Research Integrity in the Time of COVID-19: Finnish Research Integrity Barometer 2023

Publications of the Finnish National Board on Research Integrity TENK 2/2024

FINNISH NATIONAL BOARD ON RESEARCH INTEGRITY TENK

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ISSN 2669–9427
ISBN 978-952-7589-05-2

Helsinki 2024

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Foreword by the Finnish National Board on Research Integrity TENK

Research Integrity in the Time of COVID-19: Finnish Research Integrity Barometer 2023 is the second survey conducted by the Finnish National Board on Research Integrity TENK on the implementation of good research practices in the Finnish research community. Adherence to responsible conduct of research and research integrity is part of the ethical self-regulation of the research community. As evidenced by the Finnish Science Barometer, trust in science is strong in Finland, and researchers working in Finland adhere to good research practices. This is one of the key characteristics and strengths of Finland's research community.

The Research Integrity Barometers of 2023 and 2018 indicate that the research community has adopted the principles of research integrity well. Problem areas nevertheless exist, as evidenced by relatively high levels of suspicion among the respondents in the latest barometer regarding the extent of research misconduct and disregard for good research practices. Statistics compiled by TENK indicate that the majority of suspected research integrity violations concern issues that fall outside the sphere of research misconduct; developing a good research culture would also address these situations. An improved research culture is shaped by investing in research integrity training, collaboratively developed guidelines and the research integrity adviser network, and by improving the culture of discussion.

Competition between researchers and research groups for funding affects the implementation of research integrity, and the responses to the barometer's survey indicate that the research community is concerned about the effects of competition for resources. Expectations placed on researchers regarding results, increased obligations

related to core tasks, neglect of guidelines, ambiguities, problems related to data management and authorship, and collaboration challenges between organisations can lead to unethical practices.

This barometer indicates that research communities where researchers can confidently focus on their important work are fostered by providing more training in research integrity, strengthening support networks, and supporting the long-term development of research and discussion culture. Investing in the promotion of good practices and the development of research culture is always worthwhile – after all, it saves on resources and improves the well-being of researchers.

The Research Integrity Barometer 2023 surveys the period of 2019–2022, and it was conducted by the secretariat of the Finnish National Board on Research Integrity TENK. The coordination and implementation were primarily the responsibility of **Anni Sairio** and **Eero Kaila**, and a steering group was established to support the work. The Research Integrity Barometer 2018, which was the first of its kind, was carried out in collaboration between the University of Vaasa and the Finnish National Board on Research Integrity TENK as part of *the Responsible Research* project funded by the Ministry of Education and Culture.

Helsinki, 7 February 2024

Riitta Keiski
Chair of the Finnish National Board on Research Integrity TENK

Summary

Research Integrity in the Time of COVID-19: Finnish Research Integrity Barometer 2023 is the second such survey conducted by the Finnish National Board on Research Integrity TENK on the implementation of good research practices and research integrity (RI) within the Finnish research community. The barometer covers the period 2019–2022. The first Research Integrity Barometer covered the period 2016–2018.

The results indicate that research integrity skills are at a good level in Finland and that the research community takes research integrity seriously. The guidelines for research integrity are well known, the respondents know what they should do in problematic situations, and suspicions of research integrity violations have decreased since the 2018 barometer.

However, the number of suspected research integrity violations in the survey data is relatively high, and suspicions of disregard for good research practices were particularly high when it came to data management and authorship. Respondents saw the problems as stemming from pressures caused by intense competition, lack of knowledge, and scarcity of resources. The same risks were also identified in the Research Integrity Barometer of 2018.

Notifications of suspected research integrity violations are rare; 78% of the respondents who had suspected such activities had not notified their organisation of their suspicions. However, TENK's statistics show that various kinds of workplace problems are often reported as alleged research integrity violations, and thus the investigation processes often conclude with the outcome that research integrity has not been violated. The high number of suspicions in the barometer data indicates that problems and ambiguities exist, but they likely also involve cases that would not meet the criteria for RI violations. Overall, the best way to address problems is through prevention, and actively developing research culture is a worthwhile investment for organisations.

The Research Integrity Barometer shows that researchers' work communities and organisations are significant sources of research integrity knowledge, and therefore instrumental in developing and maintaining a good research culture. Communication about and discussions on research integrity and responsible conduct of research take place through a variety of channels, with all kinds of participants from the media to professional unions.

As the COVID-19 pandemic hit during the survey period for the barometer, it was decided that the effects of this global crisis on good research practices would also be explored. The effects of the pandemic on the Finnish research community were assessed as being minor, though there were some indications of problems.

The barometer survey was conducted as an anonymous electronic survey sent out in March 2023 to universities, universities of applied sciences, and research organisations that had committed to TENK's guidelines. The survey could be answered in Finnish, Swedish, or English. Responses were requested from research and teaching staff (including grant researchers), research administration staff, and staff working in other research support services. The survey was open from 13 March to 28 April 2023.

A total of 1,099 people responded to the survey. The typical respondent was a university researcher with a doctoral degree, fewer than 10 years of career experience, and a degree completed in Finland.

The first Research Integrity Barometer was a pilot study conducted in 2018 in collaboration between the University of Vaasa and TENK. Due to TENK's information needs and the revision of the RI guidelines in 2023, the survey for the Research Integrity Barometer 2023 differs to some extent from the previous survey. However, comparisons between the two have been made where possible.

Introduction

The Finnish National Board on Research Integrity TENK carries out research integrity barometer surveys to monitor the current state of responsible research practices in the Finnish research community. The Research Integrity Barometer 2023 covers the following topics:

- sources of knowledge on research integrity
- knowledge of research integrity and responsible conduct of research
- observations of suspected research integrity violations
- courses of action when research integrity violations are suspected
- perceived impact of the COVID-19 pandemic on research integrity.

Data was collected from the period 2019–2022, and this report includes the main findings of the survey.

The barometer was conducted as an anonymous electronic survey sent by TENK via email to all universities, universities of applied sciences, and research organisations in Finland that had committed to the Finnish Code of Conduct for Research Integrity and Procedures for Handling Alleged Violations of Research Integrity in Finland (hereinafter referred to as the RI Guidelines). Responses were requested from research and teaching staff, research administration staff, and staff working in other research support services. The survey could be answered in Finnish, Swedish, or English.

The survey was conducted by TENK's secretariat. A steering group was established to support the work, consisting of **Riitta Keiski** (chair, University of Oulu), **Teija-Kaisa Aholaakko** (Laurea University of Applied Sciences), **Erika Löfström** (University of Helsinki), **Janne Pölönen** (Federation of Finnish Learned Societies), **Aleksi Tornio** (University of Turku), **Risto Turunen** (University of Eastern Finland), and **Krista Varantola** (Tampere University).

The first Research Integrity Barometer was conducted in 2018 in collaboration between TENK and researchers **Ari Salminen** and **Lotta Pitkänen** from the University of Vaasa. Due to TENK's information needs and the 2023 revision of the RI Guidelines, the survey for this barometer differs to some extent from the 2018 pilot. The results of the two barometers are consequently not fully comparable, but comparisons have been made where possible.

Note on terminology: The 2023 RI Guidelines were translated into English after the survey was launched, and some terminology in this English translation of the Research Integrity Barometer has been updated to align with the guidelines. For example, the term ‘violation of responsible conduct of research’ in the questionnaire has been replaced with the current term ‘violation of research integrity’.

Implementation of the Survey

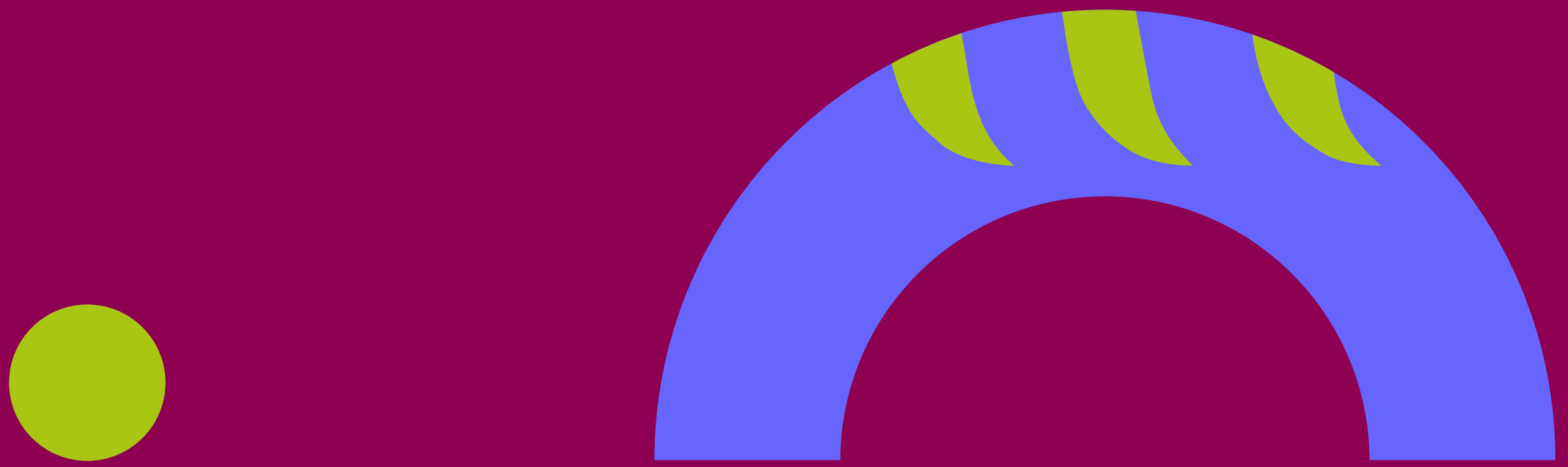
The survey consisted of 12 multiple-choice questions and three open-ended questions. The questions regarding the respondents’ background information covered the respondents’ primary job, years of experience in research, types of background organisations, fields of research, and highest degrees completed. No direct or indirect personal data was collected. The survey is included at the end of this report.

Research permits were applied for from the organisations that required them. No ethical review was conducted, as the requirements in Finland for an ethical review in human sciences were not considered to be met.

The survey was distributed through the communications services of the organisations, or following the instructions that were received during the research permit process. Research integrity advisers assisted with internal communications in the organisations as needed. The survey was open from 13 March to 28 April 2023.

Complete responses were received from 1,099 individuals, which was slightly fewer than in the 2018 survey (N=1246) despite the similar distribution of the survey. Respondents were given access to the survey after providing background information. TENK is the data controller for the survey data, and the responses were stored on a secure server of the Federation of Finnish Learned Societies. Only TENK’s secretariat handled the data. The survey data, with the exception of the responses to the open-ended questions, will be archived in the Finnish Social Science Data Archive (FSD).

The typical respondent was a university researcher with a doctoral degree, fewer than 10 years of career experience, a background in social sciences, and their highest degree completed in Finland. Detailed background information about the respondents is provided at the end of the report (Figures 14 and 15).



1 Knowledge of Research Integrity and Responsible Conduct of Research

The first section of the survey investigated how well known the Finnish research integrity guidelines and the research integrity adviser network are across all research disciplines, and from what kinds of sources the respondents have obtained information on the topic.

Familiarity with Research Integrity Guidelines

How well known are the guidelines?

The research integrity system in Finland is based on self-regulation by the research community, and as a foundation for this self-regulation, TENK develops guidelines and recommendations in collaboration with the research community. As seen in Figure 1, familiarity with the guidelines is at a good level in Finland, and better than in the 2018 barometer for all the guidelines.

The best known and most important research integrity guideline is the Finnish Code of Conduct for Research Integrity and Procedures for Handling Alleged Violations of Research Integrity in Finland, also known as the RI Guidelines. Of the respondents, 86% knew these guidelines at least by name, compared to approximately two thirds in 2018. When it came to rating their knowledge of the guidelines, 22% considered themselves very familiar with them. Those whose work involved the investigation of alleged RI violations were likely to be very familiar with the guidelines.

Scientific publishing is a key way for researchers to gain merit. TENK's authorship recommendation provides guidance on how to agree on the authorship of co-publications to avoid disputes, and in 2018 about half of the respondents were familiar with this recommendation. In the latest barometer, 80% of the respondents knew it at least by name. Of the respondents, 20% considered themselves very familiar with the authorship recommendation.

How familiar are you with these guidelines and recommendations?

