aggregates all those who answered “strongly agree” and “rather agree”, and excludes those who answered “rather disagree”, “strongly disagree” and “I don’t have an opinion at the moment”.

- Professors
- Postdocs
- Predocs

(n ⩾ 5.601)

Agreement according to experience



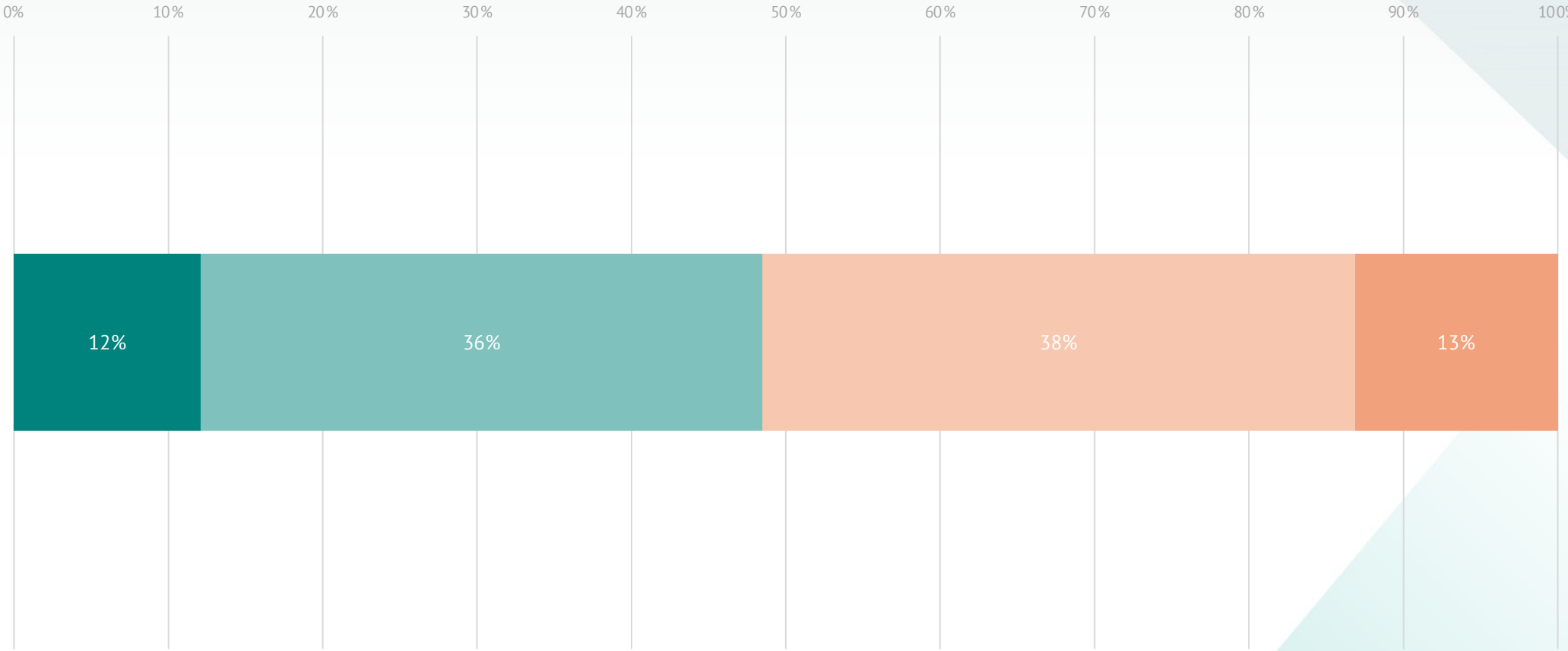
The diagram aggregates all those who answered “strongly agree” and “rather agree”, and excludes those who answered “rather disagree”, “strongly disagree” and “I don’t have an opinion at the moment”.

no experience

experience

(n ⩾ 5.670)

Science communication should be carried out by professional communication offices (e.g. press offices in research organisations) and less by individual scientists themselves.

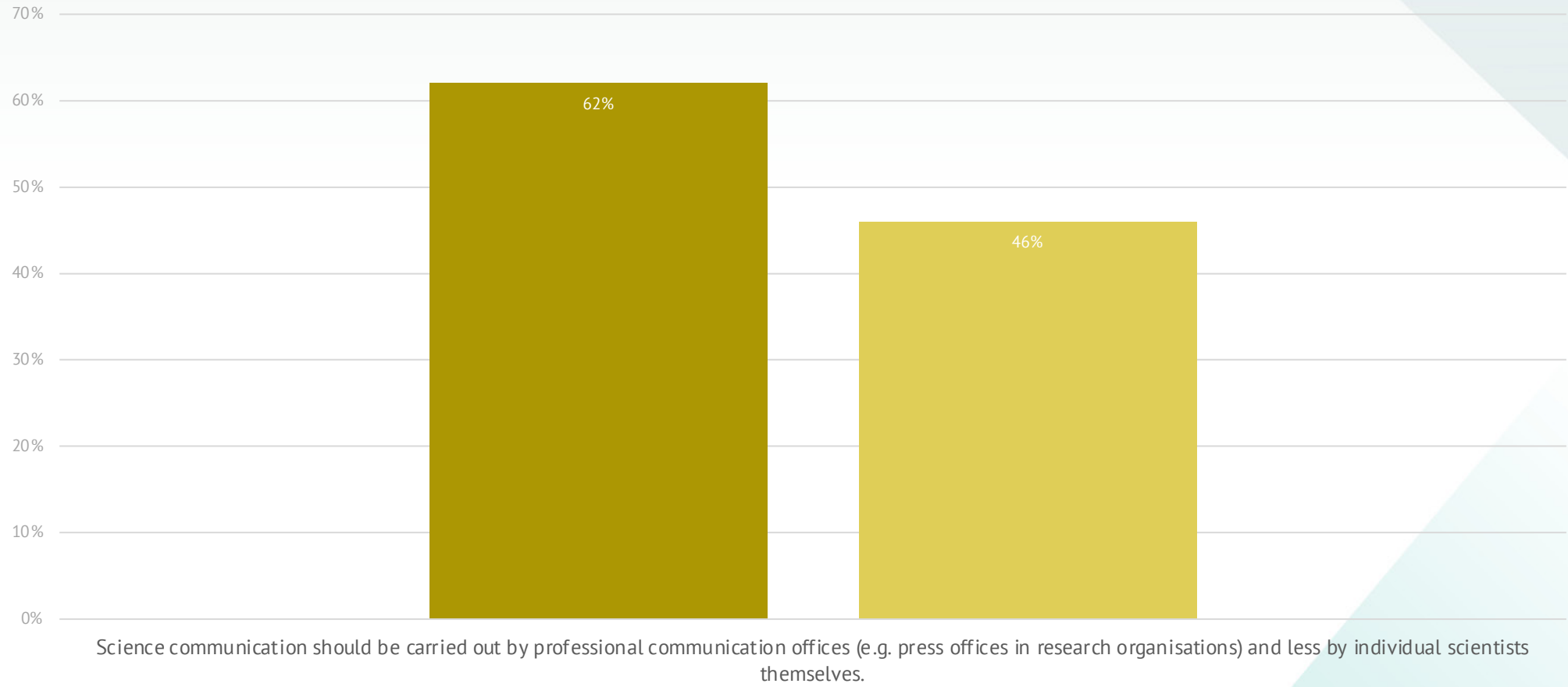


Deviations in the sum total are due to rounding.

strongly agree
agree
disagree
strongly disagree

(n = 5.620)

Agreement according to experience



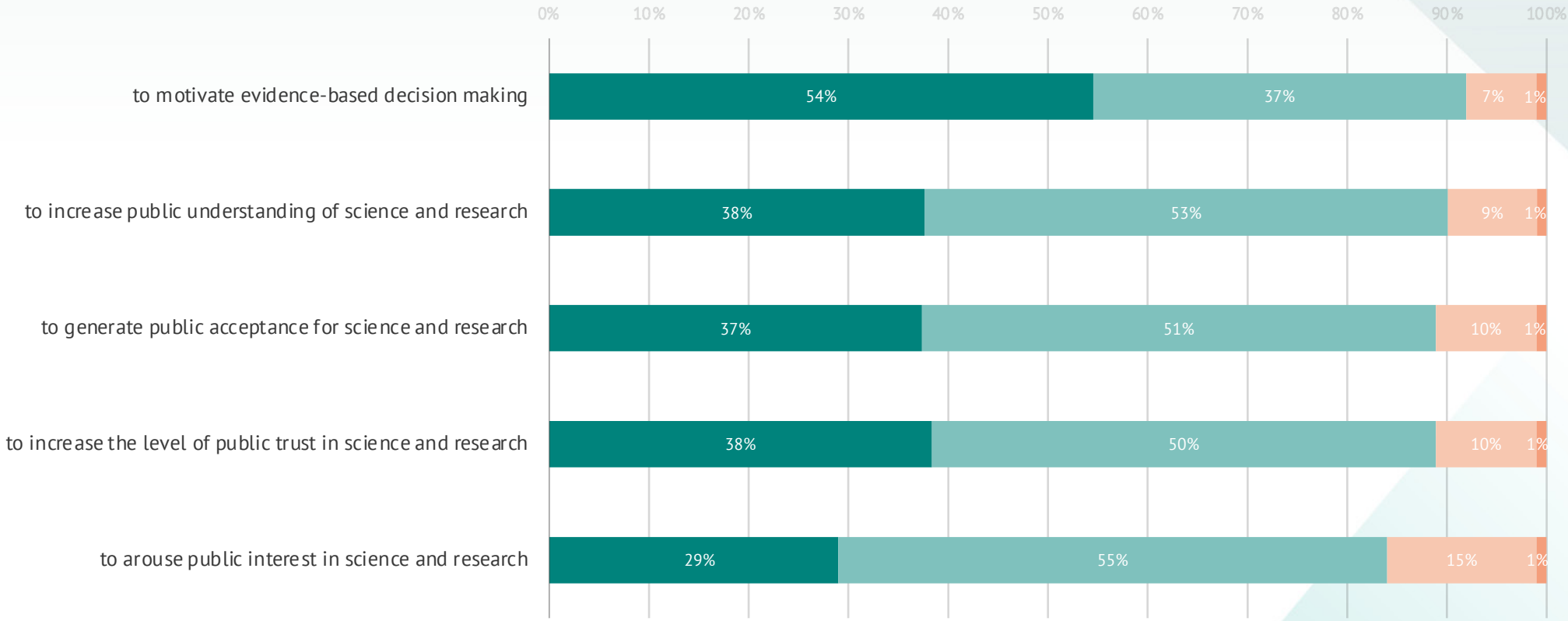
The diagram aggregates all those who answered “strongly agree” and “rather agree”, and excludes those who answered “rather disagree”, “strongly disagree” and “I don’t have an opinion at the moment”.

no experience

experience

(n ⩾ 5.620)

There are different goals science communication can pursue. How important are the following goals to you personally?



