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SOPs4RI

# D6.2: Final report and recommendations

## International Research Integrity Survey (IRIS)

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*Project acronym*

**SOPs4RI**

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# D6.2: Final Report and Recommendations

## International Research Integrity Survey (IRIS)

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This report builds on the work that has taken place in work package 6 in SOPs4RI:

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# Executive summary

This report presents the main results from the International Research Integrity Survey (IRIS), which was carried out in the context of Work Package 6 of the Standard Operating Procedures for Research Integrity (SOPs4RI) project.

The main objective of IRIS was to examine the perceived need for organizational research integrity policies and procedures among researchers. The SOPs4RI project is collating a broad range of tools and resources that research performing and funding organisations may use when developing and implementing research integrity promotion plans, and IRIS contributes to assessing the relevance of these tools as well as the overall perceptions related to mechanisms for promoting research integrity. The survey study covers researchers from 34 countries (EU, EFTA, and selected OECD countries) and all main areas of science. Following exclusion criteria specified in the chapter on methodology, 65,764 researchers out of the 73,757 who responded to the survey were retained for the analyses presented in this report.

To set the context, IRIS provides an overview of researchers' reported engagement in research practices that may be considered questionable or detrimental to the quality of research across countries and research areas, in order to establish a sense of the scope of the problem, and in turn the need for organisational efforts to actively mitigate. Results show non-trivial levels of self-reported participation in questionable research practices with some variation across countries and research areas.

Next, IRIS explores researchers' perception of existing organisational policies and mechanisms to support research integrity. In earlier phases of the SOPs4RI project, interviews, Delphi surveys, and focus group studies found firm consensus on nine important topical areas that research performing organisations should deal with to promote research integrity: research environment, supervision and mentoring, research integrity training, data management, ethics structures, breaches to research integrity, collaboration, declaration of interests, and publication and communication. For each area, IRIS examines the extent to which researchers across countries, fields, and career stages consider these areas adequately handled within their own organisations. Results demonstrate that

a significant proportion of researchers are not aware of an overall research integrity statement within their organisations and shows considerable differences across countries. Awareness of organisational policies across the specific topical areas differs significantly. Researchers from EU countries were generally less aware of specific policies than researchers from the non-EU countries covered by the study. Overall, three out of four researchers have at least some confidence in the ability of their organisations to ensure research integrity.

In terms of attitudes to research integrity policies, about two-thirds of researchers feel that organisations have a valid role in overseeing the integrity of their research. Results also show significant differences across research areas and career levels, with early career researchers and researchers from the medical sciences being most in favour of organisational oversight. A majority of researchers believe that research integrity policies can at least sometimes improve research; however, a majority also finds that such policies may at least sometimes be box-ticking exercises.

IRIS shows that researchers receive information about research integrity from multiple sources, and that they tend to identify most closely with the collectives of researchers that they are epistemically or institutionally close to. These results can be taken into account when deciding on efficient ways of sharing knowledge and information about research integrity issues and when implementing policies and procedures to promote research integrity. Finally, IRIS demonstrates that the intrinsic values attached to more reliable science, greater trust of colleagues and personal reputation, are core to understanding researchers' commitment to research integrity procedures, while prospects of, e.g., higher salary or promotion are of less importance in relation to fostering responsible conduct of research.

# 1. Introduction

## 1.1 Abbreviations

Below we present a list of abbreviations that will be used in this report:

**RI** – Research Integrity

**SOP** – Standard operating procedure

**RPO** – Research performing organisation

**RFO** – Research funding organisation

**RIPP** – Research Integrity Promotion Plan

**ECoC** – European Code of Conduct

**CBA** – Cost Benefit Analysis

**DPO** – Data Protection Officer

**WP** – Work Package

**QRP** – Questionable Research Practice

**AAPOR** – American Association for Public Opinion Research

## 1.2 Terminology

Below we present a glossary of the terms that are going to be utilized in this report:

Code: a document guiding the members of an organisation on ethical standards and how to achieve them. Ethics/integrity codes are formal documents sending a message about moral standards guiding professional behaviour by providing principles, values, standards, or rules of behaviour.

Guideline: a statement of principles or issues to consider when performing a task, aimed to guide courses of action. Guidelines give direction and help users make decisions. They are often created based on the consensus of experts after detailed evaluation and assessment of available evidence. They may include checklists.

Standard Operating Procedure (SOP): a detailed, written instruction, aimed to achieve uniform action step-by-step. SOPs prescribe specific actions; they liberate users from decision-taking by ensuring that the procedure is followed. They may come in the shape of a 'decision-tree'/flow-diagram, similar to what is referred to as an algorithm in clinical contexts.

Toolbox: a structured collection of easy-to-use SOPs and guidelines that RPOs and RFOs can use when developing their own Research Integrity Promotion Plans.

**Research Integrity Promotion Plan (RIPP):** a document describing how a specific institution will ensure, foster and promote responsible research practices, avoid detrimental practices, and handle misconduct. It is the intention that RPOs and RFOs should form their own RIPPs in order for them to take disciplinary, organisational and national differences into account.