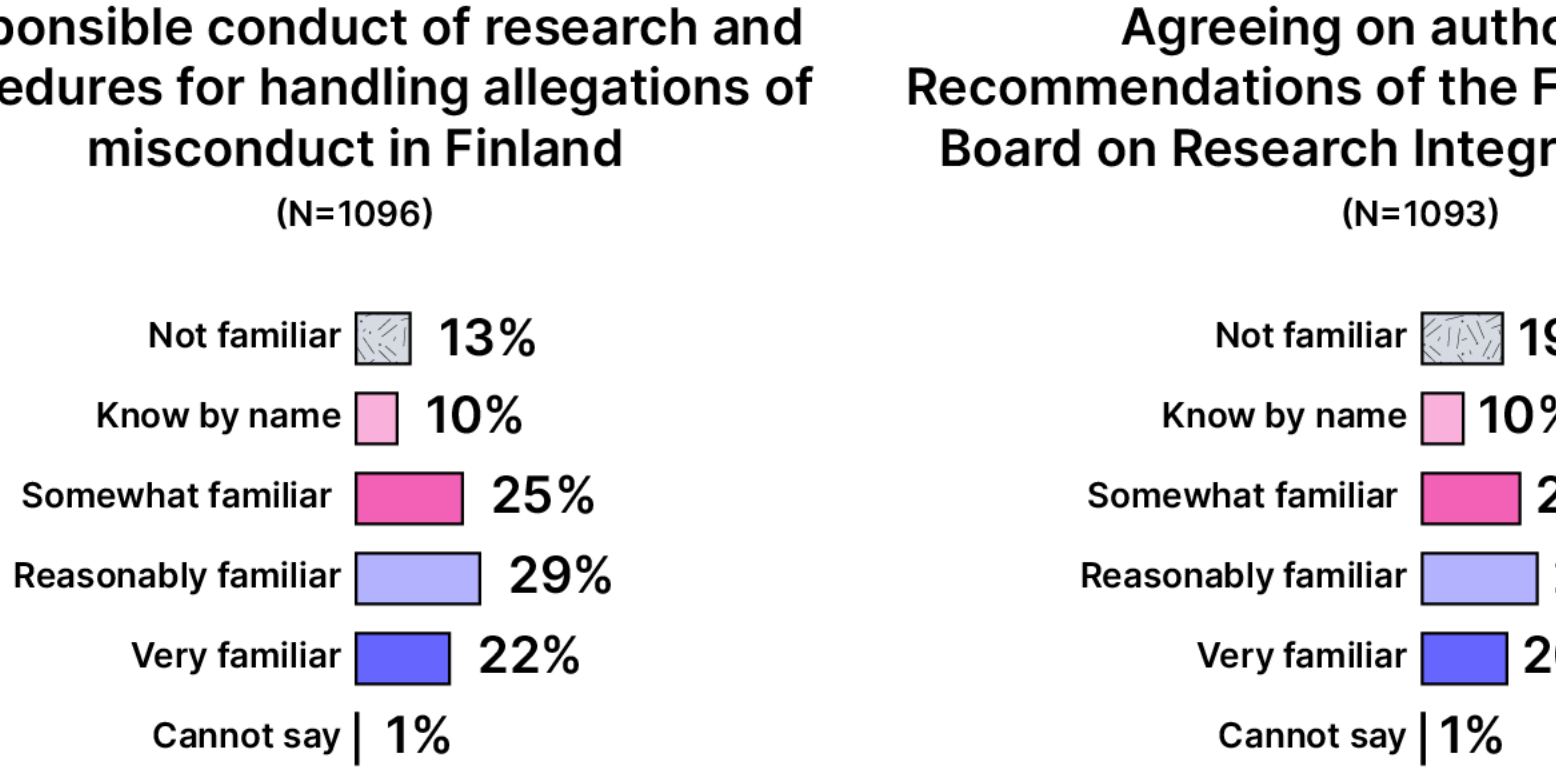


Figure 1. Familiarity with research integrity guidelines

The Researcher's Curriculum Vitae Template is used in many funding applications and research recruitment processes in Finland, and its content is also the best known of TENK's publications. Of the respondents, 77% knew the Researcher's CV Template at least by name, and 31% were very familiar with the contents.

Researchers working on EU-funded projects are committed to adhering to the principles of the European Code of Conduct for Research Integrity. This is the least known of the publications, but 70% of the respondents knew it at least by name. Familiarity with this document has increased the most, as fewer than one in four were familiar with it in the previous barometer. Only nine percent of the respondents were very familiar with its content.

Guidelines and Recommendations for Research Integrity

The concept of research integrity comprises procedures that ensure the responsible conduct of research and the implementation of good research practices throughout the life cycle of research activities. Research integrity applies to all research activities and research disciplines.

In 1994, in collaboration with the Finnish research community, TENK created the first guidelines on what was then termed **the responsible conduct of research and the handling of research misconduct allegations**. Since then, these guidelines have been updated regularly, most recently in 2023. The purpose of the RI Guidelines is to promote good research practices in Finland. The guidelines define research integrity and research integrity violations and describe the process of investigation of suspected violations, known as the RI process. Almost all Finnish research organisations are committed to following the RI Guidelines in all research activities and research disciplines.

In 2018, TENK published **a recommendation on agreeing on the authorship of research publications**. When it comes to co-publications, consensus is not always reached on whose names

should be included in the author list and in what order. Disputes about authorship can arise, and they can be difficult to resolve afterward. The authorship recommendation aims to bring clarity to these situations and help avoid disputes.

The Researcher's CV Template was drawn up in 2012 by TENK, the Council of Rectors of Finnish Universities UNIFI, the Rectors' Conference of Finnish Universities of Applied Sciences Arene, and the Research Council of Finland, and it was updated in 2020. The template assists in the compilation of a CV so that a researcher's merits are presented as comprehensively, truthfully, and comparably as possible.

The European Code of Conduct for Research Integrity is a European research integrity framework drawn up by the European Federation of Academies of Sciences and Humanities (ALLEA) at the request of the European Commission. This framework has been used as the basis for many national and institutional guidelines in Europe, including the Finnish RI Guidelines. The framework was last updated in 2023.

Research Integrity Advisers

How well known is the Research Integrity Adviser Network?

TENK trains research integrity advisers to advise members of their organisations on matters to do with research integrity and how to resolve related problems. The barometer surveyed how familiar the respondents were with their organisation's research integrity adviser system, if such a system is in place.

Of the respondents, 32% were quite familiar or very familiar with their organisation's research integrity adviser system, while 23% had some knowledge of it. However, 40% reported that they had no knowledge of such a system, and three percent stated that their organisation did not have a research integrity adviser (Figure 2). Two percent were unsure.

How familiar are you with the research integrity adviser system in your organisation?

(N=1094)

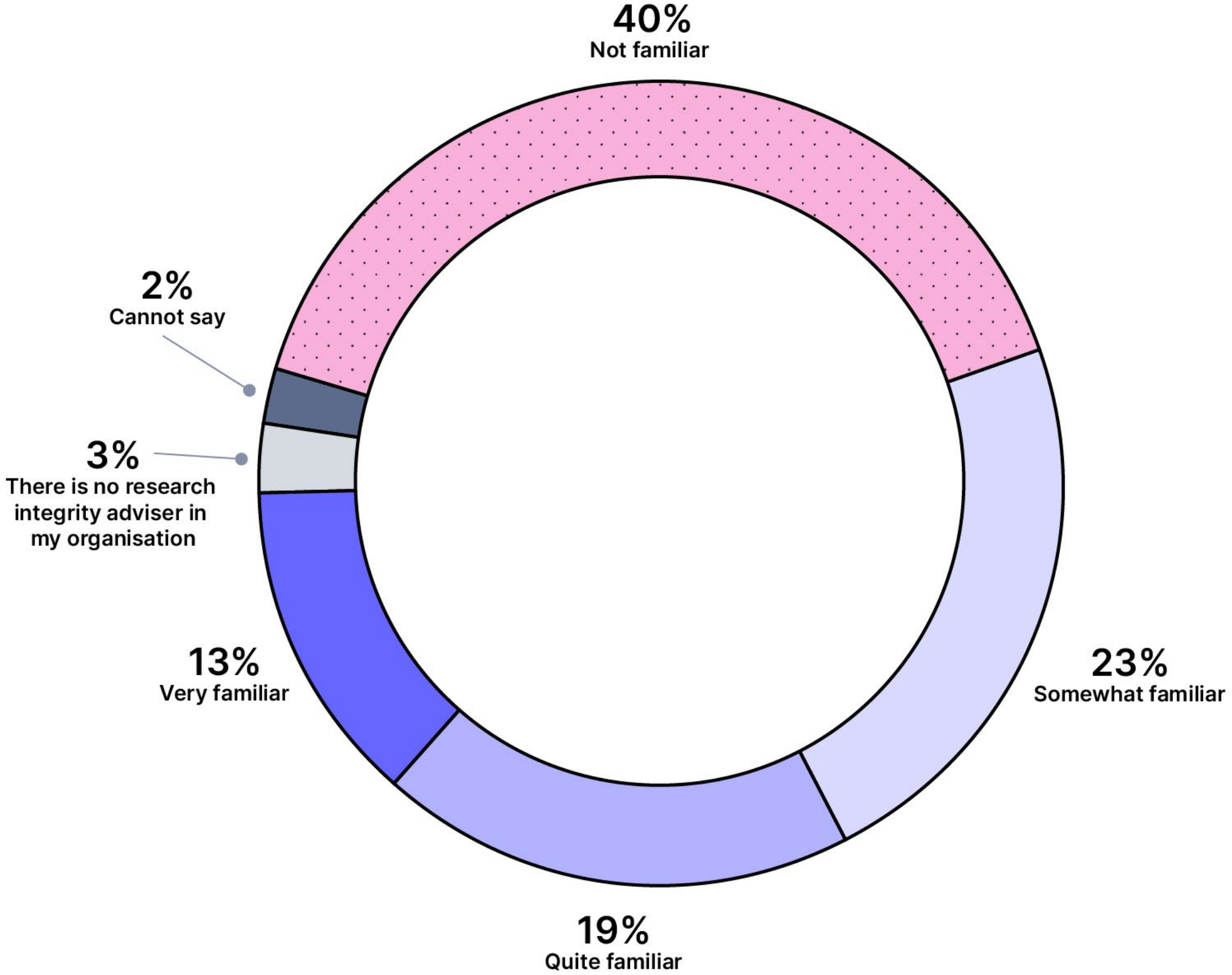


Figure 2. Familiarity with the research integrity adviser system

Familiarity with the research integrity adviser network has not changed significantly since the previous barometer. In 2018, 55% of respondents were aware of this system, while 45% reported that they did not know anything about it.

As research integrity advisers are currently present at over 70 research organisations in Finland, the situation could be better. While detailed knowledge of the network may not be necessary, the better known these experts are, the better organisations can assist researchers, especially those facing problematic situations.

Research Integrity Advisers

TENK launched the research integrity adviser network in 2017. Currently there are about 150 research integrity advisers spread across 70 Finnish research organisations. They provide personal and confidential help to the staff of their organisation on questions of research integrity and in problematic situations.

A research integrity adviser can offer guidance if a researcher suspects a research integrity violation or is suspected of a violation and needs assistance. They give advice on what can be done and where to find more information. The adviser does not comment on whether research integrity has been violated or participate in the RI process. In problematic situations, they can assist both parties involved.

Sources of Information on Responsible Conduct of Research

This section of the survey investigated the sources from which the Finnish research community obtains information on responsible conduct of research and research integrity. This was the first time this topic has been included in the barometer. The responses highlight the diversity of information sources and the significance of the work community in building and maintaining a good research culture.

How much information have you obtained about responsible conduct of research from the following sources in the past four years?

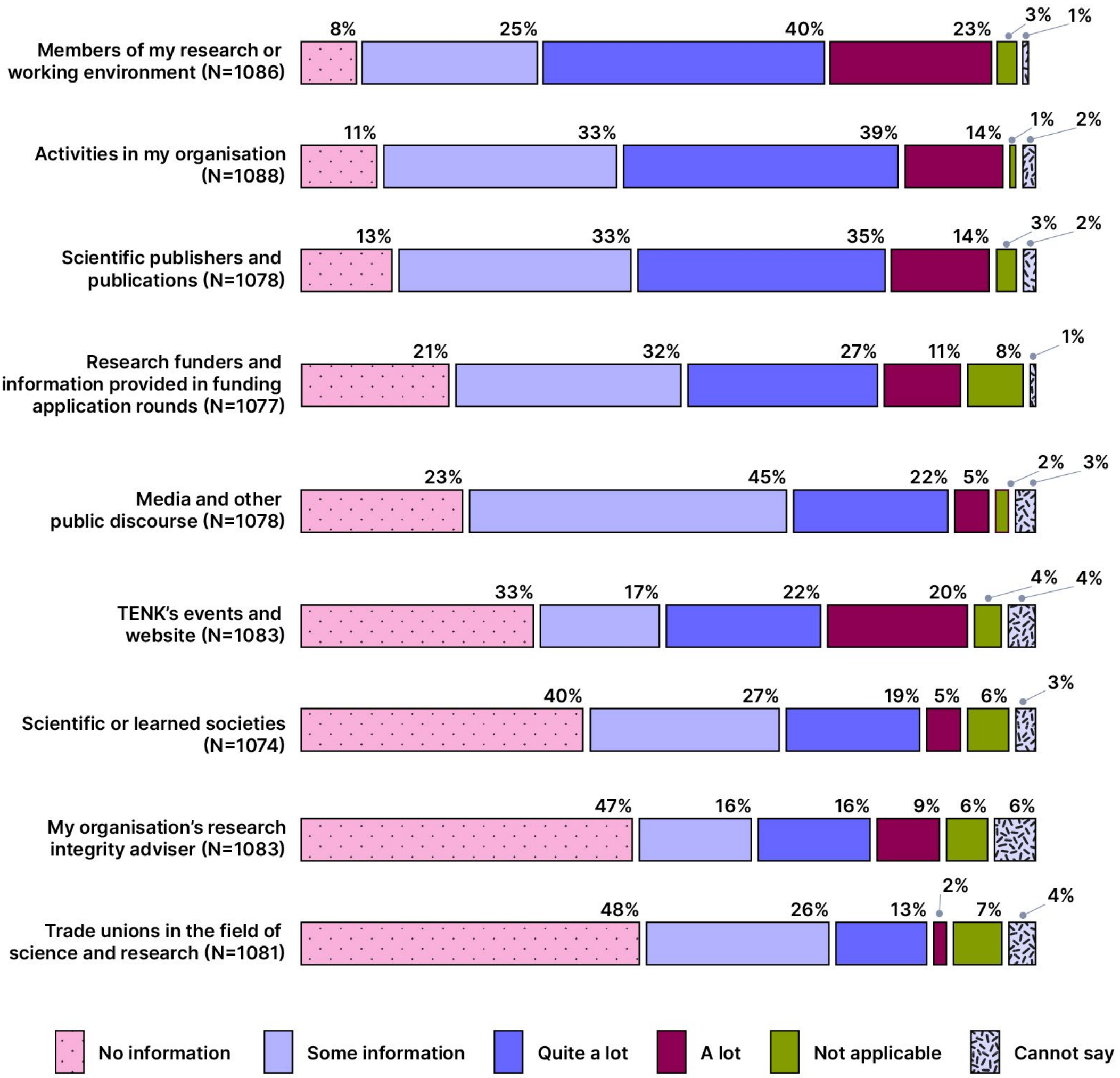


Figure 3. Sources of information on responsible conduct of research

From where did the respondents obtain information on research integrity and responsible conduct of research?