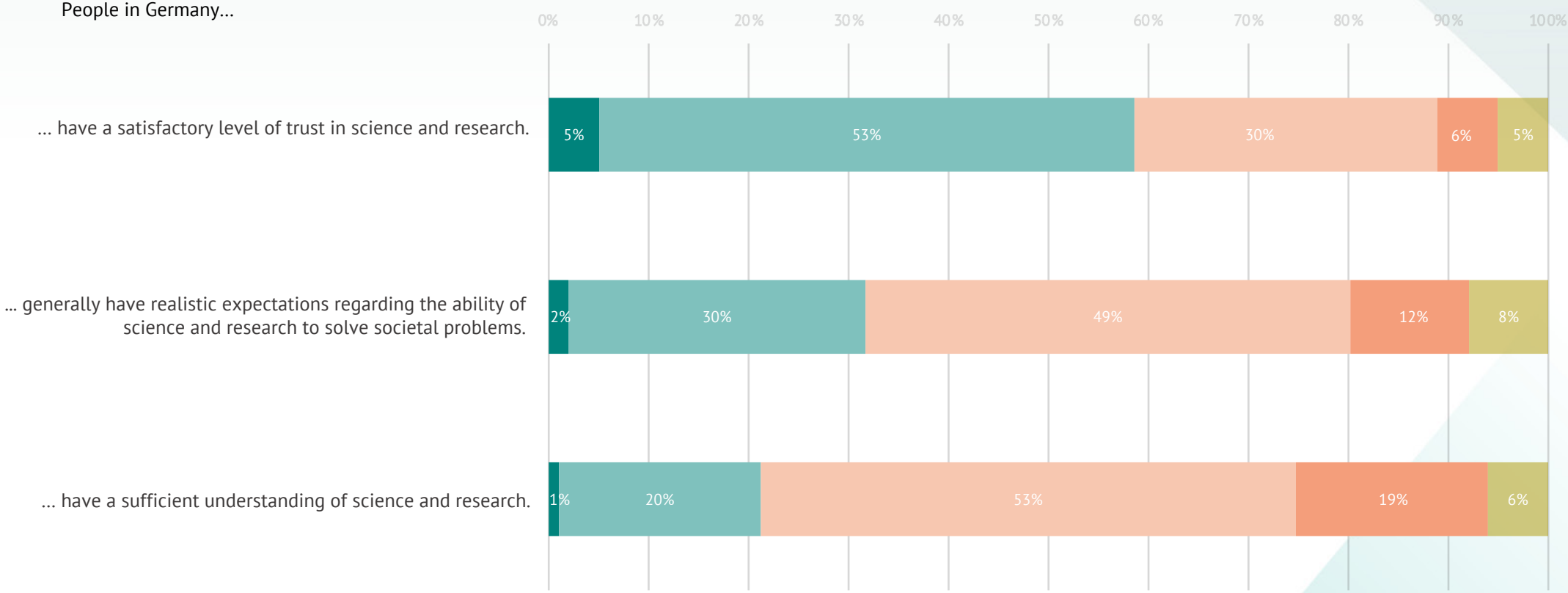
Deviations in the sum total are due to rounding.

very important
important
not very important
not at all important

(n ⩾ 5.670)

What is your perception of public attitudes to science and research in Germany?

People in Germany...

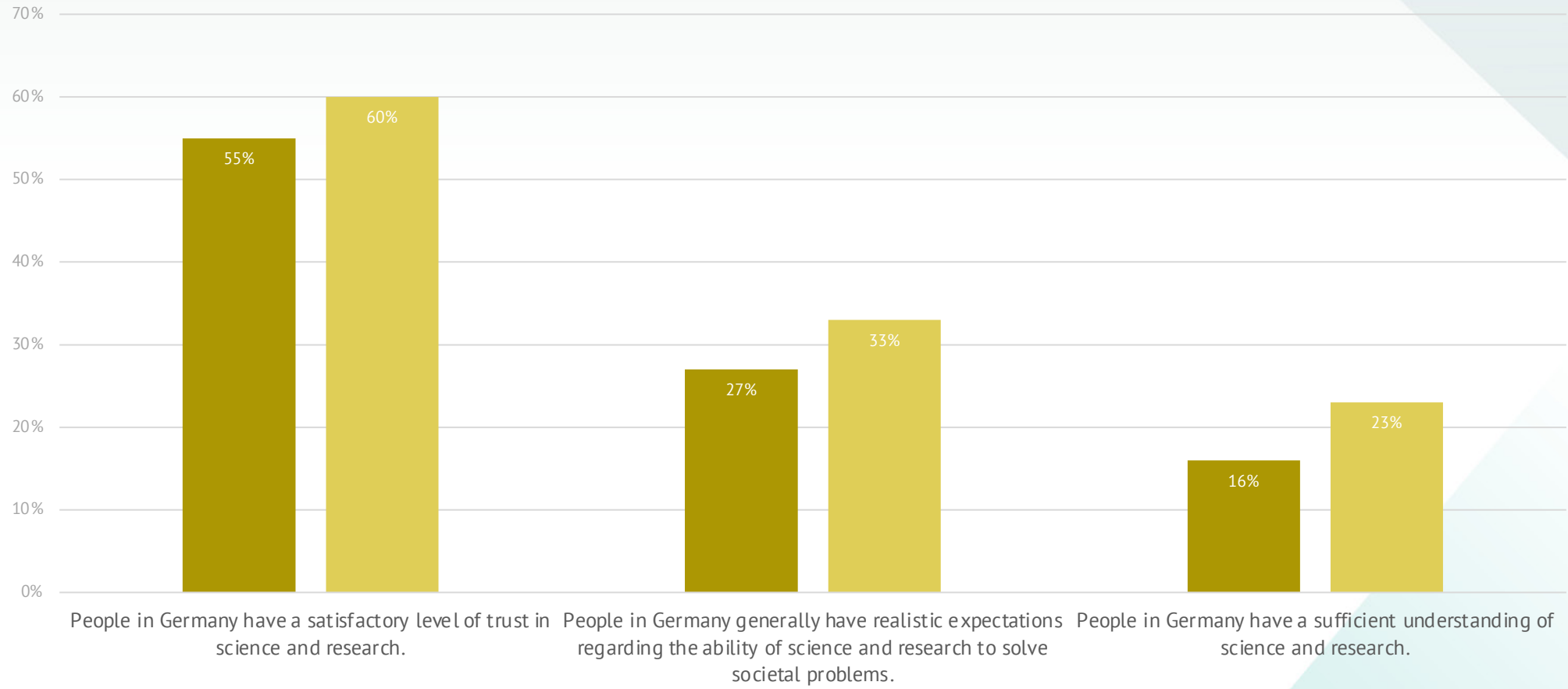


Deviations in the sum total are due to rounding.

strongly agree
agree
disagree
strongly disagree
I don't have an opinion at the moment

(n ⩾ 5.679)

Agreement according to experience



The diagram aggregates all those who answered “strongly agree” and “rather agree”, and excludes those who answered “rather disagree”, “strongly disagree” and “I don’t have an opinion at the moment”.

no experience

experience

(n ⩾ 5.679)

Interpretation and reflection

Overall, it becomes clear that scientists have a positive perception of science communication and its relevance for science and society. It is, however, important to note that the scientists see science communication as highly relevant to society as such, for example through the fostering of public discourse, but less so as a mechanism to feed public opinion back into science and research. While there seems to be a desire of the scientists to actively influence the public, the influence of the public on science has less meaning to them.

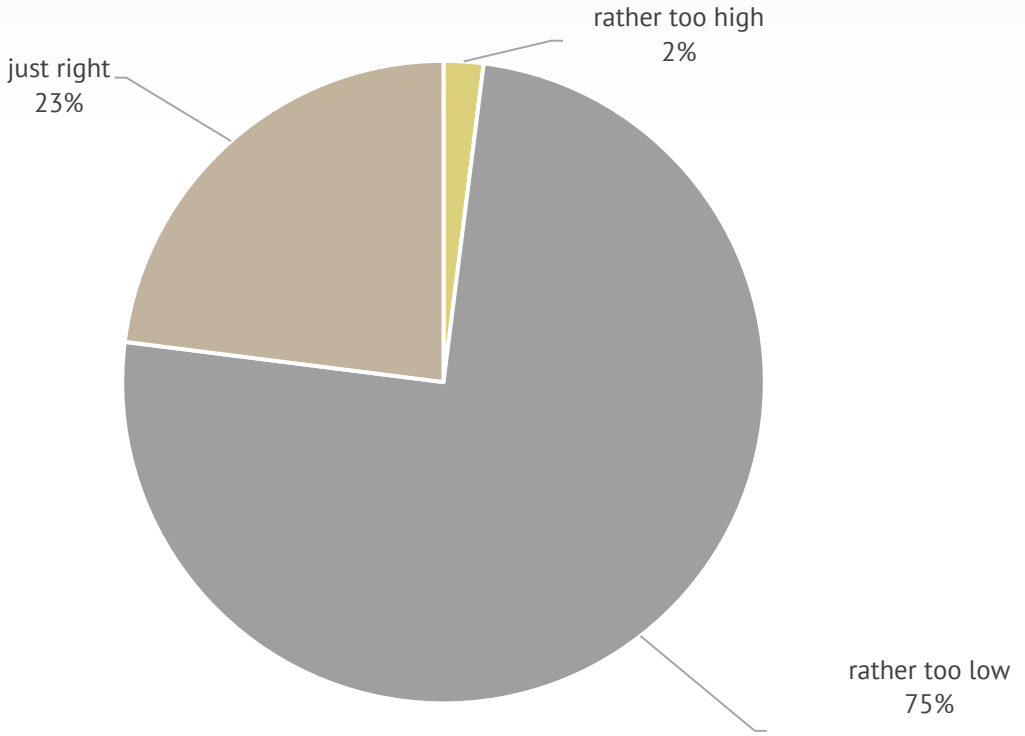
Considering the way the scientists perceive the public, this seems hardly surprising. While the majority considers public trust in science sufficiently high, they see deficits in public understanding of science and in the expectations towards the ability of science to solve societal problems. It is remarkable, however, that the perception of scientists who have not yet engaged in science communication tends to be more negative than the perception of those who have experience in science communication.

The role that science communication plays in science and research, on the other hand, is seen as very positive across groups. A majority of scientists sees science communication as part of a job of a scientist. It is noteworthy that professors more often agree with this statement, given that they have been active in the profession for much longer than post- or predocs. The personal view on science communication of all scientists who already have experiences in the field is also overwhelmingly positive. Science communication is perceived as important and the scientists enjoy their engagement.

All in all, it is safe to say that scientists consider science communication relevant in many areas, believe that it plays a central role in science and research and personally perceive it as positive. Against the background of their rather pessimistic view of the public they pursue a series of publicly oriented science communication goals.

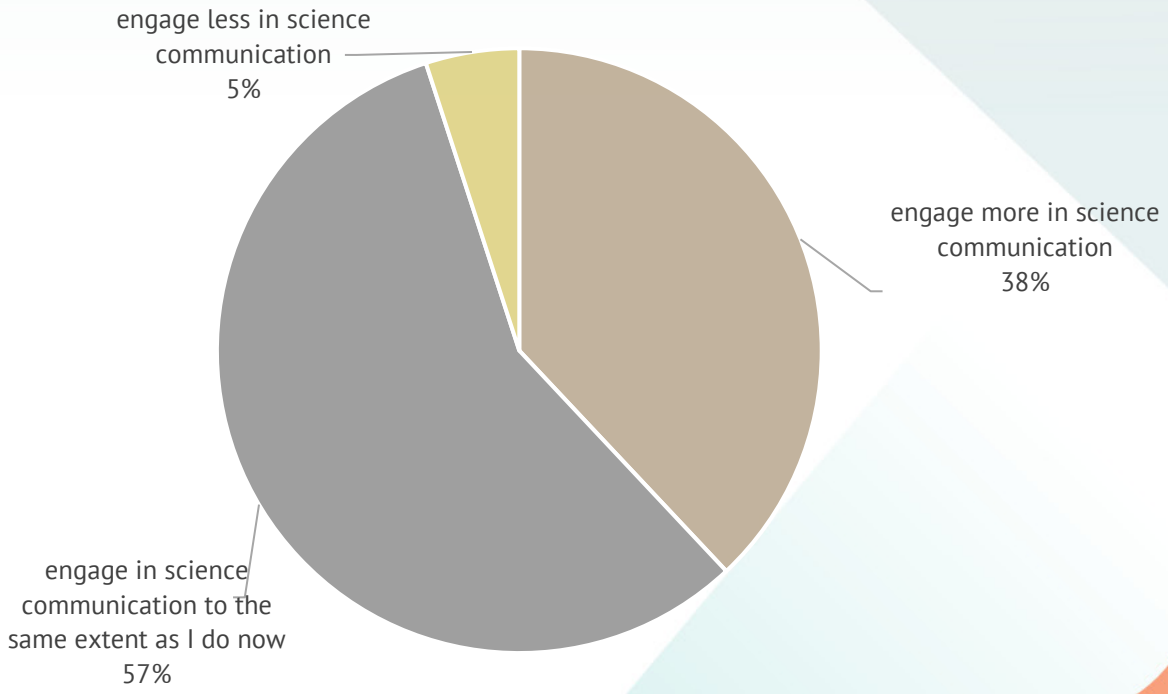
Science communication engagement

How would you rate your own science communication engagement?