## 1.3 About SOPs4RI

SOPs4RI (Standard Operating Procedures for Research Integrity) is a four-year (2019-2022), multi-partner transdisciplinary project funded by the European Commission (H2020-SwafS-03-2018, Grant Agreement no. 824481). The project has 13 partners in 10 European countries, and is coordinated by Aarhus University (AU). The project's homepage can be found here: https://www.sops4ri.eu/. SOPs4RI has also been preregistered on the Open Science Framework: https://osf.io/49fbk/

Objectives

The Standard Operating Procedures for Research Integrity (SOPs4RI) project aims to contribute to the promotion of excellent research and a strong research integrity culture aligned with the principles and norms of the European Code of Conduct for Research Integrity. The overall objective is to create a toolbox to support and guide research performing organisations (RPOs) and research funding organisations (RFOs) in fostering research integrity and consequently preventing, detecting and handling research misconduct and questionable research practices (QRPs). The project focuses on providing Standard Operating Procedures (SOPs) and guidelines that enable RPOs and RFOs to create and implement Research Integrity Promotion Plans (RIPPs). SOPs4RI will thus stimulate European organisations involved in performing and funding research to foster responsible conduct of research through organizational measures and policies. SOPs4RI takes a mixed-method, co-creative approach to the identification, development and empirical validation of SOPs and guidelines. The expected end-users of the tools provided by SOPs4RI are decision makers within RPOs and RFOs, e.g. university senior management (vice chancellors, deans, heads of administration), university academic councils, boards and directors of funding agencies, and their extended administrations. The identification, modification and development of SOPs and guidelines will take national, disciplinary, and organisational differences into account, and the final toolbox will enable RFOs and RPOs to create RIPPs in accordance with the needs of their organisation.

## 1.4 About this deliverable

Deliverable 6.2 reports the most important findings from the International Research Integrity Survey (IRIS), conducted as part of the SOPs4RI project. The goal of IRIS is to examine across countries, research areas, and career stages the perceived need for organisational research integrity policies and procedures among researchers. Like previous surveys on research integrity, IRIS does look into patterns of self-reported participation in questionable research practices, but the core ambition of

IRIS is to examine researchers' perceptions of and attitudes towards organisational mechanisms promoting research integrity. Are researchers aware of existing policies and procedures? In what areas would organisational mechanisms be considered useful and relevant? How could policy measures for research integrity be communicated and implemented, and what would motivate researchers to act in accordance with principles and policies for research integrity? Such questions are important to explore as a context for designing, developing, implementing, and maintaining research integrity promotion plans within universities and other research performing organisations.

The protocol for this survey was developed and reported as Deliverable 6.1 of the SOPs4RI project. It can be accessed at the project website and on the Open Science Framework. Here, we report the main findings of IRIS. Chapters 1 and 2 present the methodology and the sample composition. Chapter 3 provides an overview of levels of self-reported participation in questionable research practices, and Chapter 4 outlines researcher perceptions of the effectiveness of current research integrity policies. Against this backdrop, the need for research integrity policies is examined in the following chapters. Chapter 5 reports findings on researcher attitudes to research integrity. Chapter 6 deals with researchers' identification with various collectives in the context of communication and information flow about research integrity. And Chapter 7 finally presents results on researcher motivations to adhere to research integrity principles and policies.

The scope and coverage of IRIS allow for comparisons across countries, research areas, and career levels, and several of the findings in this report are broken down according to these dimensions. Knowledge about differences and similarities across countries, research areas, and career levels can hopefully enable organisations to better tailor research integrity promotion plans that fit the needs.

# 2. Methodology

## 2.1 Sampling

The study population of interest was originally planned to be active researchers in the humanities, social sciences, natural sciences (including technical science), and medical sciences (including biomedicine), who hold a doctoral level degree and produce research for commercial or academic institutions within the EU, U.K., Canada, Australia and the US. We decided additionally to include Norway, Iceland, Lichtenstein and Switzerland as European Free Trade Area (EFTA) members and to include researchers who held at least a master's level degree.

### 2.1.1 Sampling frame

Our sampling frame was the Clarivate Web of Science bibliographic database, which contains details of publications produced by researchers in 21,894 scientific journals, books and conference proceedings (Matthews 2021).

The sample was constructed from a background population of academics, identified in the bibliographic database, Web of Science (WoS). WoS contains article metadata for more than a million research articles annually. From these records we extracted information on author names, affiliations and e-mail addresses, for all articles published in the period 2016-2020, where at least one author had an affiliation to an institution in one of the sample countries. We downloaded 8,159,772 metadata records and retrieved 3,929,283 e-mail addresses. Of these 3,072,372 were from our countries of interest.

E-mail addresses and author names are not directly linked in Web of Science metadata records. We therefore calculated i) the frequency of co-occuring name and e-mail pairs and ii) the resemblance between author names and the part of the e-mail address before the '@', taking into account initials and abbreviated names (e.g. 'js' for 'Jane Smith'). We further corrected the sample for frequent spelling mistakes or text-recognition errors (for example, '.com' was recognized as '.corn'). Finally, we searched the e-mail addresses for near-duplicates, which we manually checked to identify clear cases of errors. Using this approach, we created 3,759,814 author profiles with e-mail address.

The resemblance between author names and the e-mail address was also used to provide a likelihood measure of the correctness of name-email pairs.