Respondents reported having obtained quite a lot or a lot of information on the topic from the following sources (Figure 3): their own research or work community (63%), their own organisation (53%), scientific publishers (49%), TENK (42%), research funders (38%), the media and public discourse (27%), research integrity advisers (25%), learned societies (24%), and professional unions (15%). Members of one's own research or work community were the single most significant source of information (23% received a lot of information from this source), with TENK being the second most important (20% stated that they had received 'a lot of information' from TENK).

The results indicate that discussion and communication on research integrity in Finland takes place via a variety of channels and involves various actors. The most important sources of information are colleagues and one's organisation. The immediate work environment thus plays a significant role in maintaining a good research culture.

The Finnish National Board on Research Integrity TENK

The Ministry of Education and Culture established the Finnish National Board on Research Integrity TENK in 1991 to address ethical issues related to scientific research and to promote research integrity in Finland (Decree 1347/1991). TENK works to prevent research misconduct, develops national guidelines for all research disciplines, promotes education on research integrity, coordinates ethical review in human sciences, and networks and lobbies both nationally and internationally. In addition to the above, TENK monitors adherence to research integrity by monitoring and compiling statistics on RI violations, issuing statements on investigations of suspected RI violations, and providing advice in problematic situations. The Ministry of Education and Culture appoints the members of TENK from nominations by the research community for three-year terms.

2 Training and Skills in Responsible Conduct of Research

This section of the survey investigated the availability of training in both research integrity and research ethics, respondents' participation in and perceived need for training, and self-assessment of skills.

Training in Finland

Are there sufficient training opportunities available?

A total of 54% of the respondents stated that the training available in research integrity and research ethics was sufficient or more or less sufficient in their organisation (Figure 4). Responses nevertheless varied, as 24% of the respondents were unsure, 20% stated that there was not enough training, and nine percent reported that no training was available.

Have the respondents participated in training?

During the period surveyed in the barometer, 57% of respondents had participated in research integrity or research ethics training (Figure 5), most of them once or twice. 43% had not attended any such training. Training is primarily targeted at doctoral researchers, and senior researchers and those working in research administration, for example, may not have the opportunity or see the need to participate. TENK trains research integrity advisers, and some respondents have likely attended this training.

How do respondents evaluate their familiarity with responsible conduct of research?

Of the respondents, 32% felt that their familiarity with responsible conduct of research met the requirements of their research and/or current work entirely. A further 57% percent rated their skills as meeting the requirements sufficiently (Figure 6). About half of the respondents did not feel that they needed more skills here, while the other half wanted more training (Figure 7). The respondents expressed their wish for more training on topics such as data protection, artificial intelligence, authorship, and ethical review.

Does your organisation offer training in research integrity and research ethics?

(N=1063)

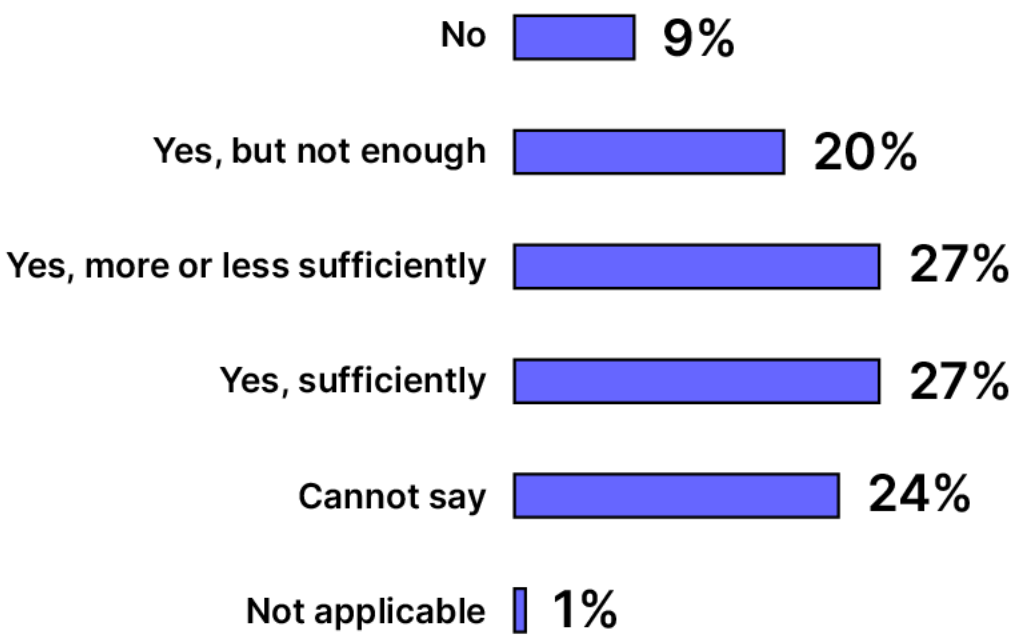


Figure 4. Availability of training

How many times have you participated in research integrity or research ethics training in the past four years?

(N=1062)

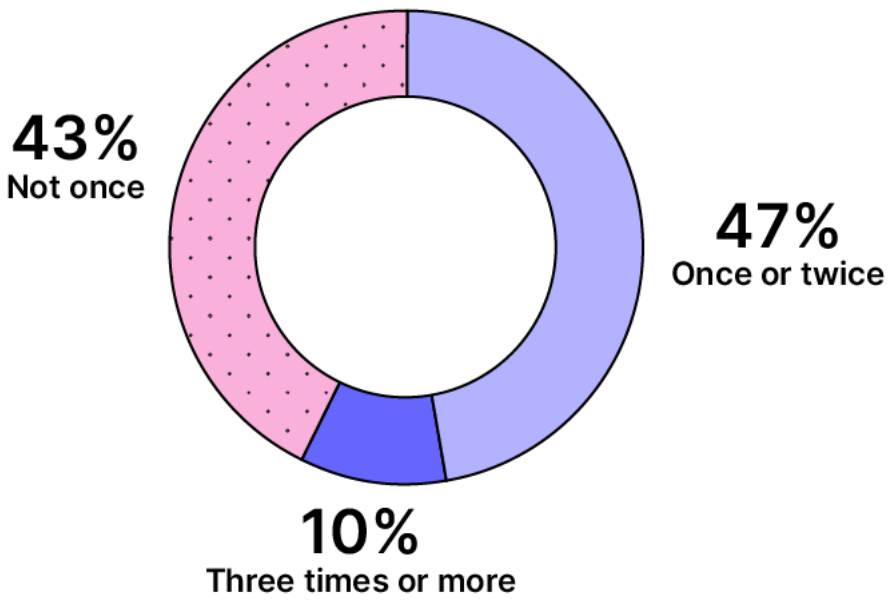


Figure 5. Training in the past four years

How would you evaluate your familiarity with responsible conduct of research with regard to your research and/or current work?

(N=1065)

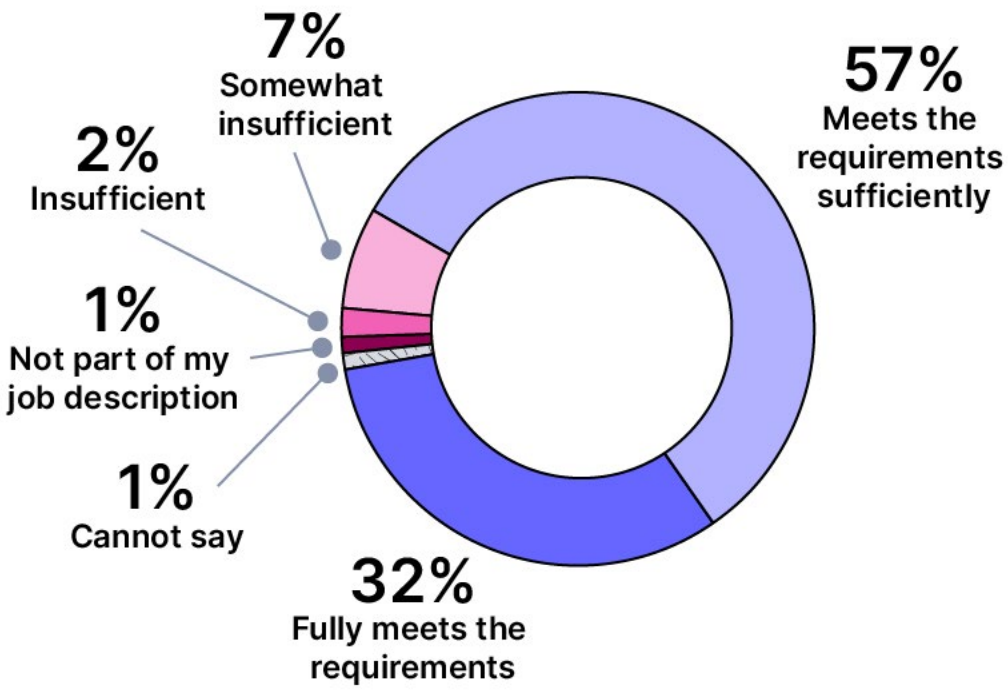


Figure 6. Self-assessment of skills

Would you like to extend your knowledge in responsible conduct of research and research integrity?

(N=974)

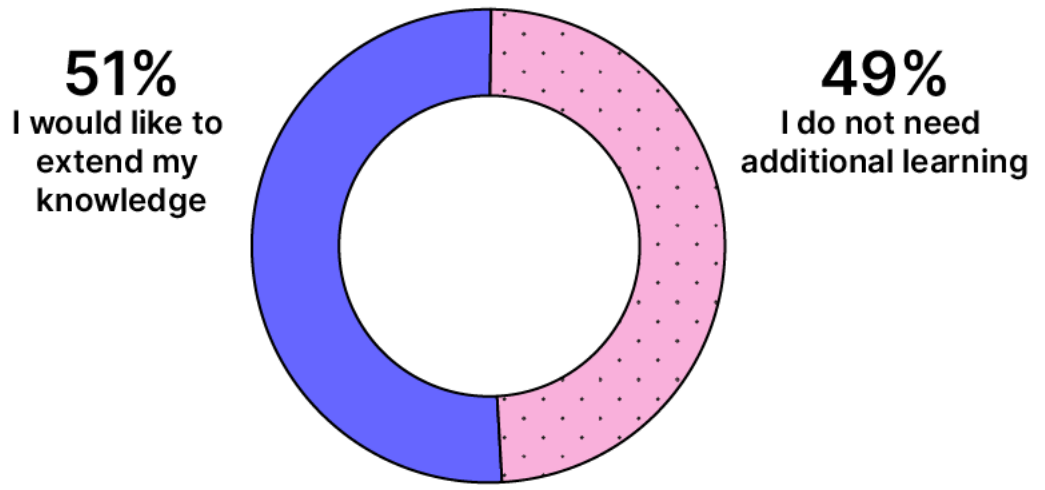


Figure 7. Need for further training

Nine out of ten respondents felt that their familiarity with responsible conduct of research was fully or fairly sufficient. At the same time, one fifth stated that not enough training was offered in their organisation. The survey probably had a relatively high proportion of respondents who were already familiar with these topics and whose skills had been developed through other means besides training, and who also recognised the need for improvement in their working environment.

Good Practices Observed

Respondents were asked to describe good practices their organisations have adopted to foster responsible conduct of research. A total of 258 open-ended responses were received. The most common practices were:

- research integrity training (36% of responses)
- TENK's research integrity guidelines (24%)
- guidance, research integrity advisers and working groups (13%)
- informal staff events and discussions in research groups (11%)
- ethical review (11%).

Other factors mentioned included the use of plagiarism detection software, norms for research publications, and an effective RI process. About eight percent of the respondents were unaware of any measures implemented in their organisations. Examples of responses include (translated from Finnish):

> *"I have formed a group for researchers where we can discuss grassroots-level issues related to research integrity and responsible conduct of research. The group is small and operates on a peer group principle."*

> *"Attempts have been made to increase research integrity training, but there seems to be a lack of willingness. Research integrity practices are not yet a natural, everyday part of higher education."*

> *"Doctoral researchers are given research integrity training, but senior researchers should also be kept up to date."*

3 Suspicions of Violations of Research Integrity

Research integrity violations breach the basic principles of research integrity and undermine the quality and credibility of research. In Finland, notifications of alleged RI violations are handled by the organisations where the case in question has occurred, but unreported situations are never investigated. The barometer therefore collects information on the research community's observations of possible RI violations.

It is important to note that the barometer provides information on suspected misconduct, not actual proven misconduct. Whether an RI violation has taken place is always determined through the RI process.

In the 2023 RI Guidelines, violations of research integrity are categorised as research misconduct and disregard for good research practices. The multiple-choice options and the results in Figures 8 and 9 follow this categorisation. Comparisons to the 2018 barometer should be made with caution for the following reasons: the updating of the RI Guidelines in 2023 has influenced how the questions are formulated, the observation scales in the barometers are different from each other, and the 2023 survey included the response option 'does not apply to me.' General level assessments are, however, possible.

Suspicions of Research Misconduct

What kinds of observations have been made of research misconduct?

Research misconduct is defined as plagiarism, the falsification of results or observations, and fabrication. Figure 8 shows that between the respondents, there have been suspicions of all kinds of research integrity violations in their working environments. Compared to the 2018 barometer, there nevertheless appear to be fewer suspicions.

How often have you suspected the following types of research misconduct in your working environment in the past four years?