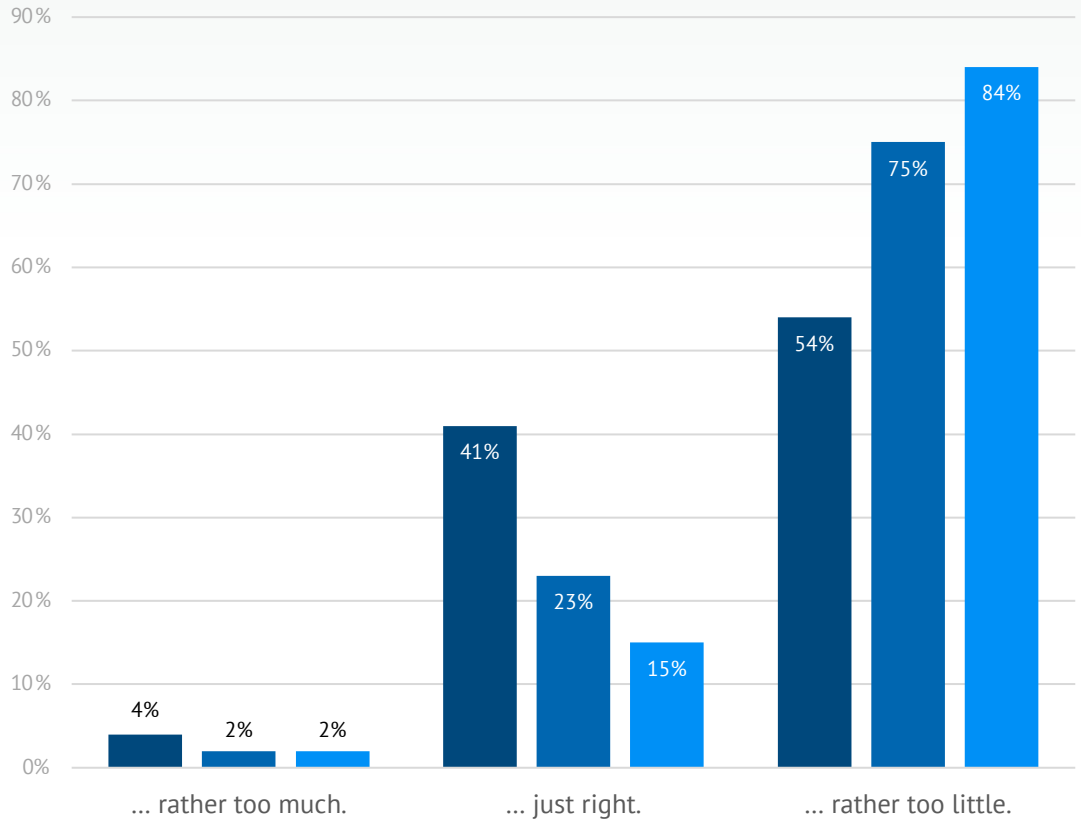
(n = 5.671)

To what extent do you want to engage in science communication in the future?

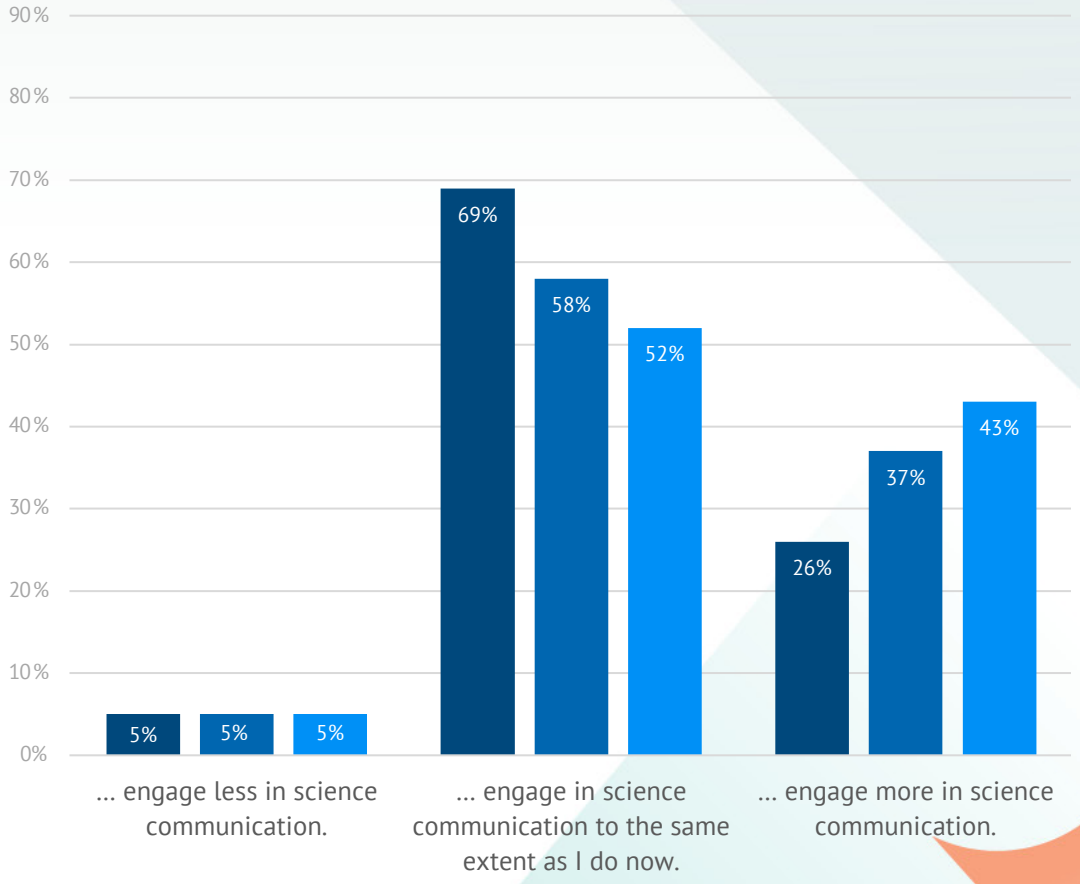


(n = 5.655)

I engage in science communication...



In the future I want to I engage in science communication...



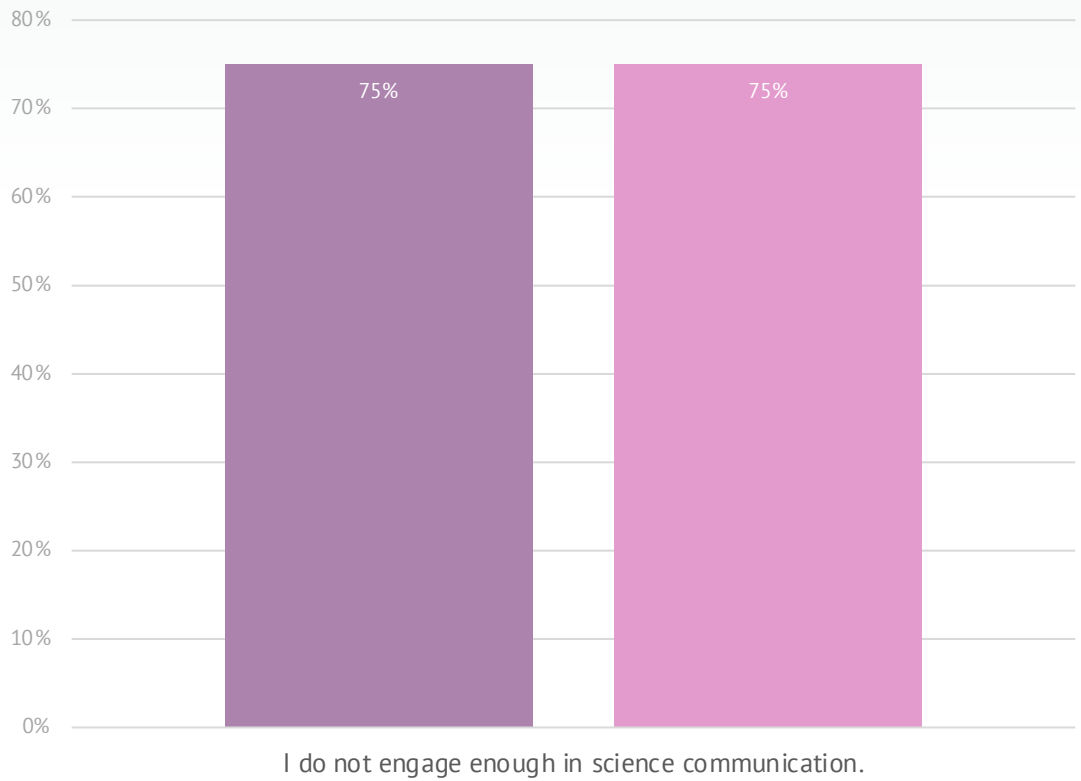
Deviations in the sum total are due to rounding.

(n ⩾ 5.601)

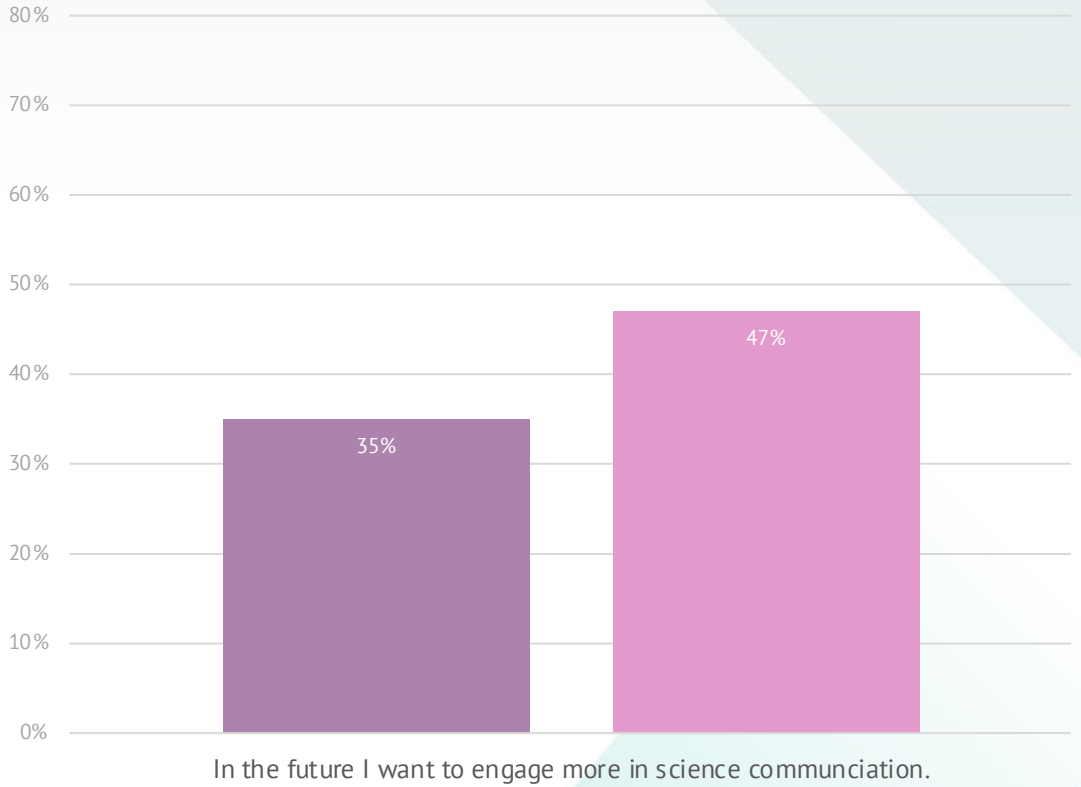
- Professors
- Postdocs
- Predocs

(n ⩾ 5.586)