### 2.1.2 Sample design

Our objective was to obtain a sample that was both representative of the WoS population and contained sufficient numbers of observations within all countries and fields to enable robust comparisons to be made. To accomplish this, we generated a systematic sample with unequal selection probabilities with explicit and implicit stratification. We aimed to increase the precision of comparisons across 4 scientific fields by each country combinations through aiming for a similar effective

sample size within each such combination. This naturally led to an unequal selection probability sample design with lower selection probabilities in those field-country combinations that have larger number of publications in WoS. The explicit stratification categories include fully crossed country by scientific field (natural, medical, social sciences and humanities) combinations. Within each such stratum a systematic sample was drawn additionally using implicit stratification by a more granular indicator of scientific field and an indicator of the number of papers published by each author.

The exceptions to this procedure include those countries, or fields within some countries, where the total number of authors was smaller than that required to achieve the planned effective sample size. In such situations all authors were included in the sample. (Full list of countries in Appendix I)

## 2.2 Survey Development

The survey rationale was developed and agreed in consultation with project partners as detailed in protocol document D6.1, submitted in November 2020. The survey was to include sections covering: structural or demographic variables; values, beliefs and attitudes in relation to science practices, research integrity policies and the role of organisations in implementing them; the current research integrity landscape, including awareness of and satisfaction with current research integrity arrangements; personal efficacy and behaviour; and receptivity towards research integrity policies including specific examples of standard operating procedures.

Survey questions to meet the agreed rationale were developed between November 2020 and April 2021 by the team at University of Essex (UoE), guided by topic experts within the group of project partners. Most questions were written by the team but in two sections of the survey covering science values and questionable research practices, questions were modified from other surveys (details in APPENDIX).

The survey included two randomised experiments. The first was to test whether there was any difference in reported willingness to attend training when using the word “training” or “masterclass” to describe the training session, and to test whether or not being invited or required to attend the training would affect hypothetical willingness to attend it. Participants were randomly assigned to one of four groups, mandatory training, mandatory masterclass, voluntary training and voluntary masterclass.

The second experiment randomly assigned respondents from 10 countries to receive the response options for the questions relating to questionable research practices in either English or their assumed native language as identified from the question about where they had spent their childhood. This experiment was designed to test whether there was any difference in responses when given in English or in native language.

## 2.3 Cognitive testing

Eight cognitive interviews were carried out during the two-week period from 22/2/21-5/3/21. These interviews were intended to serve as a sense check, confirming the usability of the survey and ensuring that key terms were understood. The interviews were conducted by project partners using Microsoft Teams due to covid restrictions. Participants were from the social, natural and medical sciences and humanities. Participants were French Canadian, Portuguese, Greek, Italian, Belgian and Dutch and currently working in Portugal, United Kingdom, Belgium, Denmark and Greece. The interviews, which were conducted both in English and in non-English where that was the mother tongue of both interviewer and interviewee, included junior and senior researchers.

## 2.4 Pilot testing

Following the cognitive testing, a simple random sample of 5000 email addresses were selected from the sampling frame of 3.2 million email addresses for a pilot study which ran from 21st April to 12th May 2021. 300 responses were generated from 5000 emails, at a rate of 6 percent although approximately 14 percent of emails were not delivered. Of those who had a chance to receive the email, 7 percent responded.

Several experiments to test the impact of using different communication methods on survey participation were included at the pilot stage.

The final version of the questionnaire can be found in Appendix III.

## 2.5 Field operations

The survey was conducted entirely online, in English, using the Qualtrics platform, both to design and distribute the survey using its mailing options. In total 4,325,827 emails were sent to our selected sample of 908,870 email addresses, in 46 batches, across 5 stages, 12.8 percent of which bounced (555,778) according to the survey software, during the period 22nd June – 28th July 2021.

All communication was individually addressed as far as possible due to the increased response rate using personal invitation during the pilot study. Those with a more reliable prediction of first and last names in the dataset were addressed by both in the prenotification and invitation stages. Those with only a last name were addressed as Dear Dr. Lastname. Those with a no name, were addressed Dear Colleague.

A prenotification email was sent to the full sample of 908,870 researcher email addresses in 10 batches between 22nd and 29th June 21 informing recipients that they would be receiving an invitation to take part in the study. It included links to information about the project, the funding organisation, and a contact for the study.

The invitation to the survey was sent using the Qualtrics survey platform mailing facility between 29th June and 5th July. The invitation included information about the project and funder, with links

to the survey and to opt out from further communication. In addition, it included information about how the individual had been selected, the scope and purpose of the research for which personal data about them would be collected, how their personal data would be used, who would have access to it, the benefits of participation, and their right to withdraw at any time, including instructions on how to do so.

We sent a further 3 reminders about the survey between 9th and 28th July to researchers who had not yet taken the survey or opted out. Additional responses were not encouraged beyond the final reminder on 28th July. The survey remained open for a further month and was officially closed on 14th September.

Further details about the survey development and distribution can be found in Appendix IV.

## 2.6 Survey Response

73,757 people responded to the survey. Of these 1,602 were ineligible due to their country of employment being outside our specified countries. A further 6,391 were excluded as they completed less than 25 percent of the survey which gave no information beyond demographics. Lastly, those who did not state they were trained to at least master's level were removed. A remaining 64,074 cases were retained for the analysis. The overall response rate, computed using the American Association for Public Opinion Research's standard definitions, was 7.2 percent (Response Rate 2) (AAPOR 2016).

## 2.7 Weighting

We computed weights that we apply in our analyses to correct for the unequal selection probabilities of cases inherent in the sample design and for biases caused by differential non-response. Not all the authors in WoS had the same initial probability of selection, depending on the sizes of the WoS sub-populations used in the stratified design. We aimed to gather 500 responses in each scientific field in each country. Hence those authors in smaller countries that had few authors in WoS had a higher probability of selection than those in countries that had much greater representation. The weighting reflects these relative selection probabilities.