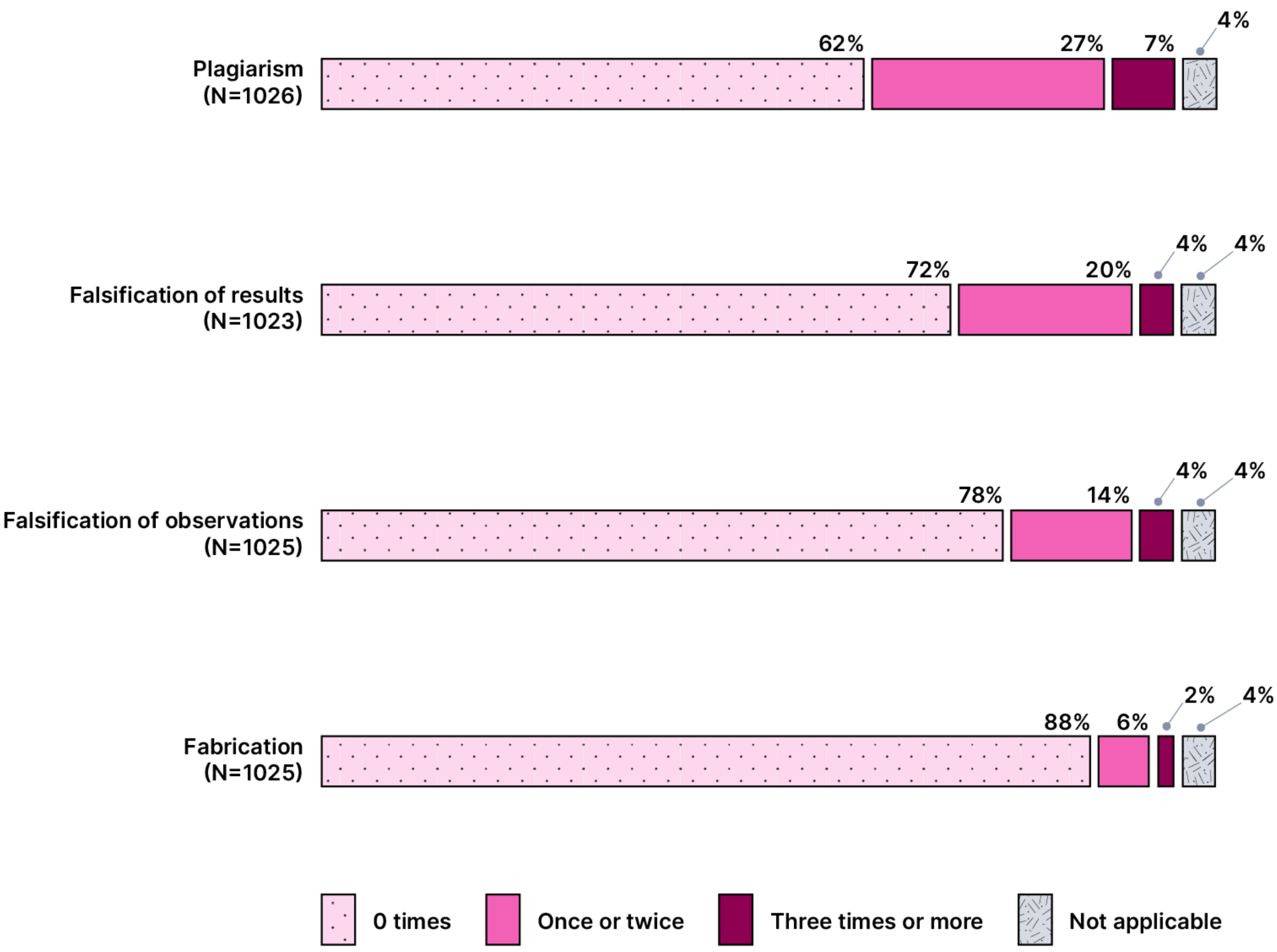


Figure 8. Suspicions of research misconduct

Plagiarism was the most suspected form of research misconduct, as in 2018. Of the respondents, 34% reported suspecting plagiarism once or more, while 62% had never suspected it. On the other hand, the number of plagiarism suspicions has decreased since 2018, when 48% of respondents reported suspicions. In the 2018 barometer, the observation scale was as follows: never (52%) / rarely (30%) / sometimes (16%) / fairly often (2%) / often (1%) (2018 Table 3).

In total, 24% of the respondents had suspected falsification of results once or more, and 18% had suspected falsification of observations. In the 2018 barometer, 33% of the respondents had suspected falsification of either methods, observations, or results (2018 Table 4). The number of suspicions has thus decreased in this area as well.

Fabrication was the least commonly suspected form of misconduct. Eight percent of the respondents reported suspecting fabrication once or more during the survey period. In 2018, 19% of the respondents had suspected fabrication (2018 Table 4).

The comparison between the barometers is affected by the response option ‘does not apply to me’, which was selected by four percent of the respondents in each sub-question. In 2018, respondents had the option to leave the question unanswered if they felt they were not in a position to make these kinds of observations.

ⓘ Research Misconduct and Disregard for Good Research Practices

Research misconduct refers to serious intentional activities that violate research integrity. In line with international practice, research misconduct is divided into three types. **Fabrication** refers to presenting fake observations, data, or results. **Falsification** means the unjustified manipulation of data or the omission of results or data that are crucial to the conclusions. **Plagiarism**, or unacknowledged borrowing, refers to using someone else’s work or research ideas without permission or reference.

Plagiarism as a type of research misconduct is an extremely serious violation of research integrity. In research contexts, the evidence of and grounds proving plagiarism must be indisputable, and the act

must be shown to be intentional and severe. Plagiarism as an RI violation is thus more narrowly defined than plagiarism as a general term.

Disregard for good research practices entails careless, indifferent, or ignorant behaviour. In such cases, good research practice has not been adhered to, even though principles of research integrity could have been followed, or the neglect stems from a lack of knowledge. Examples of disregard for good research practices include failing to obtain research permits or an ethical review, inadequate documentation and storage of research data and results, omitting a researcher's name from a list of authors without cause, hampering another researcher's work, or interfering with the RI process. Disregard for good research practices cannot be exhaustively defined.

Suspicions of Disregard for Good Research Practices

What kinds of observations have been made of disregard for good research practices?

Between them, the respondents had observed all types of disregard for good research practices that were listed in the survey options (Figure 9). The most frequently observed problems concerned **research data or results**, and these were observed by 43% of respondents. The second most common type was the **unjustified inclusion of a researcher's name in a list of authors** (37% of all observations combined). About a third had noticed the unjustified denigration of or neglect to mention another researcher's contributions and misuse of power.

Over one quarter of respondents had observed failures to obtain research permits or an ethical review, exaggeration of one's scientific achievements, publishing the same results multiple times seemingly as new, hampering of another researcher's work, or unjustified omission of a researcher's name from a list of authors in a publication. Very few had observed unfounded and malicious RI violation notifications or interference in the RI process, and likely those who had made such observations were people whose work involves RI processes.

How often have you suspected the following types of disregard for good research practices in your working environment in the past four years?

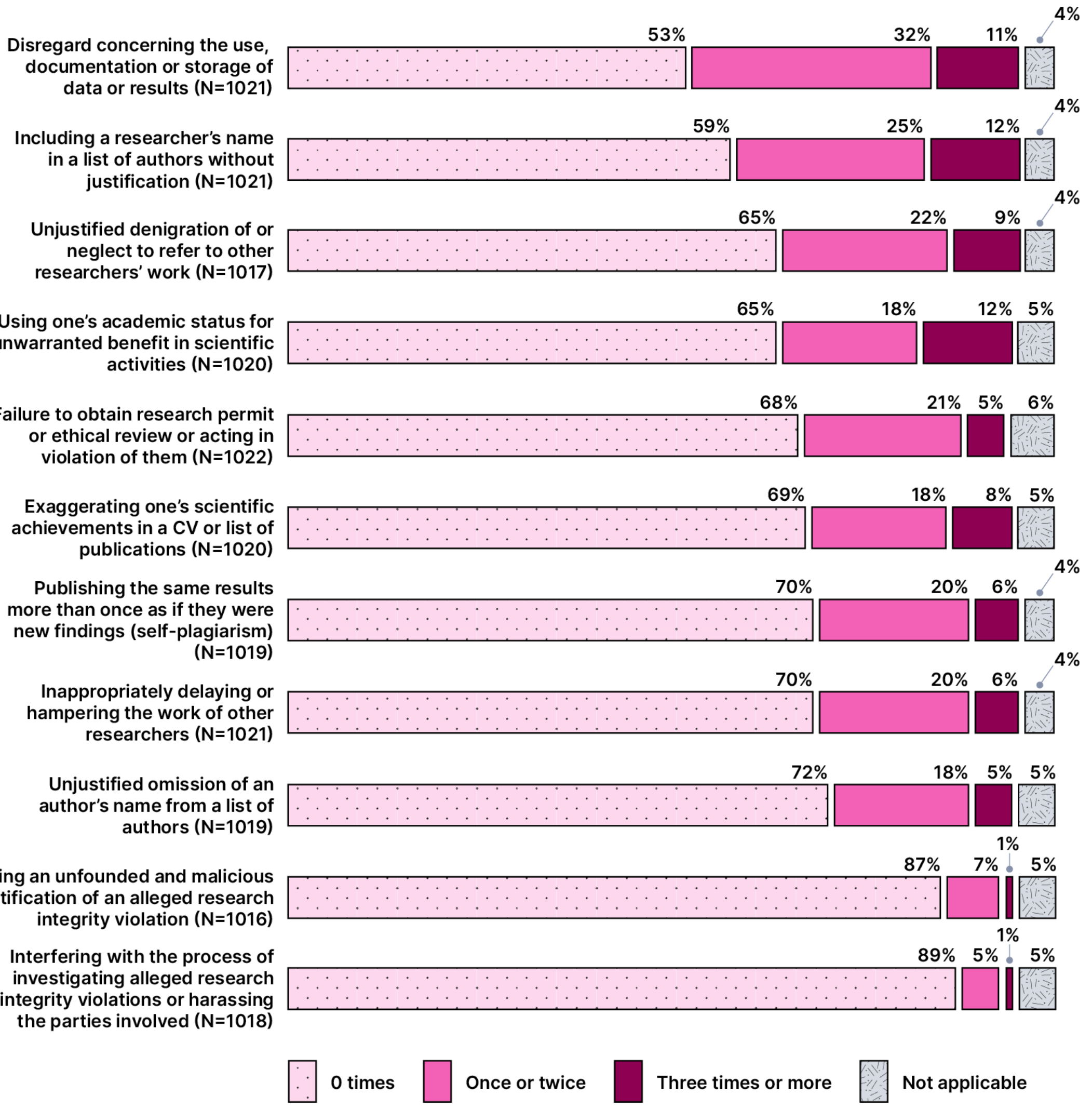


Figure 9. Suspicions of disregard for good research practices

Respondents had the option to describe other instances of disregard for good research practices in an open-ended response. The responses described, for example, cases of harassment, but not all the situations described involved research integrity. Improving working conditions and the work atmosphere could reduce both research integrity issues and other work-related problems.

Comparing suspicions of disregard for good research practices to the 2018 barometer is challenging, as the response options for the 2023 survey are based on the 2023 RI Guidelines. For instance, the unjustified inclusion of a researcher's name in a list of authors was previously not an option, and in 2018, data issues were considered part of research misconduct (i.e. misappropriation, see 2018 Table 4).

When the results on disregard for good research practices in the 2018 and 2023 barometers are compared, there is some indication that the number of suspicions seems to have decreased. However, it should be emphasised that the number of observations is high. Another factor worth discussing is the severity of these cases, which is addressed in the question concerning reports of RI violations (Chapter 4).

Perceptions of Risk Factors

What are the main threats to good research practices?

Respondents were asked for their views on what factors most threaten responsible research conduct in Finland. A total of 457 responses were received to this open-ended question. The numerous long and detailed answers highlight the personal concerns and views of the respondents on what is clearly felt to be an important topic.

The most common threats were the same as those identified in the 2018 barometer. Over a quarter (27%) of respondents saw **time pressures, competition, and a lack of resources** as the biggest risk factors. One in ten (11%) brought up inadequacies in research integrity training and working practices. Many expressed frustrations with inadequate resources, management practices, and opportunities to act correctly. Attitude issues, such as indifference and reluctance to change old practices, were also prevalent. Examples of responses, translated from Finnish, include:

“Emphasising competition. Science thrives on collaboration and supporting each other’s well-being, not on competing against each other. Every researcher wants to do the best possible research without competing, so competition is not a motivating factor, quite the opposite – it undermines good research practice. Exaggerating one’s own achievements and posturing harms the entire research community. Instead, a research community that lifts and supports others benefits everyone.”

“Time pressures kill ethics. Because there is immense pressure to produce (more, more, more!) publications, ethics and good research practice often take a back seat.”

“Universities are facing an acute labour shortage, and teachers have been burdened with an enormous number of obligations that they cannot manage within their total working hours. However, there is no money for outsourcing guidance and supervision, for example. Continuous cuts to the basic functions of universities and the ever-increasing workload endanger the foundation on which science is built.”

“Some researchers do not want to follow guidelines. At my workplace, some senior researchers want their names to always be in a certain place, regardless of their actual contributions.”

Issues with data management and authorship were the most commonly reported types of disregard for good research practices (Figure 9), and many respondents elaborated on these issues in this question. Problems with data management were attributed to factors such as a lack of knowledge and skills. Temporary contracts and the consequent lack of resources also make it difficult to follow good practices even when there is a desire to do so. One respondent described such a situation:

“Datasets that contain indirect personal information should be stored on the university’s network drive. However, due to temporary contracts I have changed universities every year, and while unemployed, I have had to store the data on my own hard drive. I have done my best to ensure my computer’s security, but I still feel guilty about deviating from good practice.”