Assessment of the current science communication engagement according to institutional background



Assessment of future science communication engagement according to institutional background



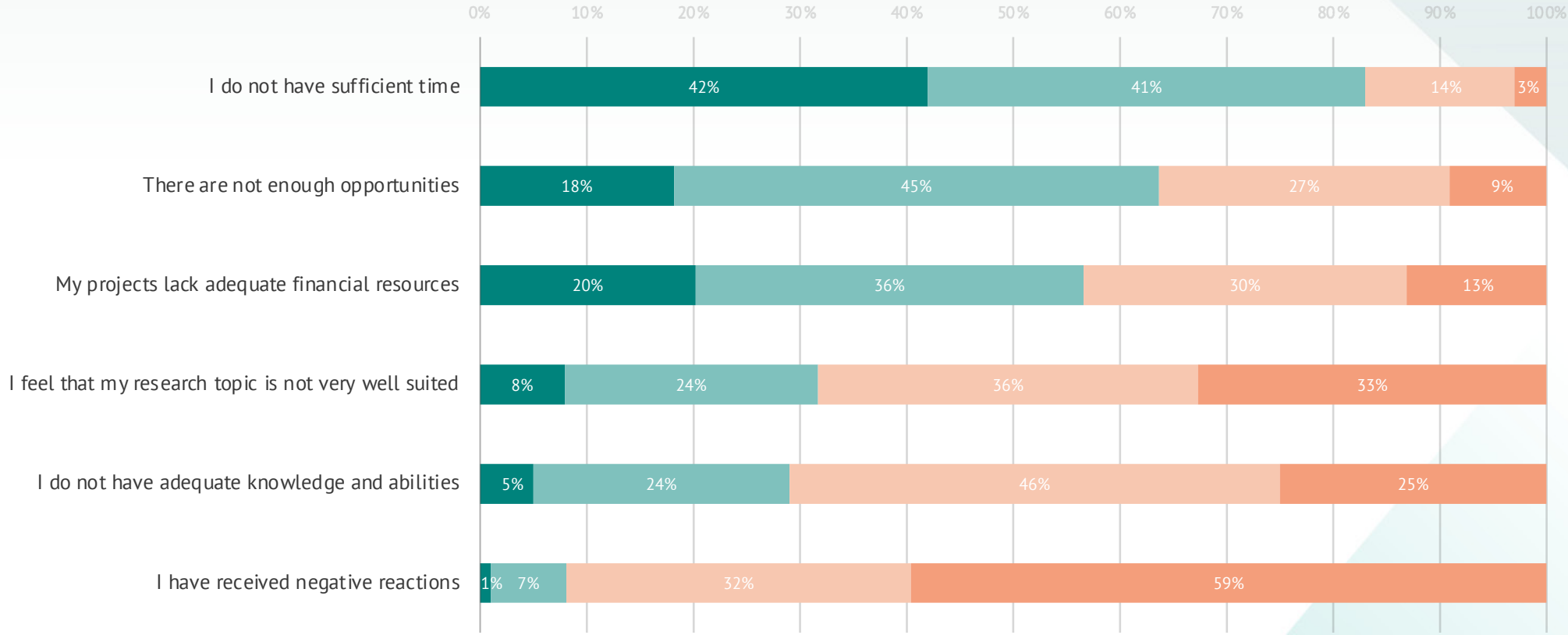
Deviations in the sum total are due to rounding.

(n ⩾ 5.671)

university
research institute

(n ⩾ 5.655)

In how far do the following circumstances apply to you and your science communication engagement?

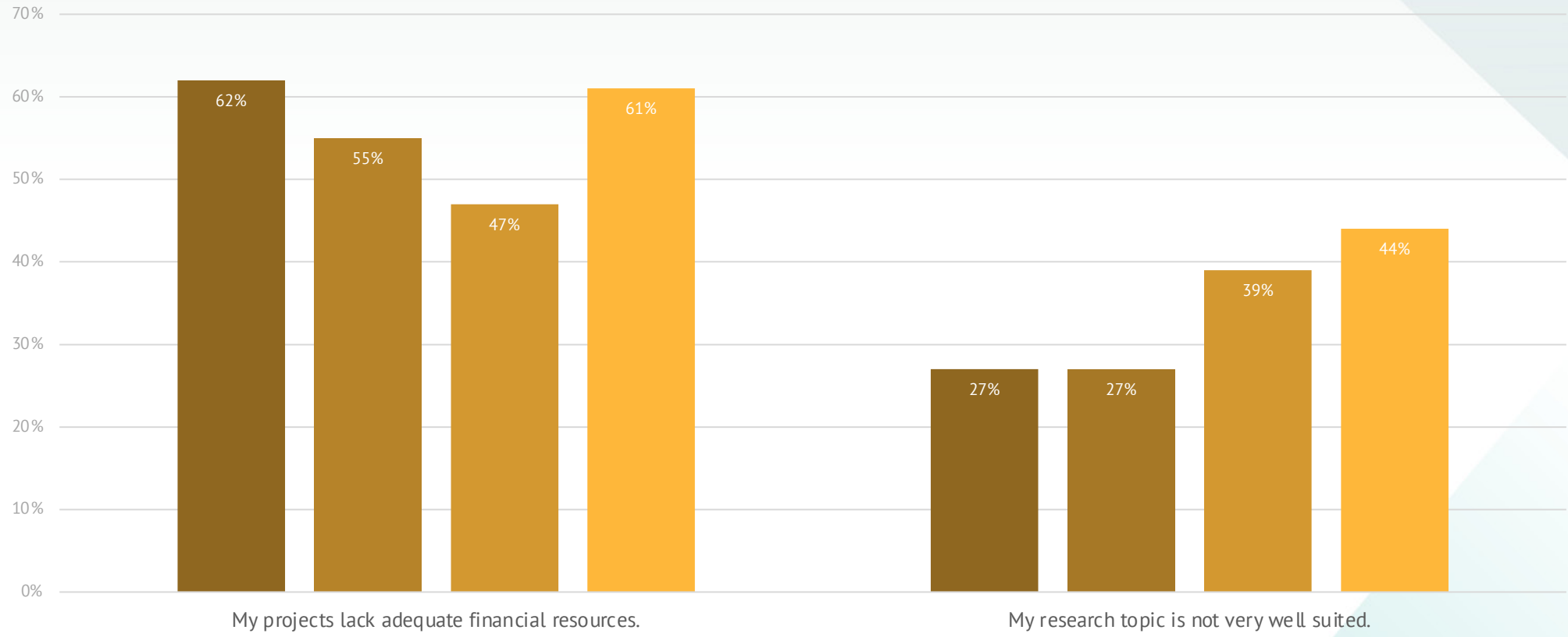


Deviations in the sum total are due to rounding.

strongly agree
agree
disagree
strongly disagree

(n ⩾ 5.611)

Barriers according to research discipline

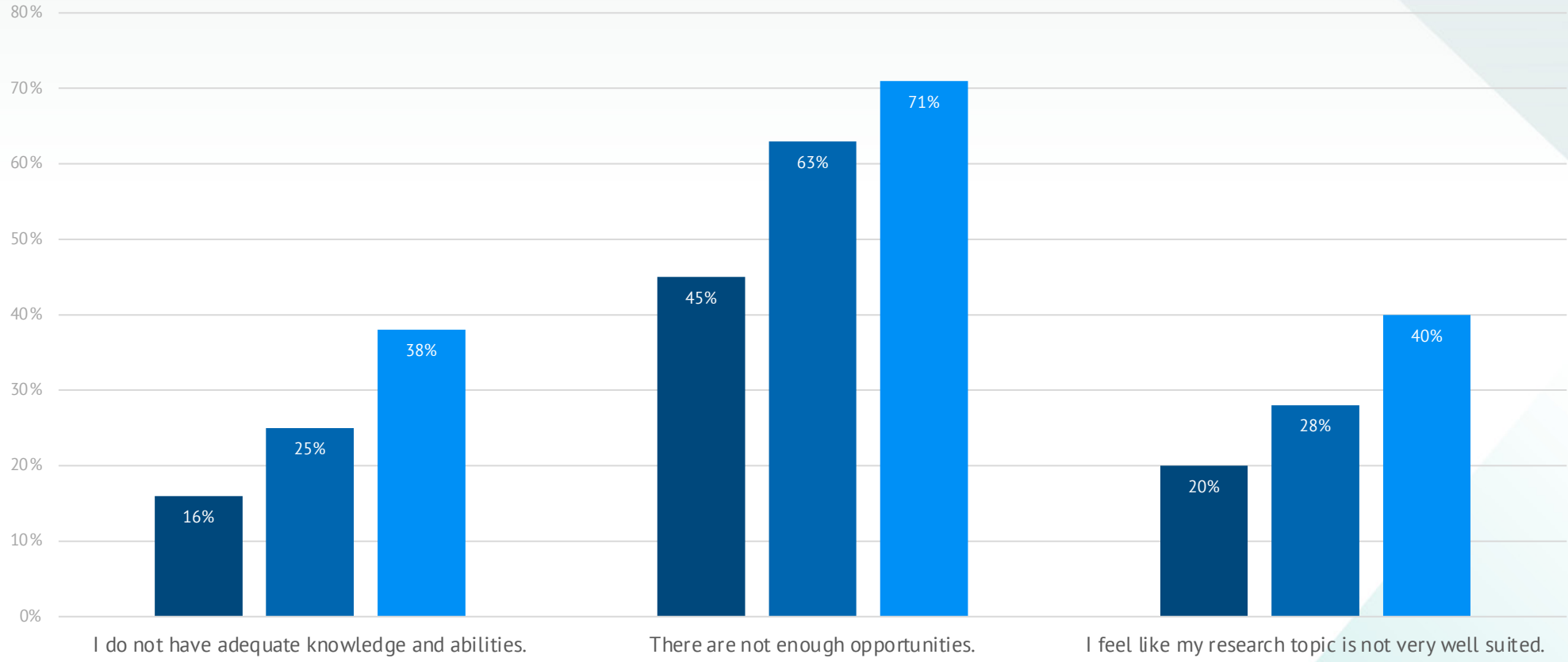


The diagram aggregates all those who answered “strongly agree” and “rather agree”, and excludes those who answered “rather disagree”, “strongly disagree” and “I don’t have an opinion at the moment”.