Certain subgroups in a population may be more likely to respond to a survey than others. These groups can end up over represented in the sample, which can bias the survey estimates. We used the information about our WoS authors that we included in the sample design to estimate the overall probability of responding. We modelled this using logistic regression. An binary variable that indicated whether a sample member provided a =usable response to the survey (ie answered more than 25 percent of the questions) was specified as the dependent variable. The independent variables were country, field, country x field, number of papers and granular subfield. The model therefore takes into account simultaneously the unequal selection probabilities and the differential non-response propensity. The weight variable we derive from estimating this model this was computed

as the inverse of the predicted response probability for each respondent, normalised so that the final weighted sample size matched the unweighted sample size.

## 2.8 Data storage/ availability

Data was downloaded from Qualtrics on closing the survey 14.09.21. Identifying information (such as names and email addresses) has been removed from this master version of the data. A separate dataset containing the sampling ID, the ID generated when taking the survey and email address can be used with the de-identified dataset to identify respondents. Both datasets are held securely and accessible only to WP6. Following redactions of identifying variables, including collapsing certain categories and considering combinations of potentially identifying variables, an open access version of this data will be available on OSF and through the UK Data Archive. A safeguarded deidentified version of the data which has retained individual country and granular field data will be archived and managed by UK Data Archive.

## 2.9 Ethical considerations

Ethical approval for conducting the survey was obtained from the University of Essex Faculty of Social Sciences Ethics Committee (ETH2021-0441). The approval document can be found on OSF: https://osf.io/xb9rk/.

# 3. Sample Composition

## 3.1 Country of employment

Our sample design aimed at recruiting 500 researchers in each of the four main fields in each of the target countries, where possible. This would yield a total of 2000 respondents per country. In some cases, as mentioned previously, this was never going to be possible as there were too few author records in WoS associated with some of the smaller countries.

Table 1 Country of Employment

| country | n | p_raw | p_weighted |
|---|---|---|---|
| Australia | 2228 | 3.48 | 3.82 |
| Austria | 1830 | 2.86 | 1.13 |
| Belgium | 1987 | 3.10 | 1.31 |
| Bulgaria | 755 | 1.18 | 0.33 |
| Canada | 2800 | 4.37 | 4.80 |
| Croatia | 1526 | 2.38 | 0.54 |
| Cyprus | 321 | 0.50 | 0.12 |
| Czechia | 1867 | 2.91 | 1.22 |
| Denmark | 2224 | 3.47 | 1.13 |
| Estonia | 394 | 0.61 | 0.18 |
| Finland | 1951 | 3.04 | 1.05 |
| France | 2516 | 3.93 | 5.93 |
| Germany | 3085 | 4.81 | 8.71 |
| Greece | 2269 | 3.54 | 1.11 |
| Hungary | 1248 | 1.95 | 0.64 |
| Iceland | 104 | 0.16 | 0.11 |
| Ireland | 1248 | 1.95 | 0.62 |
| Italy | 4303 | 6.72 | 6.11 |

| country | n | p_raw | p_weighted |
|---|---|---|---|
| Latvia | 351 | 0.55 | 0.15 |
| Lithuania | 605 | 0.94 | 0.29 |
| Luxembourg | 183 | 0.29 | 0.10 |
| Malta | 141 | 0.22 | 0.04 |
| Netherlands | 2729 | 4.26 | 2.65 |
| Norway | 1342 | 2.09 | 0.57 |
| Poland | 2206 | 3.44 | 3.10 |
| Portugal | 4397 | 6.86 | 1.47 |
| Romania | 2645 | 4.13 | 1.20 |
| Slovakia | 819 | 1.28 | 0.51 |
| Slovenia | 713 | 1.11 | 0.30 |
| Spain | 4053 | 6.33 | 5.58 |
| Sweden | 2773 | 4.33 | 1.75 |
| Switzerland | 1851 | 2.89 | 1.11 |
| UK | 3701 | 5.78 | 8.30 |
| USA | 2909 | 4.54 | 34.02 |
| Total | 64074 | 100 | 100 |

notes: Unweighted n, both weighted and unweighted percentages

Table 1 shows the unweighted number of respondents from each in-scope country, the unweighted percentage of the whole sample and the weighted percentages. The latter calibrates the percentages to match the proportions in WoS, which we can consider as the population from which our sample was drawn. Thus respondents from some countries are under-represented in the sample with respect to the population while others are over-represented. This can be seen by comparing the unweighted with the weighted percentages in the table, in which the countries are presented in order from highest to lowest unweighted n. Portugal has the highest numbers of sample members, at 4448, while Iceland has the least, with only 104.

The difference between weighted and unweighted percentages offers a measure of the degree of under or over-representation in the sample relative to the WoS population. Recall that the sample was purposely not designed with probability of selection proportional to size of country or field, but to provide sufficient cases within those categories to be able to make meaningful comparisons

between. It is not surprising, therefore, to see quite large differences between percentages calibrated to population totals and the unweighted percentages. For example, the weighted percentage for US respondents is 34 while the unweighted percentage is just over 4.5. This reflects the fact that one third of WoS records are contributed by authors based in the US. Portugal, by contrast, makes up almost 7 percent of our sample but only about 1.5 percent of the WoS population, so is down-weighted when we present results later in this report. Ten countries have fewer than 1000 researchers in our sample, while thirteen have more than 2000.