Other comments included:

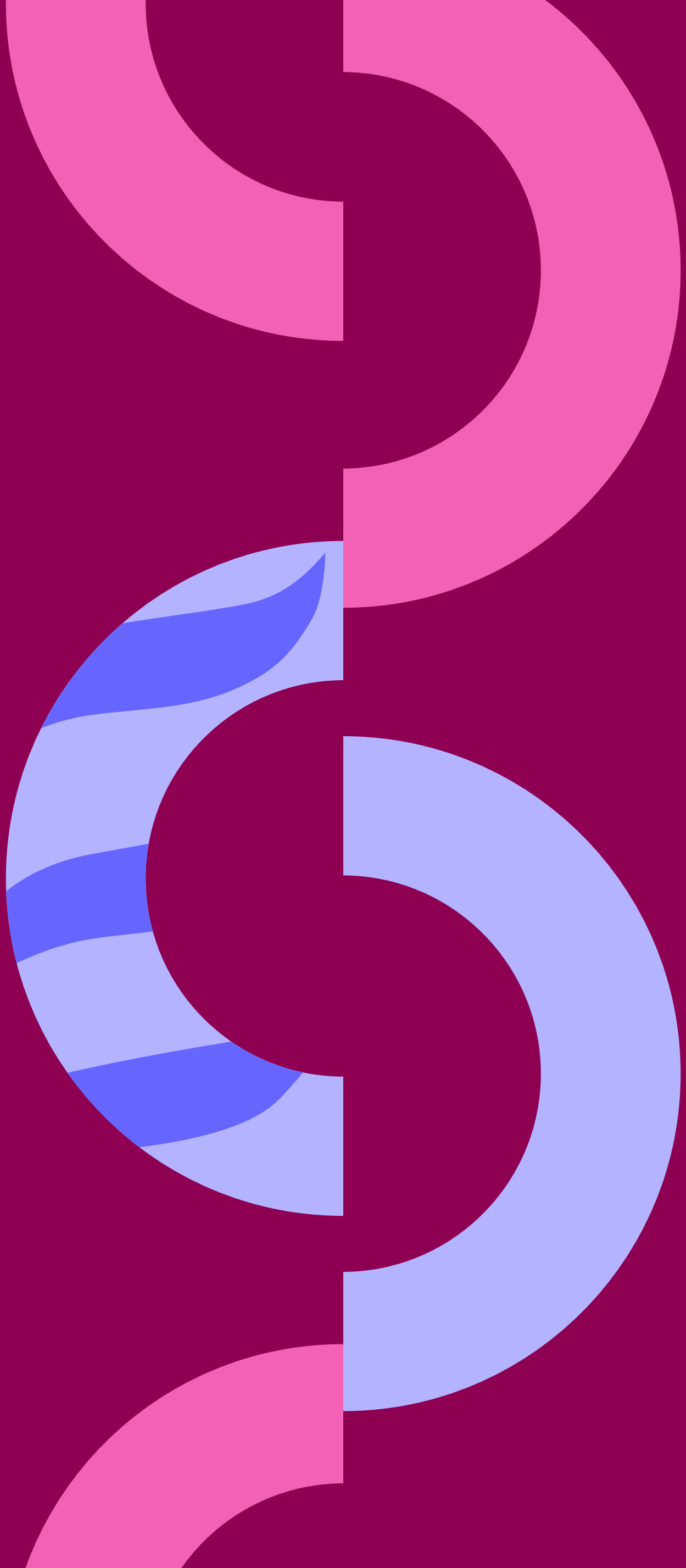
> *“Collaboration between organisations is challenging when files and data cannot be shared between the different pieces of software and other services used by various organisations. This often leads researchers to use things like [private] services. How often does this compromise data security in our daily work?”*

> *“The rules and recommendations for handling data should be clearer: for example, where it can and cannot be processed and stored, and how should we be transferring data. In international projects, it is challenging to impose stricter Finnish practices and methods regarding data protection and data processing, for example.”*

Problems on agreeing on authorship in co-publications can be divided into three main types on the basis of the responses: abuse of power, practices that violate people’s sense of justice or possibly go against guidelines, and various discipline-specific approaches to authorship that can cause unclear situations and conflicts. The respondents considered in particular the disregard for good research practices and the pressures of a research career, driven by intense competition and evaluation criteria, to be the underlying causes of authorship problems. Examples of responses include:

> *“The professor put their own name first on both the presentation and the article. They were not present at the presentation and certainly were not the lead author of the article. Academic greed.”*

> *“Gift authorship, meaning adding several people as authors solely because of their high status and perhaps superficial comments (i.e. glancing over the manuscript). This distorts funding applications and success, as different disciplines have very different practices.”*



4 Reporting Suspected Violations of Research Integrity

A violation of research integrity, or an RI violation, is intentional and severe negligence due to carelessness or indifference. Alleged RI violations are reported to the organisation where the act has taken place. TENK receives information of all notifications that are made of alleged RI violations, but not all suspicions are reported.

This section of the survey charted the respondents' knowledge of the investigation process for alleged RI violations, whether the respondents have reported RI violations, and what might prevent them from doing so.

Reporting a Suspected RI Violation

Do respondents know what to do if they suspect an RI violation?

Of the respondents, 19% did not know what to do if they suspected an RI violation, but 79% had at least some idea (Figure 10). Partial knowledge is sufficient to proceed, so this result can be considered good, though there is room for improvement.

Have the respondents reported RI violations?

The majority (68%) had not come across a suspected RI violation in the past four years and subsequently had not reported one (Figure 11). However, 25% had come across a suspected RI violation but had not reported it, and seven percent (75 respondents) had reported a suspected RI violation. A total of 32% of respondents had thus come across a suspected RI violation, but the majority of them (78%) had not reported these observations. It thus seems that suspicions rarely lead to investigations.

When these results are compared to the results on research misconduct and disregard for good research practices (Figures 8 and 9), the respondents reported fewer suspicions of RI violations in response to this question. For suspected research misconduct, the highest figure was 34%, and for suspected disregard for good research practices, it was 41%. The difference is not considerable, but it is important to consider why there

is a difference. It is possible that a question about suspected RI violations prompted respondents to think of particularly serious cases. For example, disregard for good research practices does not necessarily meet the criteria for a serious RI violation.

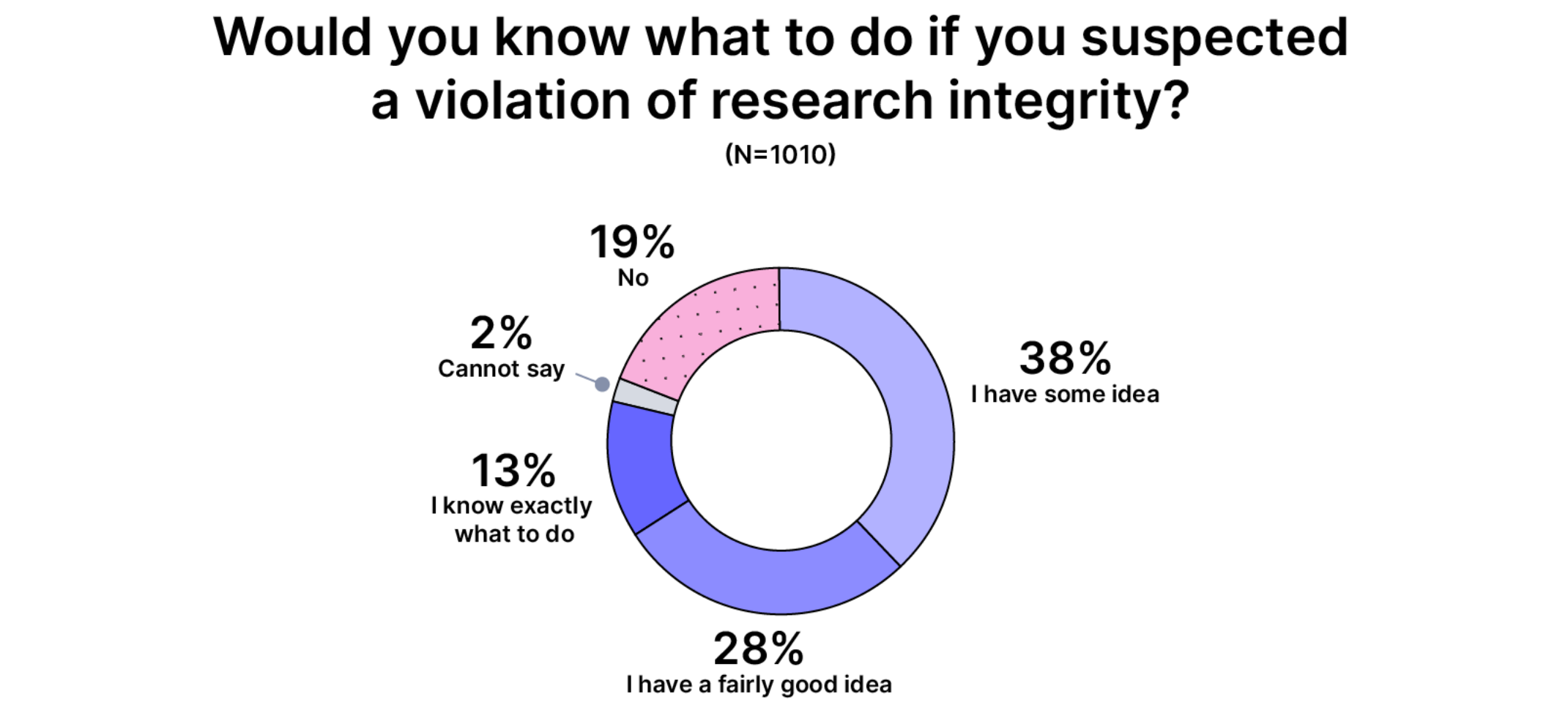


Figure 10. Knowledge of the RI process

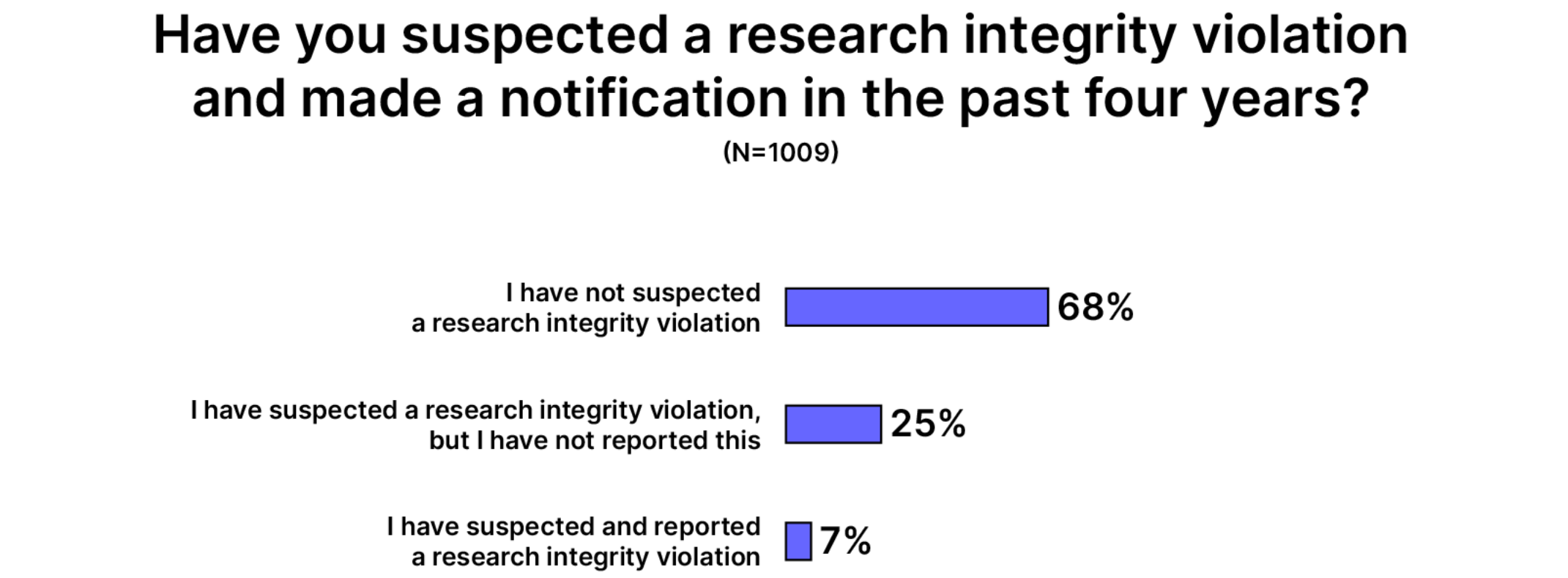


Figure 11. Making a notification of an alleged research integrity violation

Why are notifications not made?

Respondents were asked what would prevent them from reporting a suspected violation of research integrity. Rather than a lack of knowledge, the fear of personal consequences was the most significant reason for not reporting such incidents (25% 'very much,' Figure 12). Each of the response options in the survey was selected by at least some individuals as a factor that could prevent them from reporting their suspicions. Only 18–28% responded that these factors would not matter to them at all.

Is a lot of research misconduct left uninvestigated?

Of those who had suspected an RI violation, 78% had not reported their observations, which could indicate that the number of RI violations that go uninvestigated is worryingly high. However, TENK's statistics show that alleged RI violations can also turn out to be workplace problems, and in many investigations, the RI process concludes with the finding that that no research integrity violation has taken place.

This is illustrated, for example, by TENK's statistics during the survey period, 2019–2022. During these years, 161 notifications of alleged RI violations were submitted at Finnish research organisations. In the RI processes that were concluded during this time period, no RI violation was found in 76 cases. Research misconduct was found in 26 cases, and disregard for good research practices was found in 18 cases.[1] Suspicions should always be investigated, but often the issue at hand is something other than a violation of research integrity.

1 These details can be found in TENK's 2023 annual report on TENK's website (https://tenk.fi/en/tenk/annual-reports). The remaining 41 notifications from 2019–2022 were either not research integrity issues, or their investigation in the RI process was ongoing when the annual report was compiled. When comparing figures, it is important to note that RI processes are lengthy, and an RI process concluded in 2019 was likely initiated the previous year or even earlier.

To what extent would the following factors prevent you from reporting a suspected research integrity violation?