- social sciences and humanities
- life sciences
- natural sciences
- engineering sciences

(n ⩾ 5.357)

Barriers according to academic position

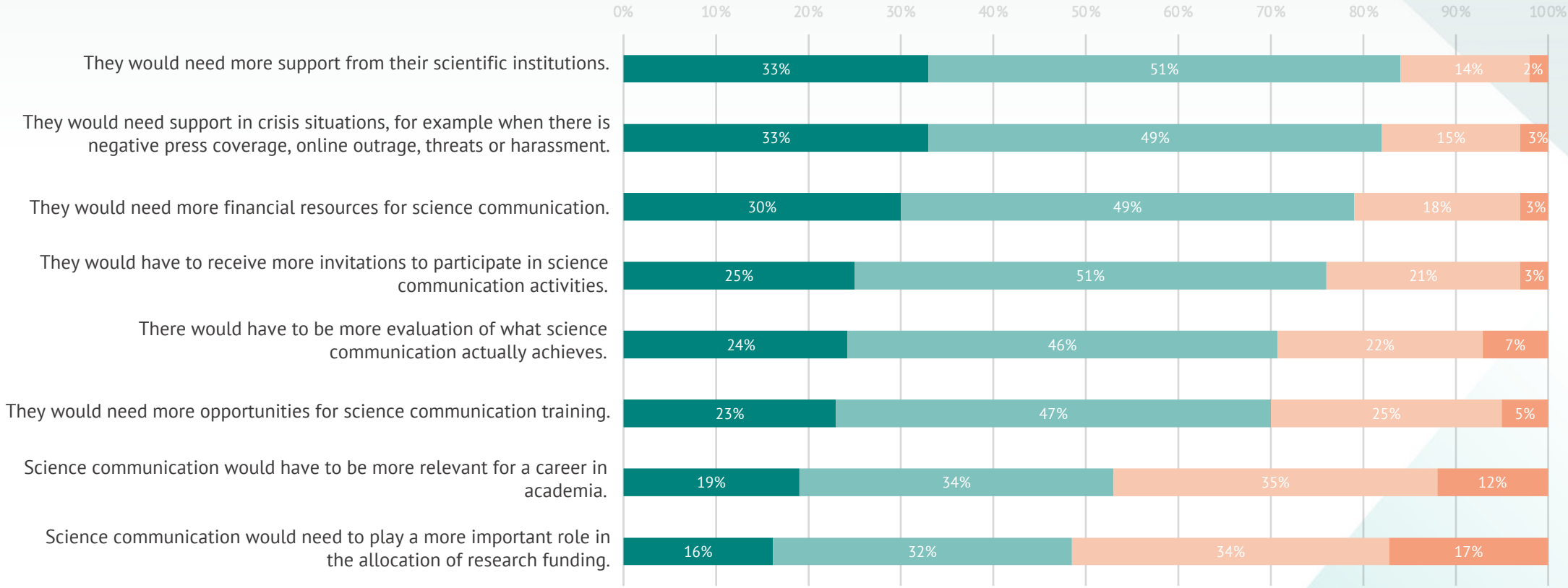


The diagram aggregates all those who answered “strongly agree” and “rather agree”, and excludes those who answered “rather disagree”, “strongly disagree” and “I don’t have an opinion at the moment”.

- Professors
- Postdocs
- Predocs

(n ⩾ 5.570)

What would need to happen so that scientists engage more in science communication?

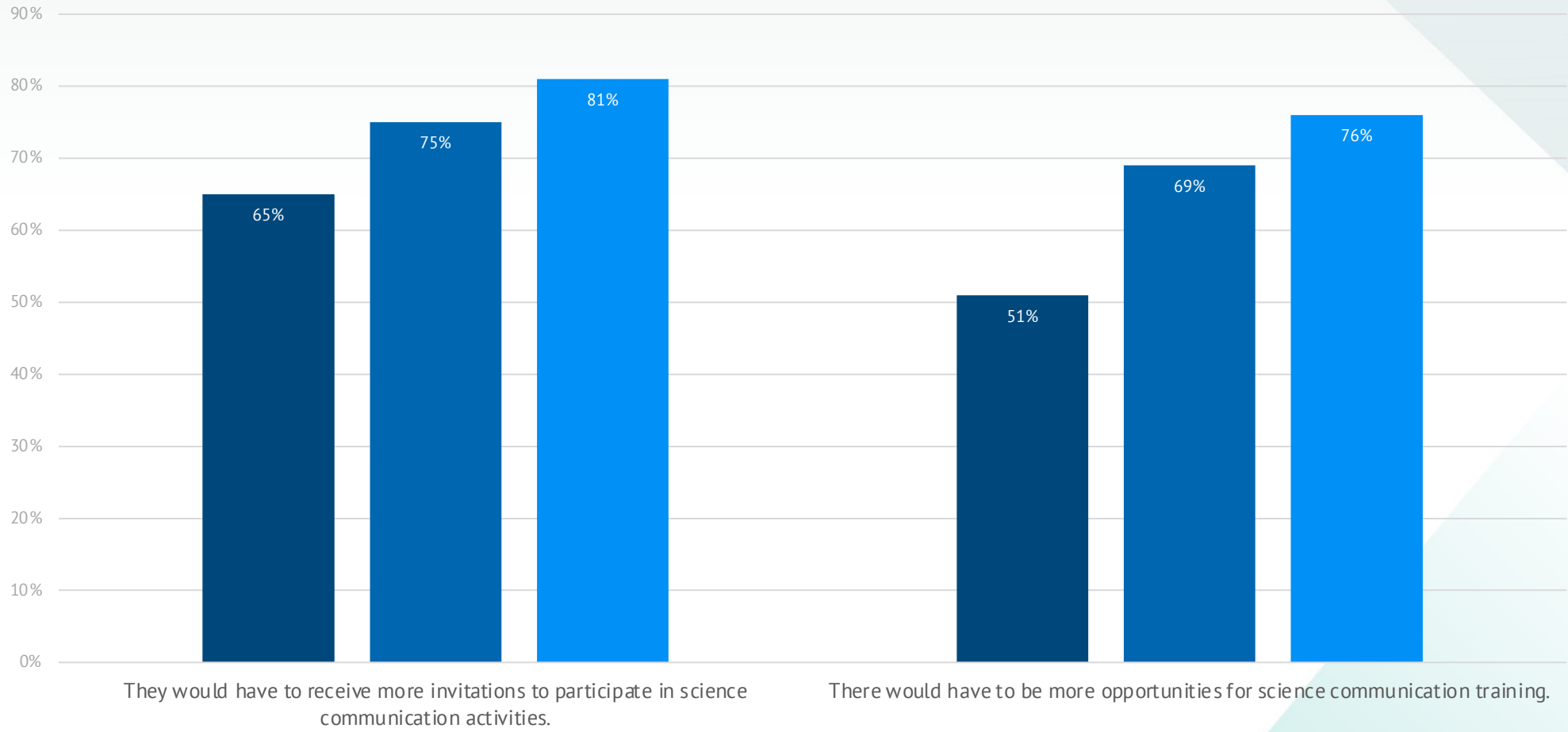


Deviations in the sum total are due to rounding.

- strongly agree
- agree
- disagree
- strongly disagree

(n ⩾ 5.594)

Barriers according to academic position



The diagram aggregates all those who answered “strongly agree” and “rather agree”, and excludes those who answered “rather disagree”, “strongly disagree” and “I don’t have an opinion at the moment”.

- Professors
- Postdocs
- Predocs

(n ⩾ 5.569)

Interpretation and reflection

When asked to assess their own science communication engagement, a majority of the scientists still see a lot of potential: Three quarters of the respondents say that they do not engage sufficiently. At the same time only 38 percent think that they will engage more in the future. This suggests that there are significant barriers to increased engagement.

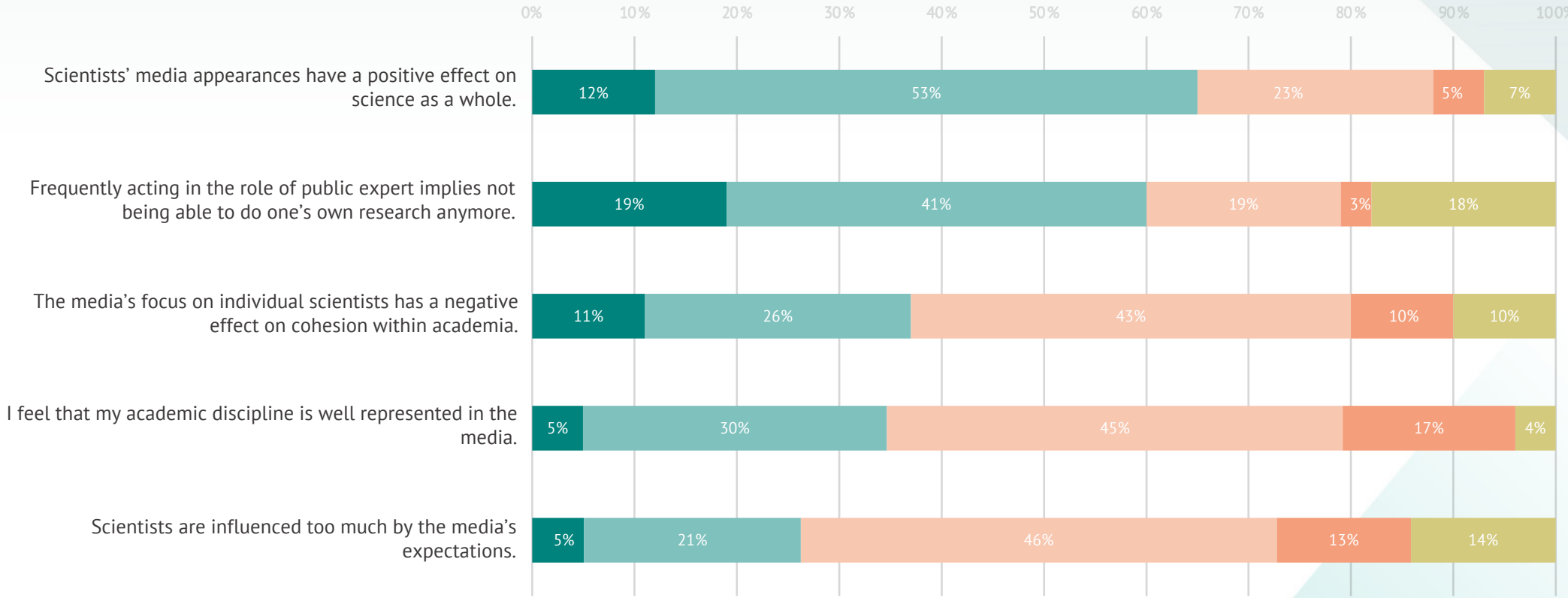
The most decisive of these barriers across all respondents is the lack of time (83 percent). Nonetheless, the perception of other barriers varies considerably according to discipline, institution or academic position. For example, the majority of predocs feel that they do not have enough opportunities to engage in science communication, while only 45 percent of the professors agree to this statement.

Likewise, respondents working at universities more frequently say that they are lacking resources (60 percent), whereas only 45 percent of scientists working at research institutes agree to this.

In order to engage more in science communication in the future, the majority of scientists (> 82 percent) feel that they would need more support within their own institution in general and in situations of crisis. It also becomes apparent that groups of scientists with less work experience in academia – pre- and postdocs – more strongly feel that they need more opportunities to engage in science communication and to take part in science communication trainings, compared with the much more experienced professors.

Relationship between science, the media and politics

What is your personal view on the relationship between science and the media?