## 3.2 Main field of study

Table 2 shows the same information for respondents' main field in which they carry out their research.

Table 2 Main field of study

| group | field | n | p_raw | p_weighted |
|---|---|---|---|---|
| Humanities | - | 9081 | 14.86 | 5.35 |
| | Arts (arts, history of arts, performing arts, music) | 947 | 1.55 | 0.70 |
| | History and archaeology | 2638 | 4.32 | 1.49 |
| | Languages and literature | 3145 | 5.15 | 1.60 |
| | Other humanities | 1496 | 2.45 | 1.04 |
| | Politics, ethics and religion | 855 | 1.40 | 0.52 |
| Medical | - | 9554 | 15.63 | 20.04 |
| | Basic medicine | 766 | 1.25 | 1.46 |
| | Clinical medicine | 4029 | 6.59 | 8.18 |
| | Health sciences | 3537 | 5.79 | 7.67 |
| | Medical biotechnology | 282 | 0.46 | 0.81 |
| | Other medical science | 940 | 1.54 | 1.93 |
| Natural | - | 24414 | 39.94 | 55.29 |
| | Agricultural biotechnology | 152 | 0.25 | 0.39 |
| | Agriculture, forestry, and fisheries | 575 | 0.94 | 0.86 |

| group | field | n | p_raw | p_weighted |
|---|---|---|---|---|
| | Animal and dairy science | 191 | 0.31 | 0.28 |
| | Biological sciences | 5432 | 8.89 | 13.31 |
| | Chemical engineering | 393 | 0.64 | 0.68 |
| | Chemical sciences | 1673 | 2.74 | 3.37 |
| | Civil engineering | 786 | 1.29 | 1.53 |
| | Computer and information sciences | 2378 | 3.89 | 6.08 |
| | Earth and related environmental sciences | 2331 | 3.81 | 5.10 |
| | Electrical engineering, electronic engineering, information engineering | 1864 | 3.05 | 4.66 |
| | Environmental biotechnology | 59 | 0.10 | 0.07 |
| | Environmental engineering | 439 | 0.72 | 0.68 |
| | Industrial biotechnology | 73 | 0.12 | 0.16 |
| | Materials engineering | 660 | 1.08 | 1.48 |
| | Mathematics | 1505 | 2.46 | 3.22 |
| | Mechanical engineering | 798 | 1.31 | 1.94 |
| | Medical engineering | 265 | 0.43 | 0.55 |
| | Nano-technology | 192 | 0.31 | 0.34 |
| | Other agricultural sciences | 308 | 0.50 | 0.51 |
| | Other engineering and technologies | 864 | 1.41 | 1.61 |
| | Other natural sciences | 418 | 0.68 | 0.81 |
| | Physical sciences | 2674 | 4.37 | 6.95 |
| | Veterinary science | 384 | 0.63 | 0.70 |
| Social | - | 18074 | 29.57 | 19.32 |
| | Economics and business | 5195 | 8.50 | 4.77 |
| | Education | 2157 | 3.53 | 2.18 |
| | Law | 876 | 1.43 | 0.61 |
| | Media and communications | 778 | 1.27 | 0.62 |

| group | field | n | p_raw | p_weighted |
|---|---|---|---|---|
| | Other social sciences | 2113 | 3.46 | 2.87 |
| | Political Science | 1435 | 2.35 | 1.09 |
| | Psychology and cognitive sciences | 3071 | 5.02 | 4.80 |
| | Social and economic geography | 581 | 0.95 | 0.61 |
| | Sociology | 1868 | 3.06 | 1.75 |
| Total | - | 61123 | 100 | 100 |

notes: Unweighted n, both weighted and unweighted percentages

Natural and medical sciences are under-represented in our sample compared to WoS, while researchers from social sciences and humanities are over-represented.

Table 3 Field of study in phd

| fieldgrp | phdfield | n | p_raw | p_weighted |
|---|---|---|---|---|
| Humanities | - | 8601 | 16.03 | 5.71 |
| | Arts (arts, history of arts, performing arts, music) | 819 | 1.53 | 0.67 |
| | History and archaeology | 2401 | 4.47 | 1.59 |
| | Languages and literature | 3091 | 5.76 | 1.79 |
| | Other humanities | 1493 | 2.78 | 1.10 |
| | Politics, ethics and religion | 797 | 1.49 | 0.56 |
| Medical | - | 7145 | 13.32 | 16.57 |
| | Basic medicine | 752 | 1.40 | 1.52 |
| | Clinical medicine | 2810 | 5.24 | 6.52 |
| | Health sciences | 2632 | 4.90 | 6.44 |
| | Medical biotechnology | 195 | 0.36 | 0.45 |
| | Other medical science | 756 | 1.41 | 1.65 |
| Natural | - | 22050 | 41.09 | 57.59 |