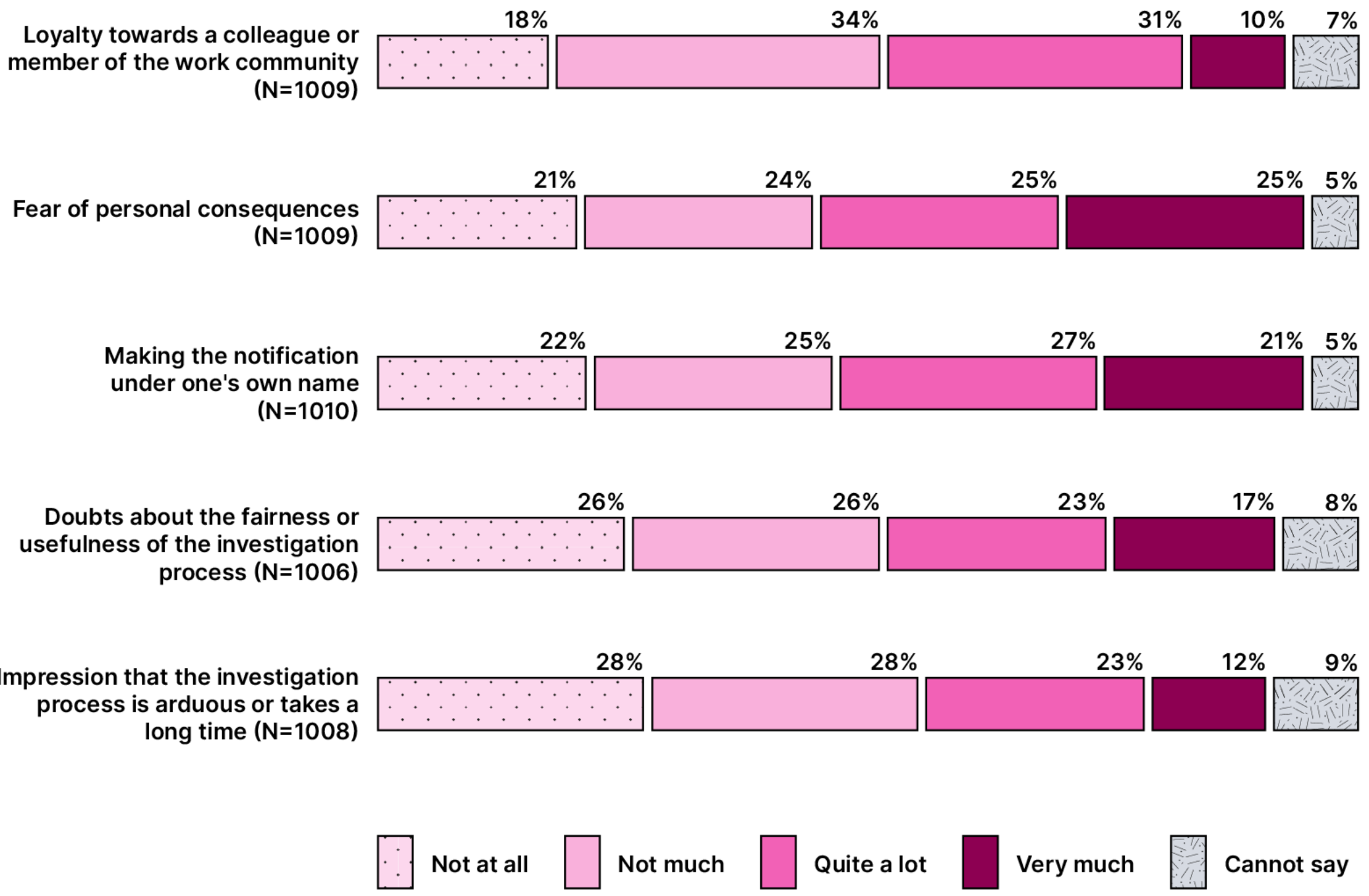


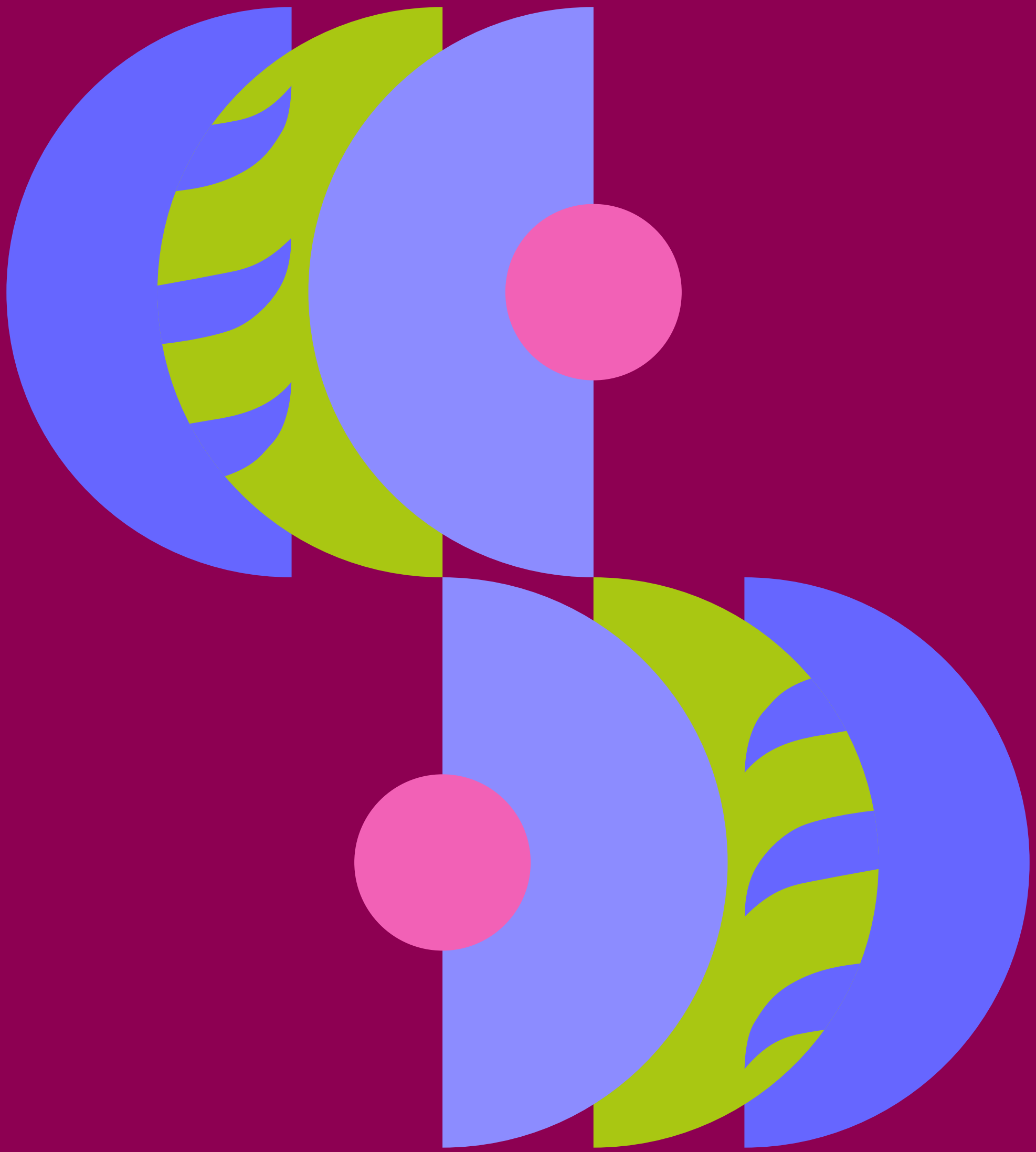
Figure 12. Obstacles to making a notification of an alleged research integrity violation

What to Do if You Suspect a Research Integrity Violation

In Finland, alleged research integrity violations are investigated in the research organisation where the incident has taken place. If you suspect research misconduct, contact a research integrity adviser. They can provide guidance on how to proceed.

A suspected RI violation is reported using TENK's notification form for an alleged RI violation, available on TENK's website. The director of the organisation makes the decision on initiation of the RI process.

If those involved in the investigation are dissatisfied with the RI process or its outcome, they can request a statement from TENK. In its statement, TENK assesses whether the RI process has been conducted according to the RI Guidelines and whether a violation of research integrity has taken place.



5 Research Integrity During Exceptional Circumstances

Did the COVID-19 pandemic have an impact on research integrity?

The COVID-19 pandemic affected the period covered by the survey in various ways. The barometer was therefore used to investigate the impact of the pandemic on adherence to good research practice in respondents' work environments.

The results suggest that the crisis caused by COVID-19 did not affect responsible conduct of research in Finland considerably (Figure 13). Half of the respondents (50%) reported that the pandemic had had no impact on adherence to responsible conduct of research in their work environment, and 37% could not say if there had been any impact. Of the respondents, 10% felt that the pandemic had worsened conditions, while two percent expressed the opinion that conditions had improved due to the pandemic.

Respondents who felt that the pandemic had led to research integrity impacts were asked to elaborate on their view. There were only 97 open-ended responses, so these should be considered as indicative at best. The main problems mentioned were:

- reduced interaction and consequently weaker control over research integrity issues, which had a particularly harmful effect on students (23%)
- increased competition and formation of cliques (14%)
- increased difficulties in data management (6%).

On the other hand, some responses indicated that more time was available for research, and certain types of work, such as remote interviews, became easier.

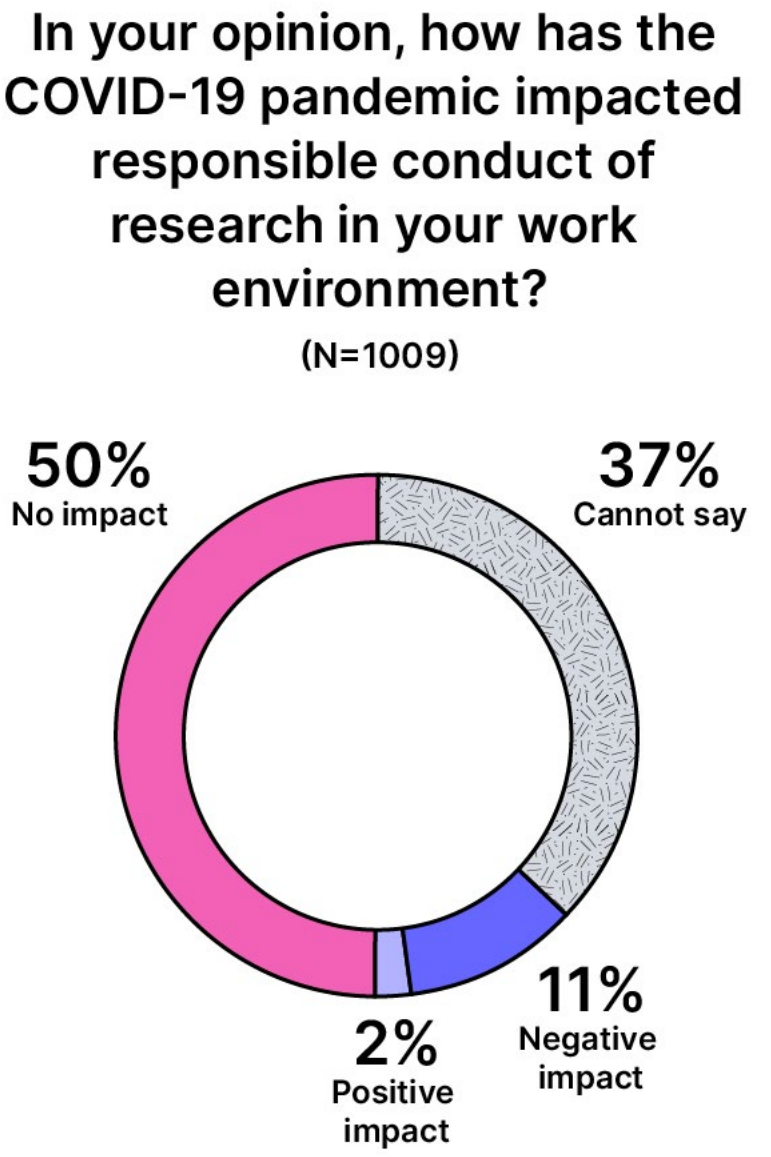
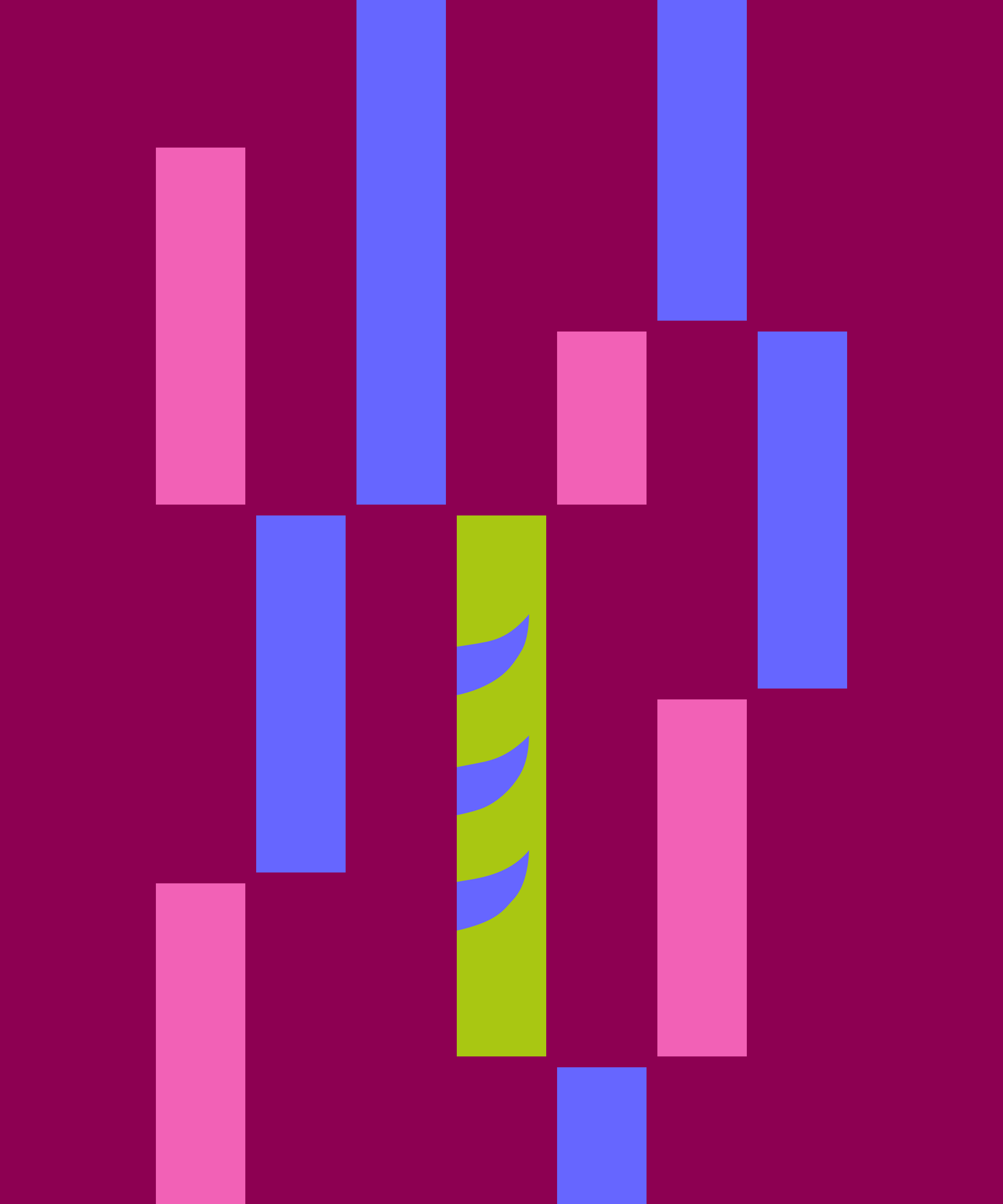