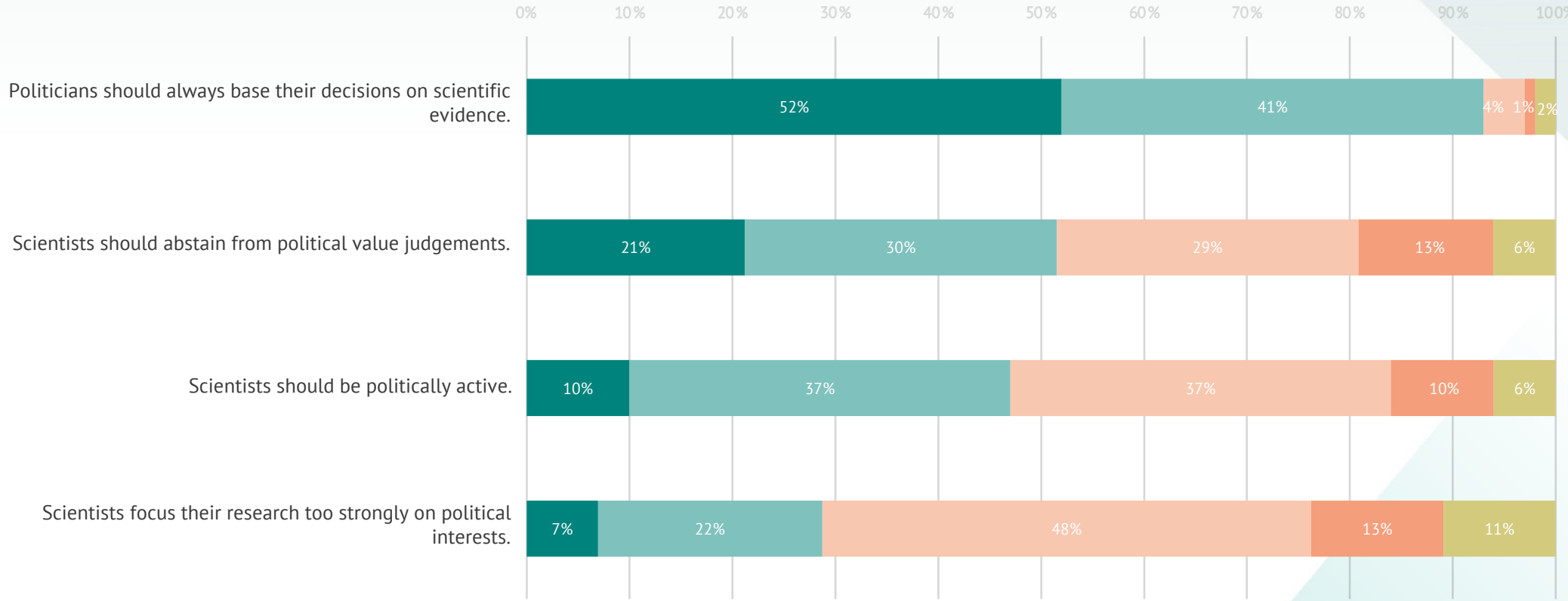


Deviations in the sum total are due to rounding.

- strongly agree
- agree
- disagree
- strongly disagree
- I don't have an opinion at the moment

(n ⩾ 5.671)

What is your personal view on the relationship between science and politics?



Deviations in the sum total are due to rounding.

- strongly agree
- agree
- disagree
- strongly disagree
- I don't have an opinion at the moment

(n ⩾ 5.674)

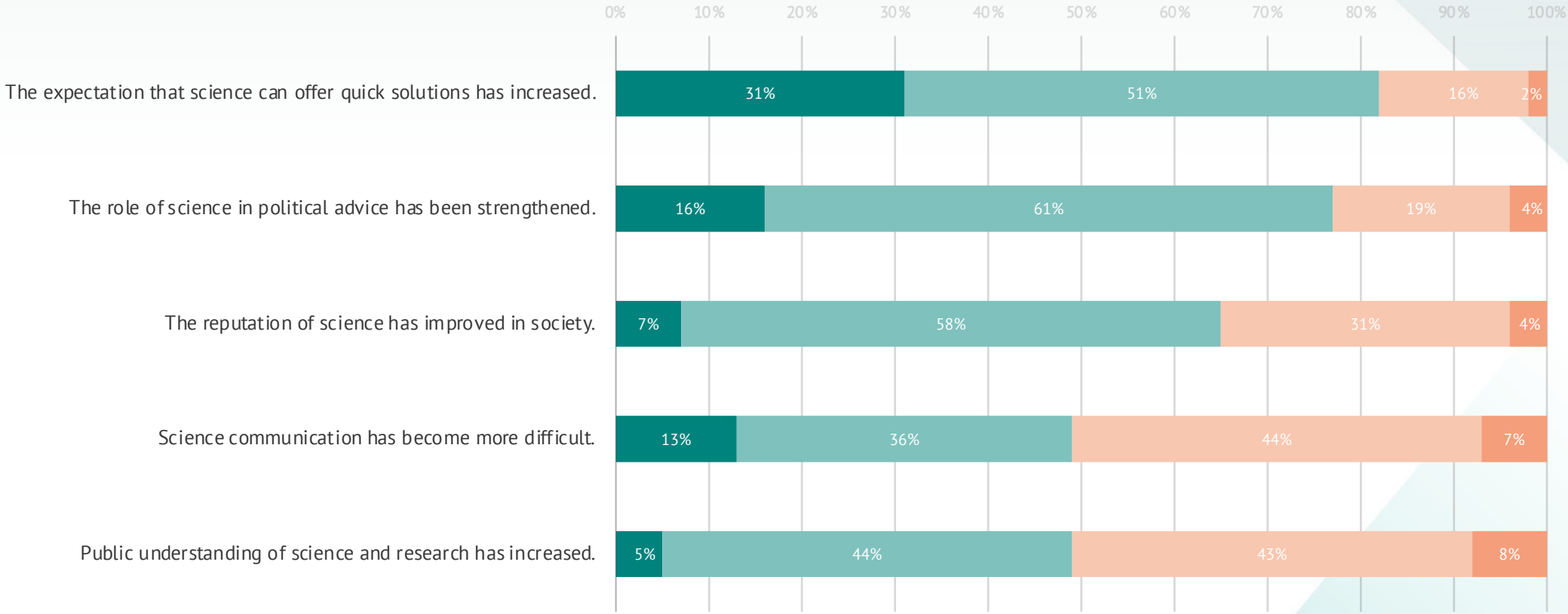
Interpretation and reflection

In general, the scientists have a positive view on the relationship between science and the media. They think that appearances in the media strengthen science and do not feel that scientists are influenced too much by the media. At the same time, they doubt whether scientists who regularly appear in the media still have sufficient time to do their own research.

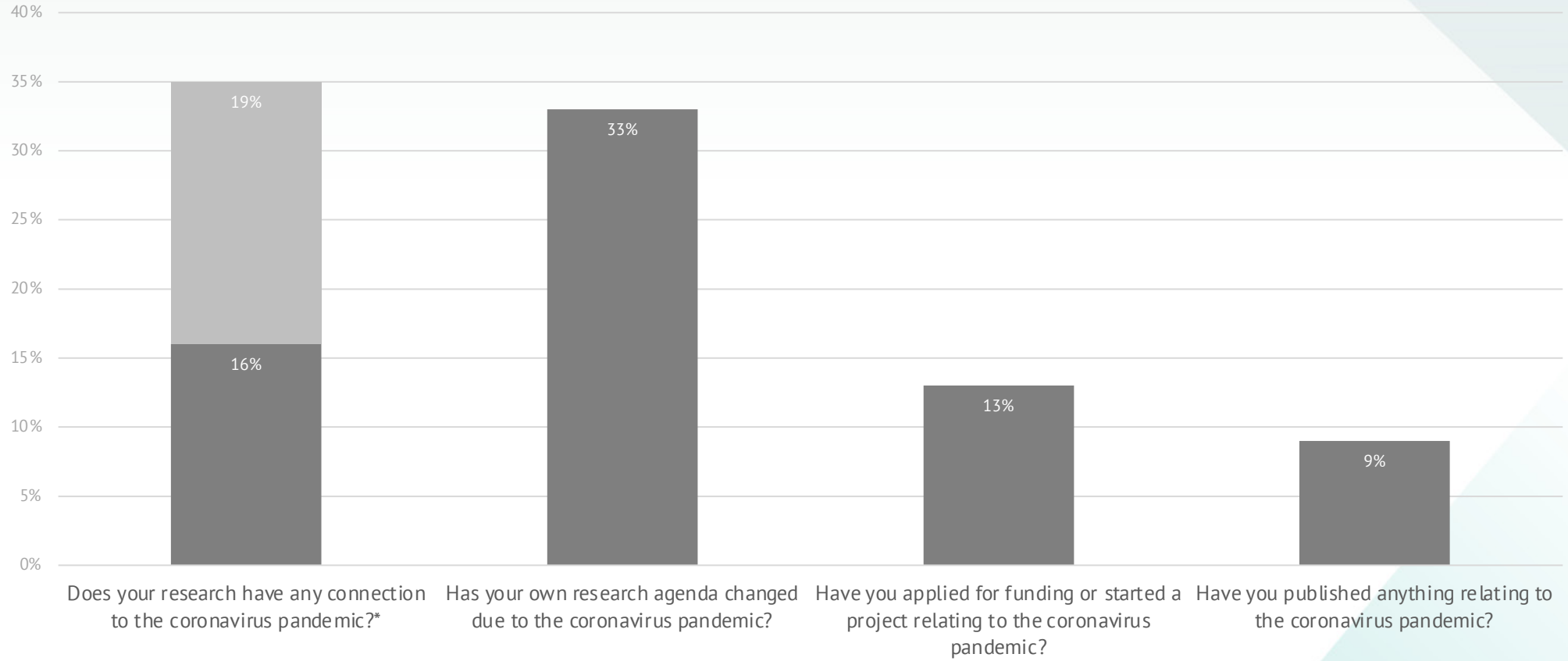
The overwhelming majority (> 90 percent) thinks that political decisions should be based on scientific insights. At the same time, they are more ambiguous concerning the political engagement of scientists, only half of the respondents agree that scientists should become politically engaged.

Science communication in times of the Coronavirus Pandemic

In your opinion, how has the relationship between science and the public changed since the beginning of the coronavirus pandemic?



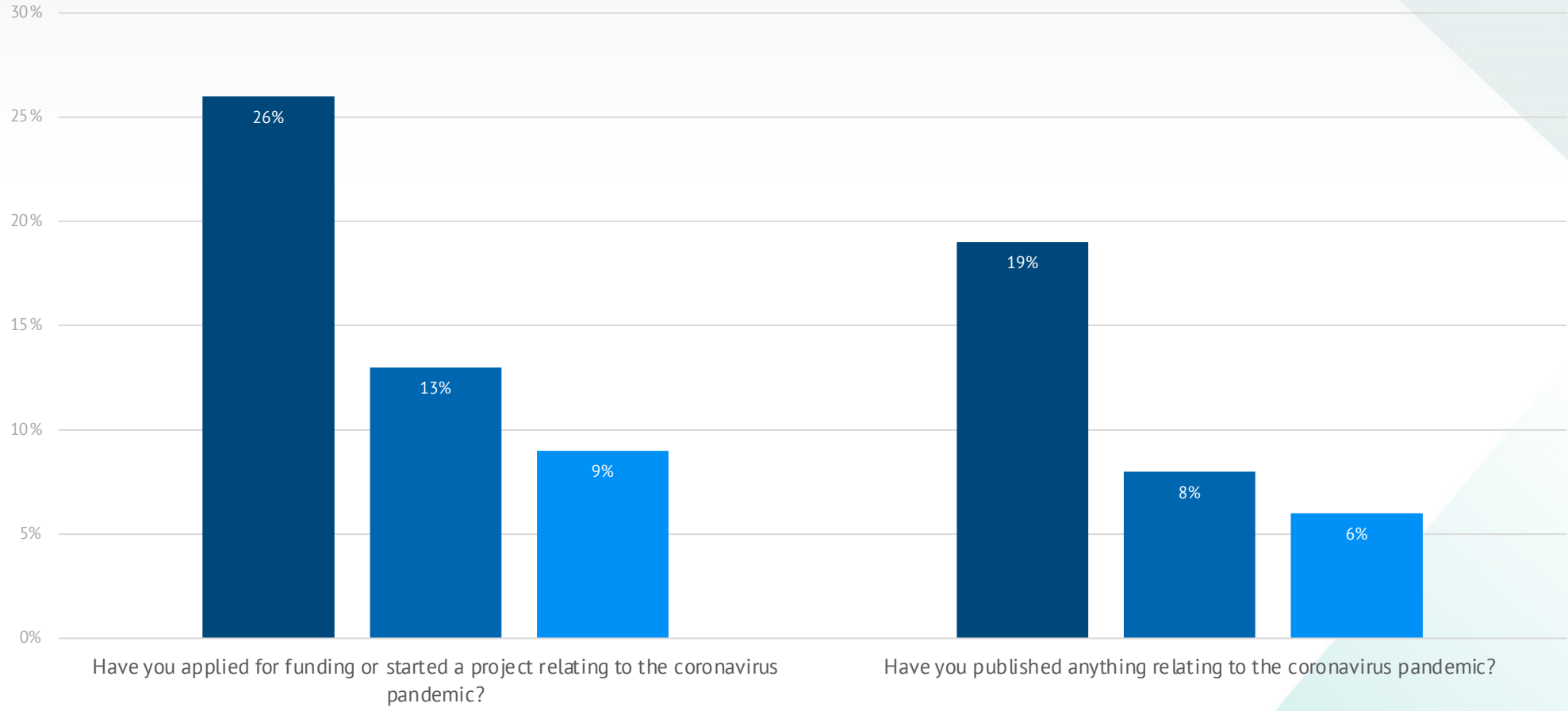
In your opinion, how has the relationship between science and the public changed since the beginning of the coronavirus pandemic?