| fieldgrp | phdfield | n | p_raw | p_weighted |
|---|---|---|---|---|
| | Agricultural biotechnology | 108 | 0.20 | 0.24 |
| | Agriculture, forestry, and fisheries | 467 | 0.87 | 0.73 |
| | Animal and dairy science | 168 | 0.31 | 0.29 |
| | Biological sciences | 5153 | 9.60 | 14.43 |
| | Chemical engineering | 346 | 0.64 | 0.59 |
| | Chemical sciences | 1781 | 3.32 | 4.56 |
| | Civil engineering | 681 | 1.27 | 1.56 |
| | Computer and information sciences | 1740 | 3.24 | 4.95 |
| | Earth and related environmental sciences | 2016 | 3.76 | 5.16 |
| | Electrical engineering, electronic engineering, information engineering | 1490 | 2.78 | 4.23 |
| | Environmental biotechnology | 34 | 0.06 | 0.03 |
| | Environmental engineering | 309 | 0.58 | 0.56 |
| | Industrial biotechnology | 58 | 0.11 | 0.06 |
| | Materials engineering | 516 | 0.96 | 1.26 |
| | Mathematics | 1596 | 2.97 | 3.85 |
| | Mechanical engineering | 706 | 1.32 | 2.12 |
| | Medical engineering | 175 | 0.33 | 0.44 |
| | Nano-technology | 124 | 0.23 | 0.24 |
| | Other agricultural sciences | 267 | 0.50 | 0.47 |
| | Other engineering and technologies | 761 | 1.42 | 1.50 |
| | Other natural sciences | 419 | 0.78 | 0.92 |
| | Physical sciences | 2797 | 5.21 | 8.71 |
| | Veterinary science | 338 | 0.63 | 0.68 |
| Social | - | 15865 | 29.57 | 20.13 |
| | Economics and business | 4763 | 8.88 | 4.83 |

| fieldgrp | phdfield | n | p_raw | p_weighted |
|---|---|---|---|---|
| | Education | 1632 | 3.04 | 2.02 |
| | Law | 758 | 1.41 | 0.64 |
| | Media and communications | 579 | 1.08 | 0.56 |
| | Other social sciences | 1856 | 3.46 | 2.97 |
| | Political Science | 1315 | 2.45 | 1.23 |
| | Psychology and cognitive sciences | 2809 | 5.23 | 5.34 |
| | Social and economic geography | 493 | 0.92 | 0.62 |
| | Sociology | 1660 | 3.09 | 1.91 |
| Total | - | 53661 | 100 | 100 |

notes: Unweighted n, both weighted and unweighted percentages

A similar pattern pertains in Table 4 which presents the composition of the sample in relation to the fields in which respondents' doctoral training occurred.

Table 4 Current field of study by main field of study in which doctoral training occurred (grouped)

| | Humanities | Medical sciences | Natural sciences | Social sciences |
|---|---|---|---|---|
| Phd: Humanities | 96.6 | 0.4 | 0.2 | 2.7 |
| Phd: Medical sciences | 0.1 | 88.9 | 0.4 | 0.6 |
| Phd: Natural sciences | 1.3 | 7.2 | 98.7 | 2.6 |
| Phd: Social sciences | 1.9 | 3.5 | 0.6 | 94.0 |
| All | 100 | 100 | 100 | 100 |

notes: Unweighted, column percentages

Table 4 shows the concordance between researchers' training and their main field of study now. The overwhelming majority of our sample report working now in the scientific field in which they

trained. Exemplifying this are natural scientists, 98.7 of whom trained as natural scientists. Those working in medical science now are most likely to have trained in a different field, with 7.2 percent having trained in natural science and 3.5 in a social science subject. This still leaves almost 90 percent having trained in medical science.

It is useful to see how these superordinate categories break down into subfields. We have used the typology of subfields included in the OECD Frascati Manual. Table 2 shows how each of the main four fields breaks down into subfields, along with the unweighted n, unweighted and weighted percentages. It should be noted that we made an error in the questionnaire where we inadvertently offered as one of our available subfields "politics, ethics and religion". This should have read "philosophy, ethics and religion", as it is listed in the Frascati Manual. It is not possible to know exactly the consequences of this for our sample composition. Certainly it may have discouraged some philosophers from participating. It may have drawn some political scientists into this category. In the remainder of this report, we restrict field comparisons to the four major categories, which reduces considerably any damage to our interpretations that this error may have introduced.

## 3.3 Career stage and education

Table 5 Time since doctoral training

| phdyeargp | n | p_raw | p_weighted |
|---|---|---|---|
| Less than 5 years | 10401 | 18.66 | 18.10 |
| 5-9 years | 11112 | 19.94 | 17.42 |
| 10-14 years | 9657 | 17.33 | 13.72 |
| 15-19 years | 7569 | 13.58 | 11.58 |
| 20 or more years | 16988 | 30.48 | 39.18 |
| Total | 55727 | 100 | 100 |

notes: Unweighted n, both weighted and unweighted percentages

Table 5 shows the time elapsed since researchers in our sample obtained their doctorate or equivalent qualification. There is reasonable coverage across a wide range of years. Not all sample members have a PhD or equivalent, hence the total number is 56,130. There are just under 9,000 researchers without PhDs, of which 8130 (12 percent of the total) have master's level qualifications.

Moving on to current employment conditions, a substantial majority (66 percent) are in permanent contracts with less than half that number employed on temporary contracts. Less than one in ten are self-employed or otherwise independent from an employer (Table 6).