Figure 13. Views on the impact of COVID-19 on responsible conduct of research



6 Conclusions

The Finnish Research Integrity Barometer 2023, conducted by the Finnish National Board on Research Integrity TENK, is a survey on research integrity and responsible conduct of research in Finland's research community. The results of the barometer indicate that the level of knowledge on research integrity in Finland is high. The responses reflect the high regard in which this topic is held in the research community. Respondents expressed strong disapproval towards indifferent attitudes and the harm that results from them and raised concerns about the impact of competition stemming from limited resources. Nearly all respondents rated their research integrity skills as meeting the requirements of their work or research at least sufficiently. The wishes that were expressed for more training likely reflect the motivation to deepen skillsets as well as the perceived need for improvement in the respondents' working environment.

A research integrity violation is an instance of intentional and serious negligence caused by carelessness or indifference. Respondents' suspicions of research misconduct and disregard for good research practices seem to have decreased somewhat since 2018 (cf. Tables 3–5 in the 2018 barometer), but it is noteworthy that 34 percent of respondents reported having suspected plagiarism at least once in the past four years. There were also many instances where the respondents suspected disregard for good research practices related to data and results, as well as issues to do with guest authorship. Only relatively few who believe they may have encountered an RI violation report it, which leaves most suspicions uninvestigated. The biggest reason for not reporting is the fear of personal consequences.

The large number of suspected instances of misconduct points to the presence of problems and ambiguities in the research community. However, these observations likely also include issues outside the scope of research integrity. As TENK's statistics show, reports of alleged RI violations often are not actually research integrity issues, and RI processes rarely find that research integrity has been breached. Factors behind these cases often include strained work relationships, and fostering a good research culture would also address these issues.

For research organisations, the Research Integrity Barometer 2023 highlights the research community's good level of knowledge and motivation and identifies clear areas for improvement. Half of the respondents wanted more training opportunities. Since alleged RI violations are reported so rarely, most problematic situations remain

unresolved, whether they concern suspected research integrity violations or other types of issues between researchers. There appear to be significant gaps in data management skills, and practical problems caused by factors such as temporary contracts can complicate proper data management even when the skills are there.

The best way to address problems is through preventive measures. The researcher's own work environment and organisation are key as sources of research integrity knowledge. Research integrity advisers can offer help and support in issues related to responsible conduct of research, so actively informing staff about this network can certainly offer advantages. Continuously developing a good research culture is always a worthwhile investment for organisations. However, it must also be noted that competition for resources is an undeniable threat to research integrity in Finland's research community.

Background information about the respondents:

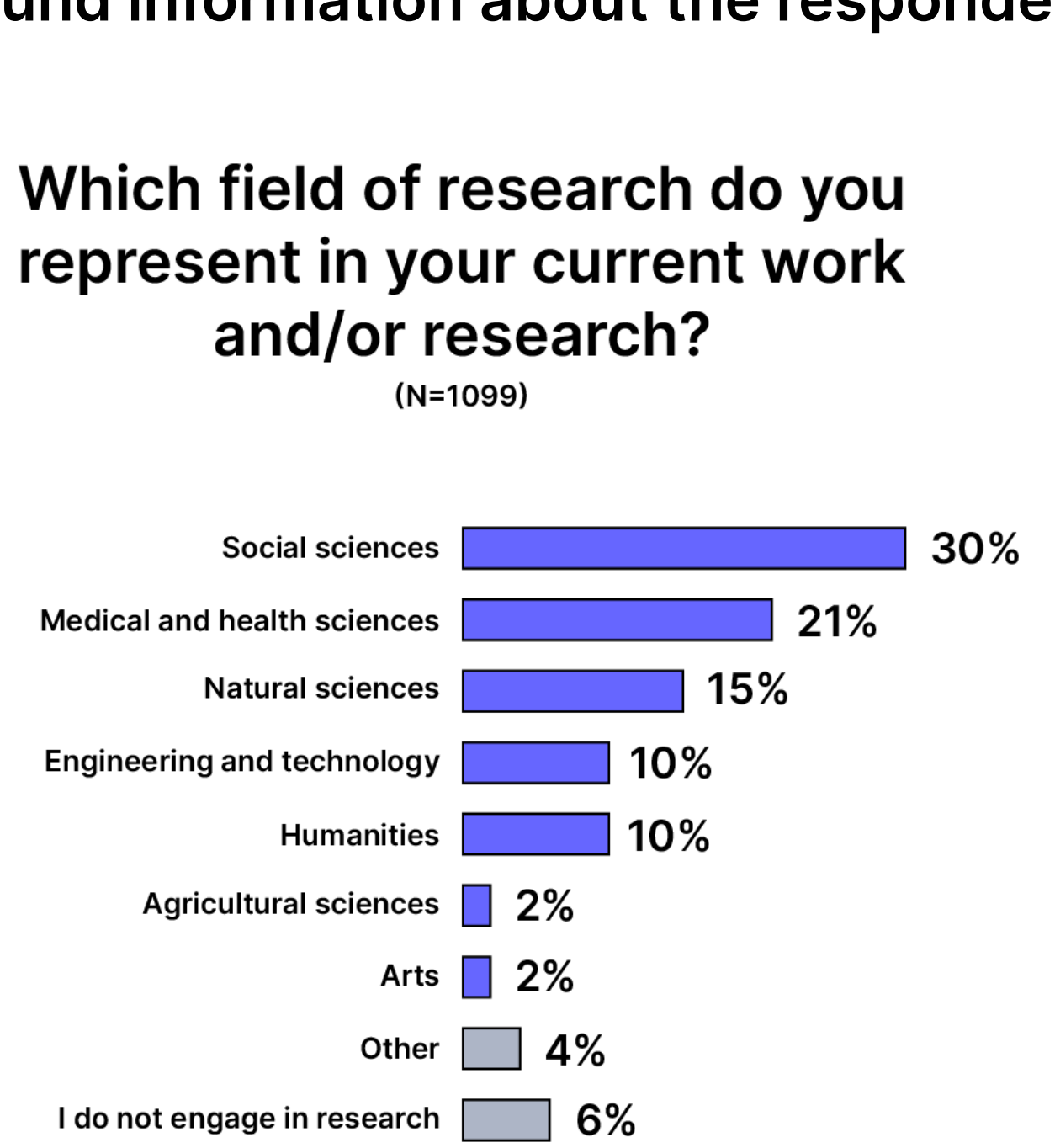
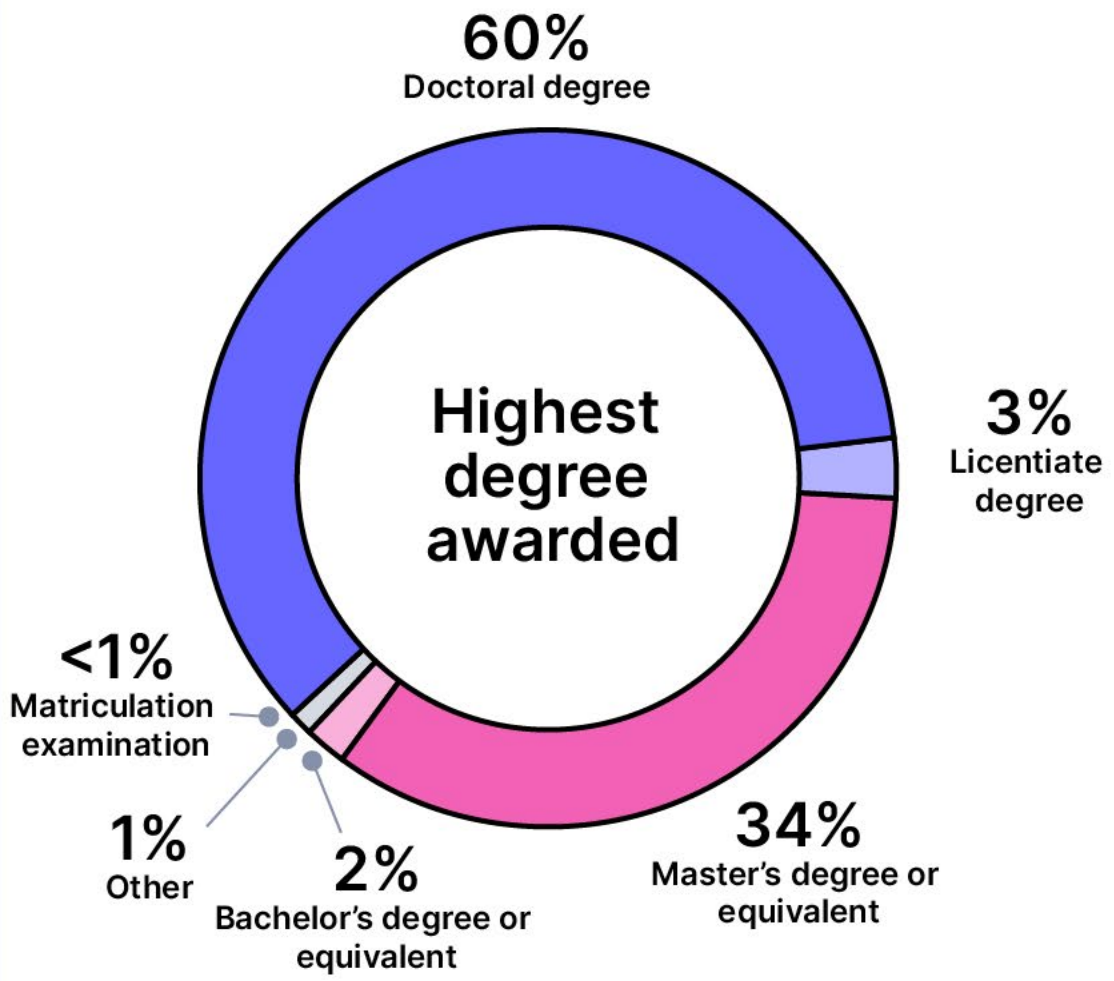
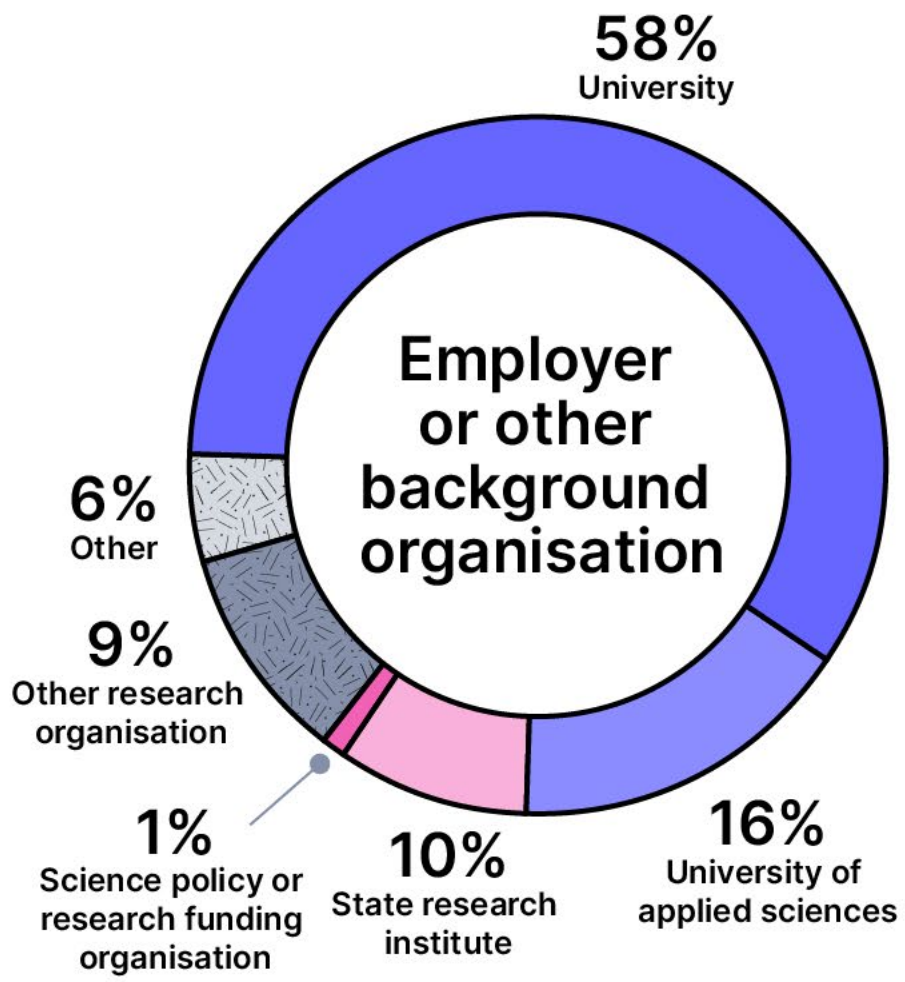