The diagram aggregates all those who answered “yes”.
*16 percent = “direct connection”, 19 percent = “indirect connection”

(n ⩾ 5.674)

Agreement according to academic position

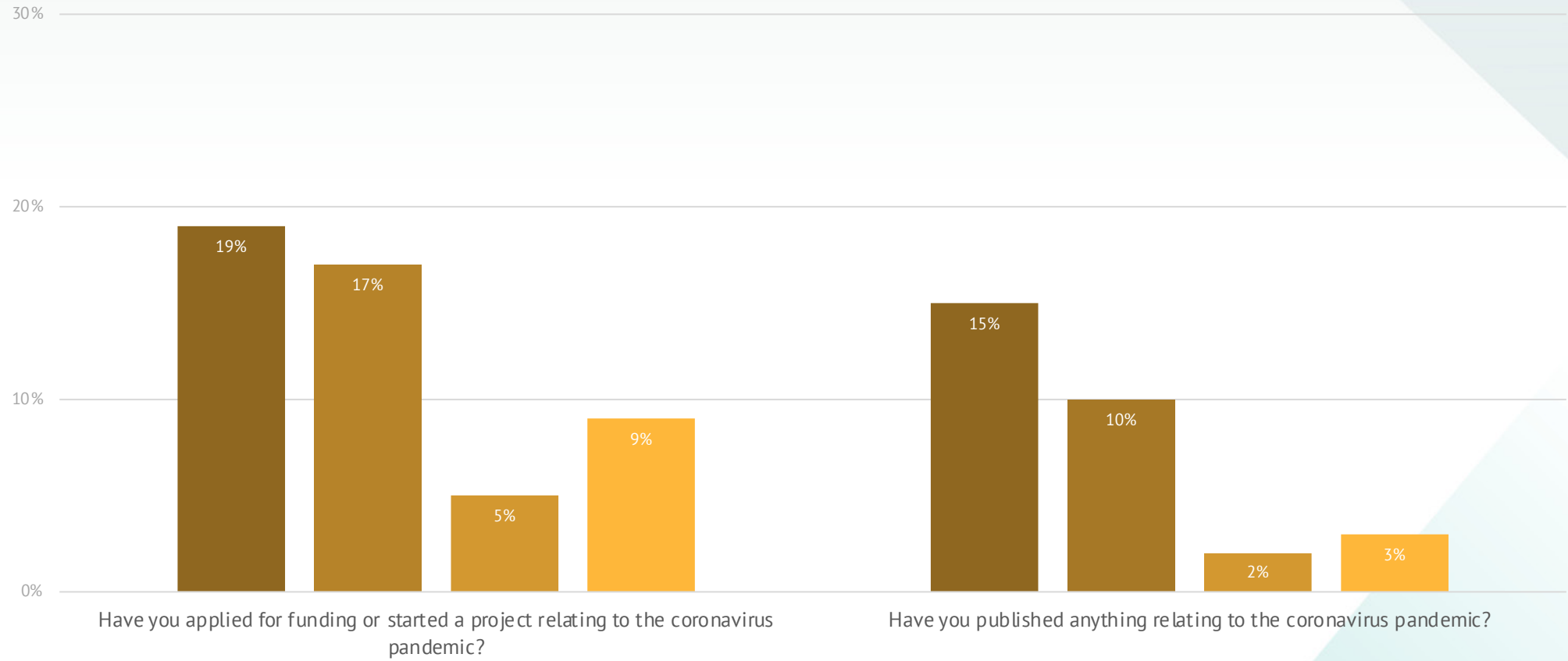


The diagram aggregates all those who answered “strongly agree” and “rather agree”, and excludes those who answered “rather disagree”, “strongly disagree” and “I don’t have an opinion at the moment”.

- Professors
- Postdocs
- Predocs

(n ⩾ 5.604)

Barriers according to research discipline

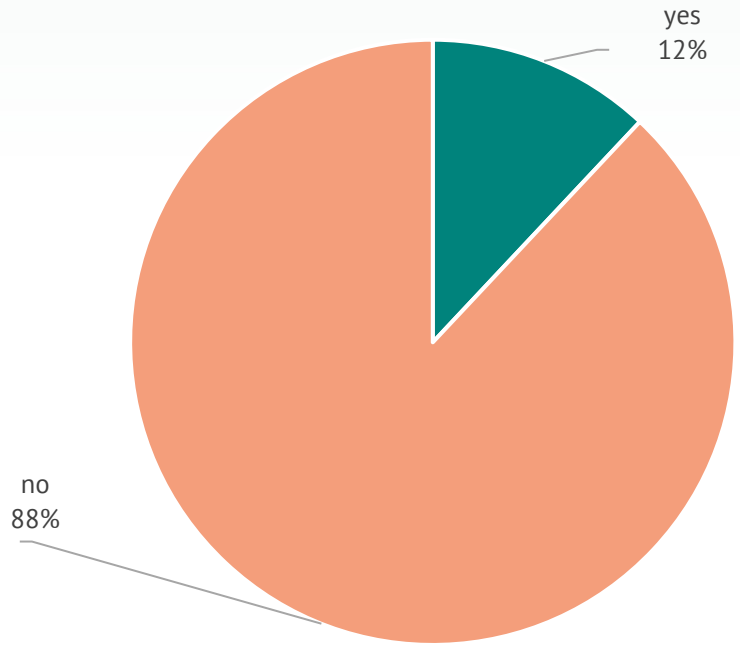


The diagram aggregates all those who answered “strongly agree” and “rather agree”, and excludes those who answered “rather disagree”, “strongly disagree” and “I don’t have an opinion at the moment”.

- social sciences and humanities
- life sciences
- natural sciences
- engineering sciences

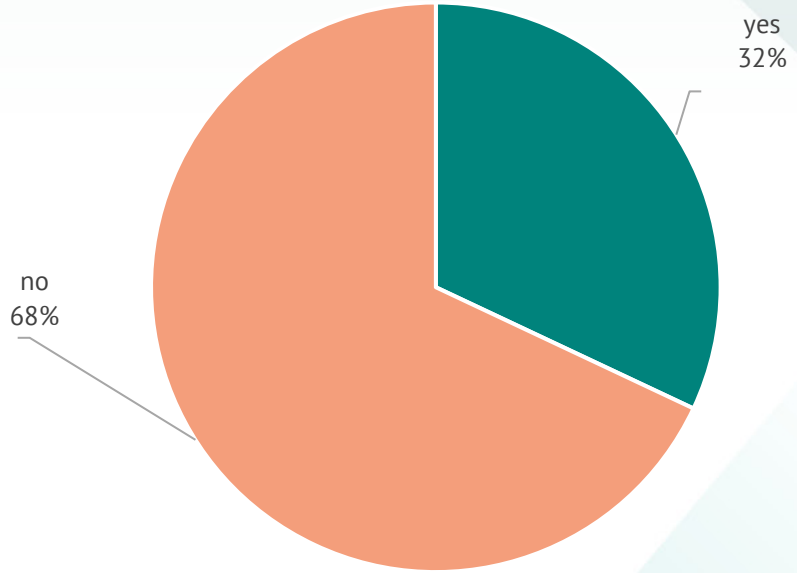
(n ⩾ 5.421)

Has anything changed in your communication since the beginning of the coronavirus pandemic?



I have become more active in science communication.

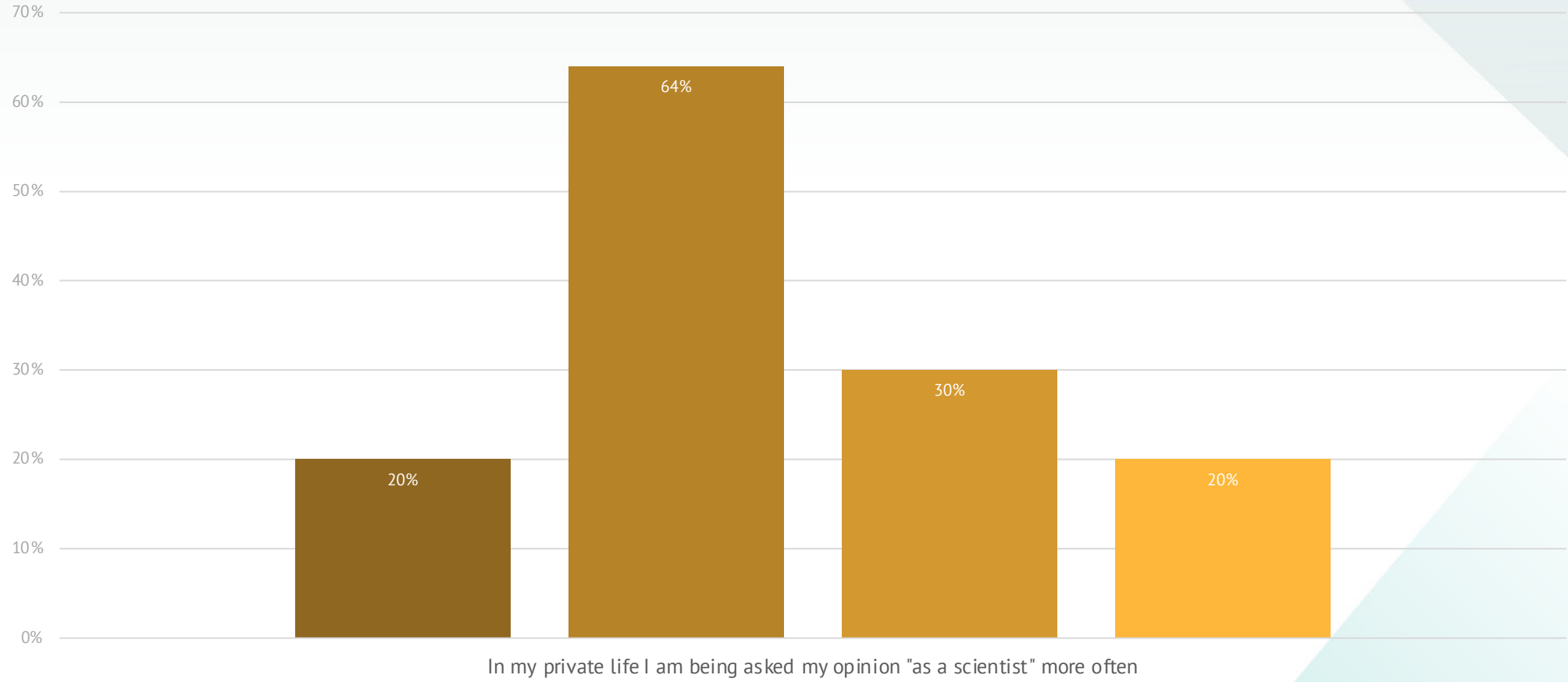
(n = 5.657)



In my private life I am asked to give my opinion “as a scientist” more often.