Table 6 Employment conditions

| contract | N | Percent |
|---|---|---|
| Permanent | 42233 | 66.10 |
| Temporary | 17199 | 26.92 |
| No employment contract (e.g. self-employed) | 4456 | 6.97 |
| All | 63888 | 100 |

notes: Unweighted

Table 7 Career stage

| stage | N | Percent |
|---|---|---|
| Early-career (e.g. postdoc, assistant professor, junior researcher) | 22879 | 35.80 |
| Mid-career (e.g. associate professor, senior researcher) | 23054 | 36.07 |
| Later-career (e.g. full professor, dean, director of research) | 14270 | 22.33 |
| Retired | 3713 | 5.81 |
| All | 63916 | 100 |

notes: Unweighted

Table 7 shows that the sample is split evenly between early career and mid-career researchers, with 36 percent falling into each of these two categories. Later career researchers form the next highest group and respondents stating that they are now retired making up just less then 6 percent of the sample.

## 3.4 Other characteristics

63 percent of respondents report having supervisory duties as part of their role while 37 percent do not (not shown in a table). A relatively low number of respondents answered this question (just under 52,000) so there are over 10,000 remaining for whose supervisory status we do not know.

Around 43 percent reported being female and 56 percent male, with the remaining 1.7 percent not wishing to say.

Table 8 Respondent sex

| sex | N | Percent |
|---|---|---|
| Female | 27365 | 42.75 |
| Male | 35601 | 55.62 |
| Prefer not to say | 1045 | 1.63 |
| All | 64011 | 100 |

notes: Unweighted

Finally, we asked respondents to say what their level of English was. 82 percent said that they were fluent in English, with 17 percent reporting that they had intermediate levels. Those saying that they had only basic English made up less than 2 percent of our sample.

Table 9 Level of fluency in English

| fluent | N | Percent |
|---|---|---|
| Fluent | 52341 | 81.73 |
| Intermediate | 10665 | 16.65 |
| Basic | 1038 | 1.62 |
| All | 64044 | 100 |

notes: Unweighted

# 4. Questionable Research Practices

## 4.1 Introduction

A key aim of the SOPs4RI project is to support organisations in facilitating good research practices without causing unnecessary burden or alienation of researchers themselves. In the next chapters we report on the perceived needs of researchers, their beliefs about research integrity and policies for ensuring it, as well as organisational measures that are reported as being currently in place across countries and four key fields of study, with a view to highlighting areas of need and any potential obstacles for organisations in implementing policy.

The integrity and credibility of research in the public domain has been hampered by various well-publicised scandals within the research environment over recent years. Behind what are classed as more serious misdemeanours within academic research, fabrication, falsification and plagiarism, various perverse motivations and pressures on researchers within unsupportive working environments amongst other possible reasons have enabled or encouraged less than ideal research practices. These less than ideal research practices which do not constitute actual misconduct are problematic in that they reduce the quality of research and weaken the epistemic integrity of results while increasing research waste. Before investigating where organisations may need to provide resources to create environments conducive to high quality research, and how receptive researchers might be to research integrity requirements being addressed through organisational policy, we wanted to assess current researcher behaviours. We asked researchers to tell us how often they had engaged in 8 different research practices widely considered as questionable or detrimental in their publications over the last 3 years.

## 4.2 The survey question

We asked researchers:

> The next few questions are about questionable research practices (QRPs). These are less than ideal research practices which might happen unintentionally. They are not research misconduct (ie fabrication, falsification, or plagiarism).
>
> We will present you with a set of research practices and ask you to what extent you have engaged in them when working towards producing your publications over the last three years.

The eight questionable research practices (hereafter QRPs) were:

1. Wilfully failing to cite relevant publications that contradict your own beliefs, theories, hypotheses, methods or findings.
2. When reviewing a manuscript, not investing the effort necessary to conduct a thorough review.
3. Choosing not to report your findings if they could weaken or contradict your theories or hypotheses.
4. Deliberately using another researcher's unpublished idea without giving credit. For example, publishing an idea voiced by a colleague at an informal meeting without giving them credit.
5. In a publication, failing to disclose relevant personal, financial, political or intellectual conflicts of interests.
6. Including authors on a paper who had not contributed sufficiently to the work to merit authorship.
7. Inadequately supervising or mentoring junior co-workers.
8. Carrying out research without getting the required ethical approval.

Researchers could choose one of the following responses:

- Often
- Sometimes
- Rarely
- Never
- Does Not Apply

## 4.3 Results

We should remember when looking at the results that when asking people to admit to less than ideal behaviours we cannot be certain that we are gaining an accurate picture. Lower reporting may be due to lower frequency, greater awareness that these are less than ideal behaviours not to be admitted to, and/or less willingness to admit to them.

Figure 4.1 shows the overall percentage of occurrence for each QRP item for all survey respondents. It excludes those who reported that the particular item did not apply to their situation. On the left-hand side, you can see the percentages of those who reported they had engaged at least once (rarely, sometimes, or often) in the behaviour while producing publications over the last three years. This can be compared with the percentages on the right-hand side of those who report never having engaged in the behaviour.