Figure 14. Research field of the respondents





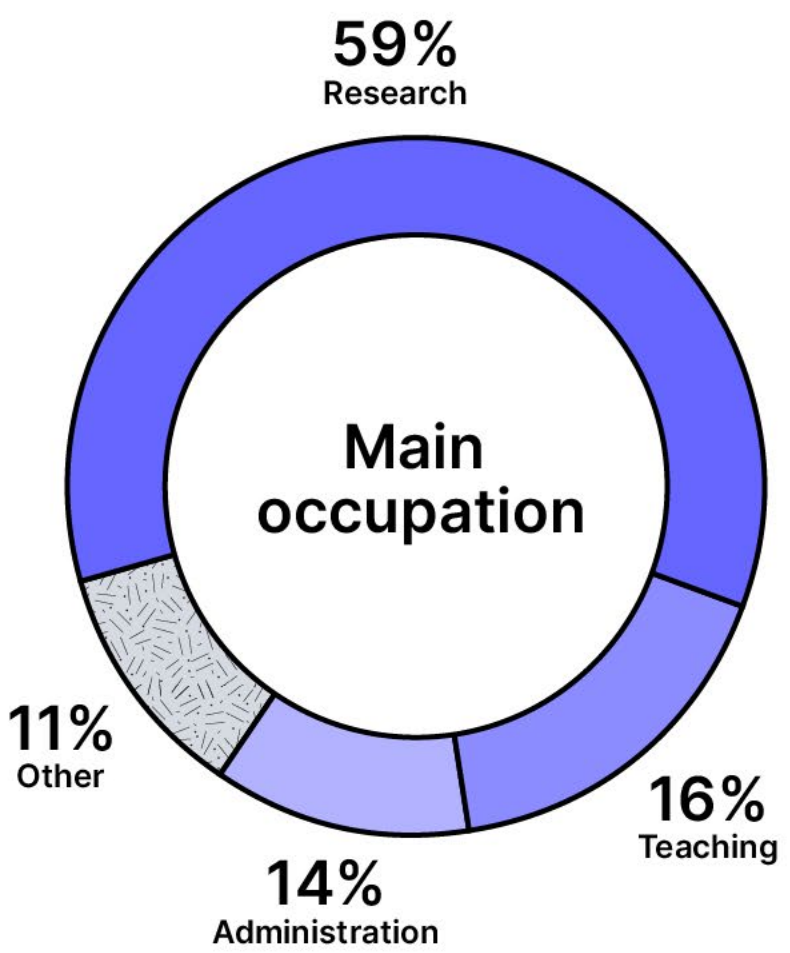
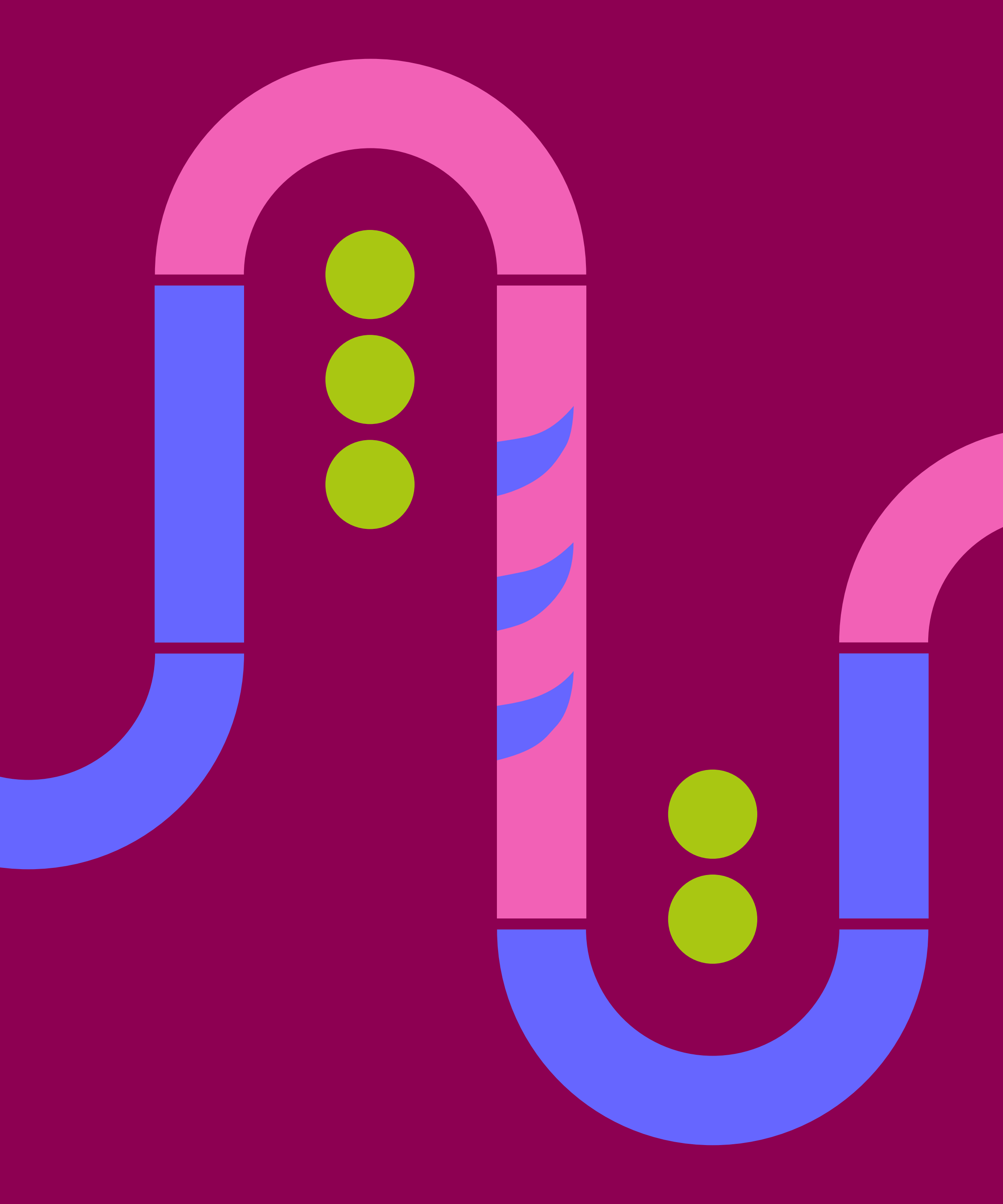


Figure 15. Background information of the respondents. In each figure, N=1099.



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Survey Questionnaire

Background information of the respondent

1. Research experience in years:

Options
Less than 10 years
10-20 years
More than 21 years

2. Highest degree

Options
Doctoral degree
Licentiate degree
Master’s degree or equivalent
Bachelor’s degree or equivalent
Matriculation examination
Other (Please specify)

3. What field of research does your highest degree represent? You can check your field from the following list: https://www2.stat.fi/en/luokitukset/tieteenala/

Options
Natural sciences
Engineering and technology
Medical and health sciences
Agricultural sciences
Social sciences
Humanities
Arts
Other (Please specify)

4. Where did you complete your highest degree?

Options
In Finland
In another country

5. Your employer organisation or other background organisation:

Options
University
University of applied sciences
State research institute
Other research organisation
Science policy or research funding organisation
Other (Please specify)

6. Your main work task:

Options
Research
Teaching
Administration
Other (Please specify)

7. Which research field do you represent in your current work and/or research? You can check your own field from the following list: https://www2.stat.fi/en/luokitukset/tieteenala/

Options
Natural sciences
Engineering and technology
Medical and health sciences
Agricultural sciences
Social sciences
Humanities
Arts
Other (Please specify)
Not applicable

1. Sources of information on responsible conduct of research

In this section, we ask about your familiarity with research integrity guidelines and the Finnish system of research integrity advisers. We would also like to know about your sources of information on responsible conduct of research. You can read the definition of terms here: https://tenk.fi/en/research-misconduct/responsible-conduct-research-rcr

8. The following guidelines and recommendations on research integrity apply to all research disciplines. How familiar are you with them?

Options						
Scale:	**Not familiar**	**Know by name**	**Somewhat familiar**	**Reason-ably familiar**	**familiar**	**Cannot say**
Responsible conduct of research and procedures for handling allegations of misconduct in Finland (the RCR guidelines, 2012)						
Agreeing on authorship						
Template for researcher’s curriculum vitae						
The European Code of Conduct for Research Integrity						

9. 75 Finnish research organisations currently have research integrity advisers. Research integrity advisers are trained by TENK, and they offer advice in responsible conduct of research. How familiar are you with this system in your own organisation?

Options
Not familiar
Somewhat familiar
Quite familiar
Very familiar
Cannot say
There is no research integrity adviser in my organisation

10. How much information have you obtained about responsible conduct of research from the following sources in the past four years?

Options						
Scale:	**No information**	**Some information**	**Quite a lot**	**A lot**	**Cannot say**	**Not applicable**
Activities in my organisation (e.g. training, events, website)						
My organisation’s research integrity adviser						
Members of my working environment						
Research funders and information provided in funding application rounds						
Scientific publishers and publications						
Trade unions in the field of science and research						
Scientific or learned societies						
TENK’s events or website						
Media and other public discussions						
Other (Please specify) Open field						

2. Knowledge of responsible conduct of research

In this section, we ask about training activities and opportunities and your familiarity with responsible conduct of research. You can also tell about good practices that organisations have adopted to foster responsible conduct of research.

11. Does your organisation offer training in research integrity and research ethics?

Options
No
Yes, but not enough
Yes, more or less sufficiently
Yes, sufficiently
Cannot say
Not applicable

12. How many times have you participated in research integrity or research ethics training in the past four years?

Options
Never
Once or twice
Three times or more

13. How would you evaluate your familiarity with responsible conduct of research with regard to your research and/or current work?

Options
Insufficient
Somewhat insufficient
Meets the requirements sufficiently
Fully meets the requirements
Cannot say
Not part of my job description

14. Which topics of responsible conduct of research and research integrity would you like to learn more about?

Options
I do not need additional learning
I would like to learn more about the following: Open field

15. If you know of good practices that have been adopted to foster responsible conduct of research in your own organisation or another organisation, you can tell about them here.

Response method
Open field

3. Activities that violate responsible conduct of research

Reliability, honesty, respect and accountability are the basic principles of responsible conduct of research. These principles form part of the quality control in the research community. In this section, we ask whether you have observed possible violations of responsible conduct of research and what you consider as threats toward research integrity.

Violations of responsible conduct of research violate the basic principles of research integrity. In the RCR guidelines, these activities are divided into two categories: 1) research misconduct and 2) disregard for responsible conduct of research. The following questions address suspicions of such activities. Academic misconduct is outside the scope of the RCR guidelines, so we ask that you respond only with regard to scientific and research activities.

16a. How often have you suspected the following types of research misconduct in your working environment in the past four years? You can read more detailed definitions here: https://tenk.fi/en/research-misconduct/rcr-violations

Options				
Scale:	**0 times**	**Once or twice**	**Three times or more**	**Not applicable**
Plagiarism: Presenting or using someone else's work or parts of it as one's own without reference to original source or author				
Fabrication: Reporting invented observations to the research community				
Falsification of observations: Deliberately changing or presenting observations so that the results based on them are distorted				
Falsification of results: Changing, cherry-picking or leaving out essential research results or data				

16b. How often have you suspected the following types of disregard for responsible conduct of research in your working environment in the past four years? (The response options do not form a comprehensive list.)

Options				
Scale:	**0 times**	**Once or twice**	**Three times or more**	**Not applicable**
Failure to obtain a research permit or to conduct ethical review before the research; acting in violation of permit or ethical review				
Disregard concerning the use, documentation, or storage of research data or results				
Inappropriately delaying or hampering the				
work of other researchers				
Unjustified omission of an author's name from a list of authors				
Unjustified denigration of other researchers' work or unjustified neglect to refer to them				
Including a researcher's name in a list of authors without justification				
Publishing the same results more than once as if they were new findings (self-plagiarism)				

Options
Exaggerating one’s scientific achievements in a CV or list of publications
Using one’s academic status for unwarranted benefit in scientific activities
Unfounded and malicious reporting of violations of responsible conduct of research
Interfering with the process of investigating suspected violations of responsible conduct of research or harassing the parties involved in the process
Other (Please specify)

17. In your opinion, what seem to be the main threats to responsible conduct of research in Finland? Please do not give information that can be used to identify individuals, organisations or events.

Response method
Open field

4. Reporting suspected violations of responsible conduct of research

18. If you suspected a violation of responsible conduct of research in the Finnish research community, would you know what to do to ensure that the issue was handled correctly?

Options
No
I have some idea
I have a fairly good idea
I know exactly what to do
Cannot say

19. Have you suspected and reported a violation of responsible conduct of research in the past four years?

Options
I have not suspected a violation of responsible conduct of research.
I have suspected and reported a violation of responsible conduct of research.
I have suspected a violation of responsible conduct of research, but I have not reported it.

20. To what extent would the following prevent you from reporting a suspected violation of responsible conduct of research?

Options					
Scale:	**Not at all**	**Not much**	**Quite a lot**	**Very much**	**Cannot say**
Loyalty towards a colleague or member of the working community					
Reporting the suspicion under your own name					
Fear of consequences for you					
Belief that the investigation process is arduous or takes a long time					
Suspicion that the investigation process would not be impartial or fair or serve any purpose					
Other (Please specify)					

5. Impact of crises on responsible conduct of research

In this section, we ask your opinion of the impact of the COVID-19 pandemic on responsible conduct of research.

21. In your opinion, how has the COVID-19 pandemic impacted responsible conduct of research in your working environment?

Options
No impact
Negative impact
Positive impact
Cannot say

22. If you think that the COVID-19 pandemic has had an impact on responsible conduct of research, you can specify your response here. Please do not provide information that can be used to identify individuals, organisations or events.

Response method
Open field

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