(n = 5.676)

Agreement according to research discipline



The diagram aggregates all those who answered “strongly agree” and “rather agree”, and excludes those who answered “rather disagree”, “strongly disagree” and “I don’t have an opinion at the moment”.

- social sciences and humanities
- life sciences
- natural sciences
- engineering sciences

(n ⩾ 5.422)

Interpretation and reflection

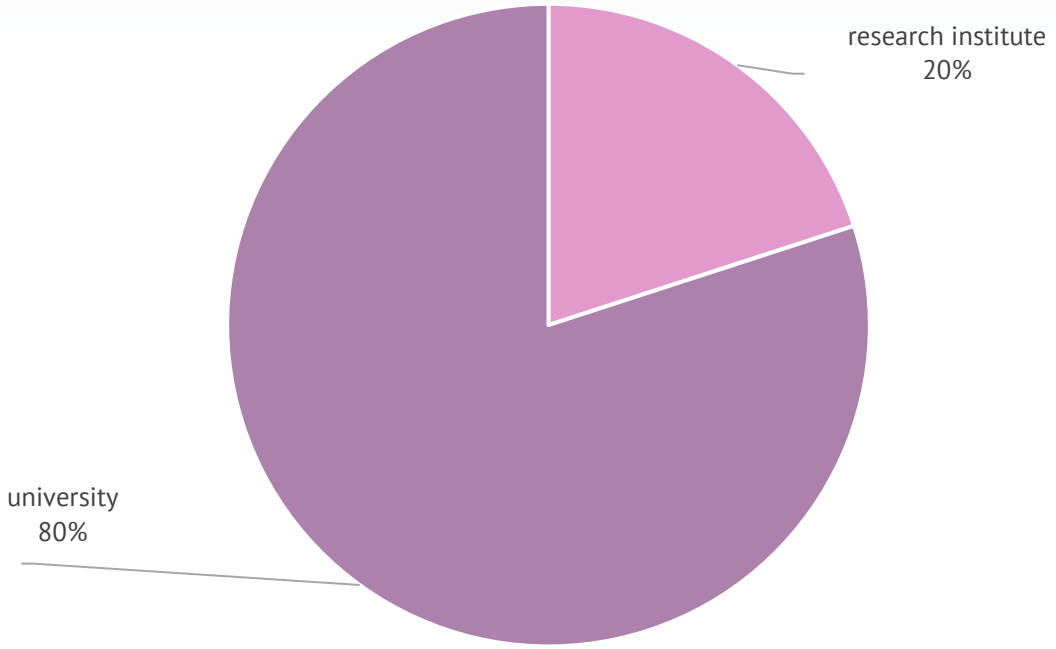
According to the respondents, the reputation of science in society has increased during the coronavirus pandemic and its role in political advice has been strengthened. At the same time, expectations towards science to solve societal problems have also increased. The scientists are ambiguous about whether public understanding of science has increased and whether science communication has become more difficult.

A considerable part of the respondents (35 percent) is doing research connected to the coronavirus pandemic. A smaller part has applied for or received funding for projects related to the coronavirus pandemic (13 percent) and some have already published in connection to the coronavirus pandemic (9 percent). Professors are more involved in research related to the coronavirus pandemic than postdocs and predocs.

Roughly every eighth respondent claims that their science communication engagement has intensified throughout the coronavirus pandemic. But communication in their private lives has also increased. Especially scientists from the life sciences are more in demand than before the pandemic.

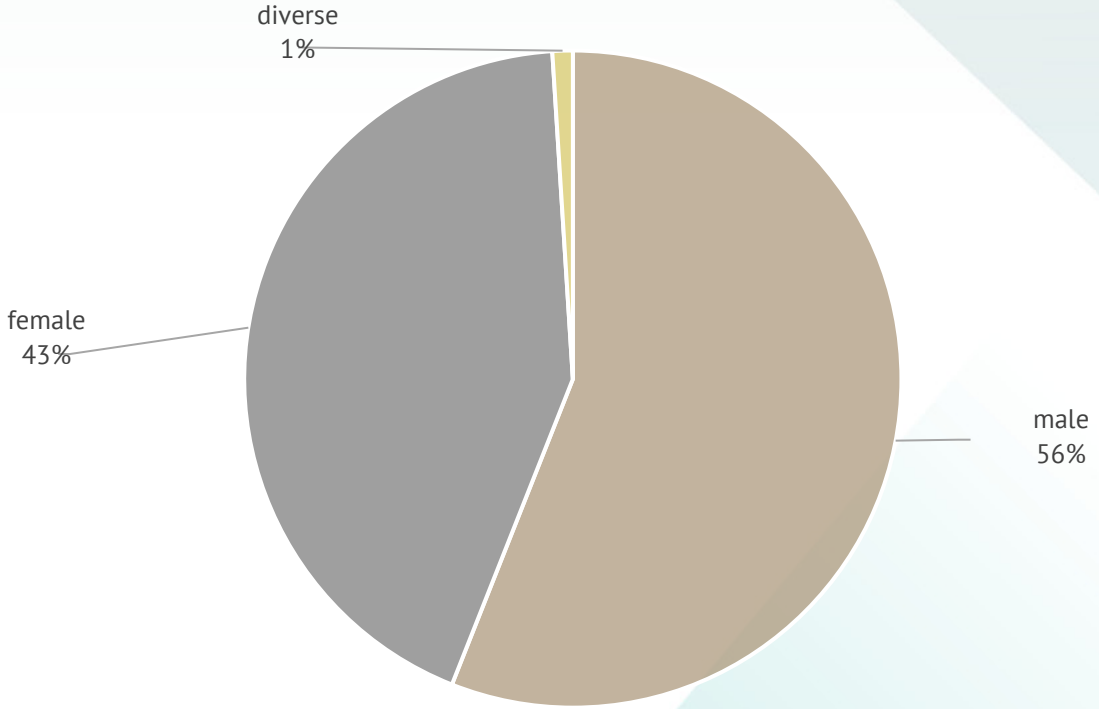
Methods and sample description

Institutional affiliation



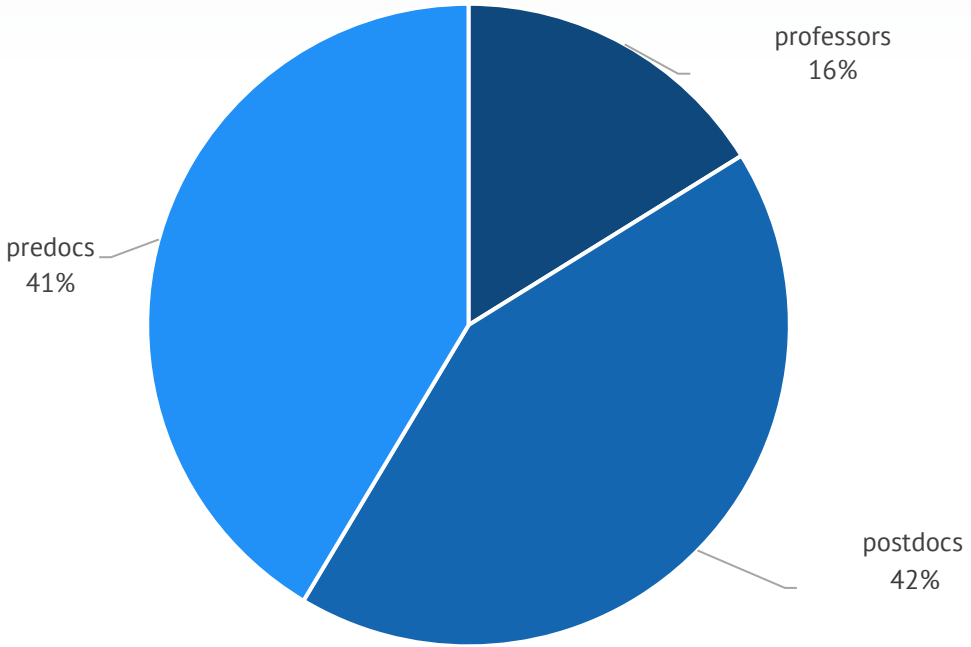
(n = 5.688)

Gender



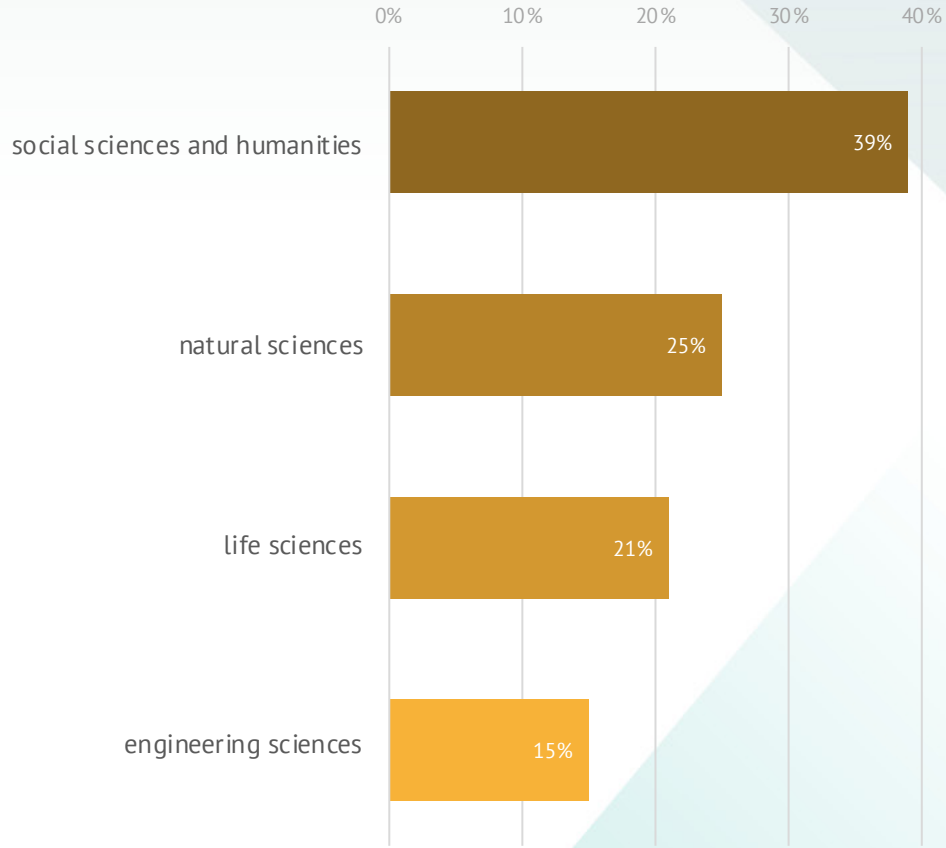
(n = 5.652)

Academic positions



(n = 5.618)

Academic disciplines



(n = 5.434)

Deviations in the sum total are due to rounding.

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RECOMMENDED CITATION

Science communication in Germany, results of a survey among scientists, Berlin/Karslruhe 2021.