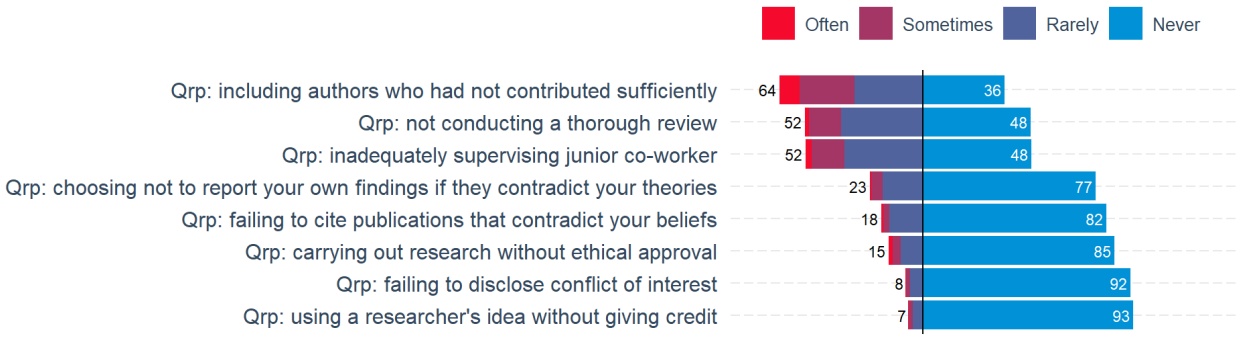


Figure 4.1 Frequency of QRPs within the last three years, all respondents excluding "does not apply"

The most frequent QRP from our list concerns publishing. Two in three respondents acknowledged that they had included authors on a paper who had not contributed sufficiently to the work to merit authorship.

More researchers admit to engaging in behaviours that perhaps seem more forgivable, more than half of researchers for example acknowledged not conducting a thorough peer review and inadequately supervising junior co-workers.

Less than one in ten said they failed to disclose a conflict of interest or used a researcher's idea without giving credit. Just over one in ten said they had carried out research without ethical approval or failed to cite publications that contradict their beliefs. Just over 1 in 5 chose not to report their own findings if they contradicted their theories.

### 4.3.1 Questionable research practices by field

Having looked at the frequency of admitted QRPs for all respondents, we now consider whether there are any noticeable differences between engagement in these behaviours by field. In the following graphs we just look at the percentages of those engaging at all, or not engaging, in each behaviour, where the behaviour applies.

Figure 4.2 shows the percentage of those acknowledging engaging in each questionable research practice for the four different fields of study, humanities, medical sciences, natural sciences and social sciences.

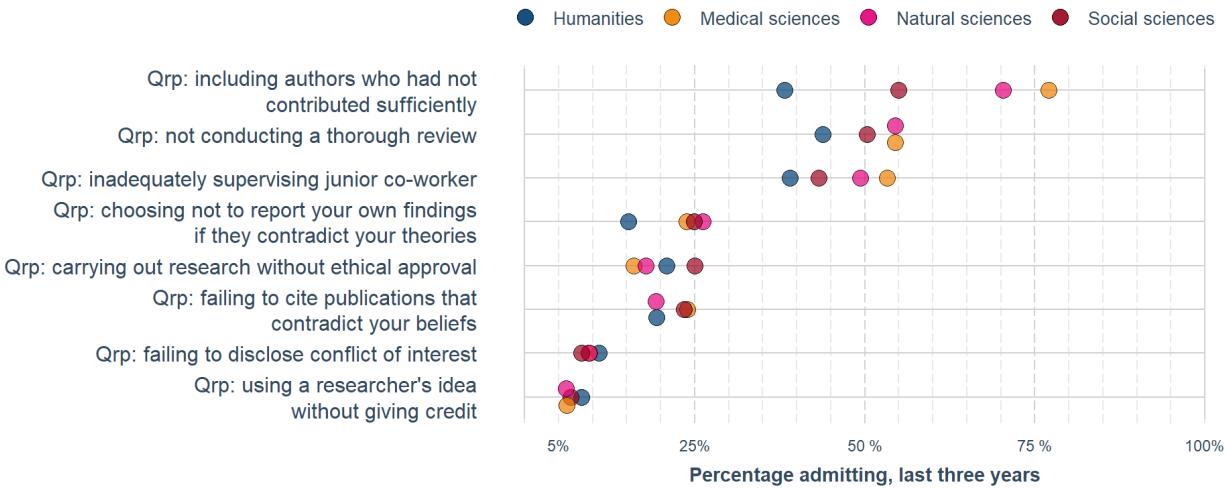


Figure 4.2 QRPs admitted by field

We can see that there is no appreciable difference between the fields of study for the QRPs that appear to be less frequent (Using a researcher's idea without giving credit and Failing to disclose conflict of interest). By contrast the most frequent QRPs (Including authors, Less than thorough review, and Inadequate supervision) show substantial variation. It is most evident for Including authors who had not contributed sufficiently, acknowledged by almost eight in ten in the medical sciences, seven in ten in the natural sciences and just under four in ten in the humanities. These figures possibly reflect disciplinary traditions governing authorship where, for example, research group leaders are included as authors on the basis of running the laboratory and securing funding without a contribution to specific research projects. In addition, the average number of authors tends to be higher, allowing for greater opportunity for those who have not contributed significantly to be included.

Another striking finding is that one in two active researchers in the natural, medical and social sciences admit to not conducting thorough reviews of manuscripts. To put this into context, journal editors often rely on three reviews of submitted article. If, on occasions, between one and two of these reviews are superficial the integrity of the body of knowledge is open to question. Finally, one in two respondents in the medical and natural sciences admit to inadequate supervision of junior co-workers.

### 4.3.2 Questionable Research Practices by Career Stage

In Figure 4.3 we present the percentages of researchers acknowledging that they have engaged in questionable research practices over the last three years, by career stage.

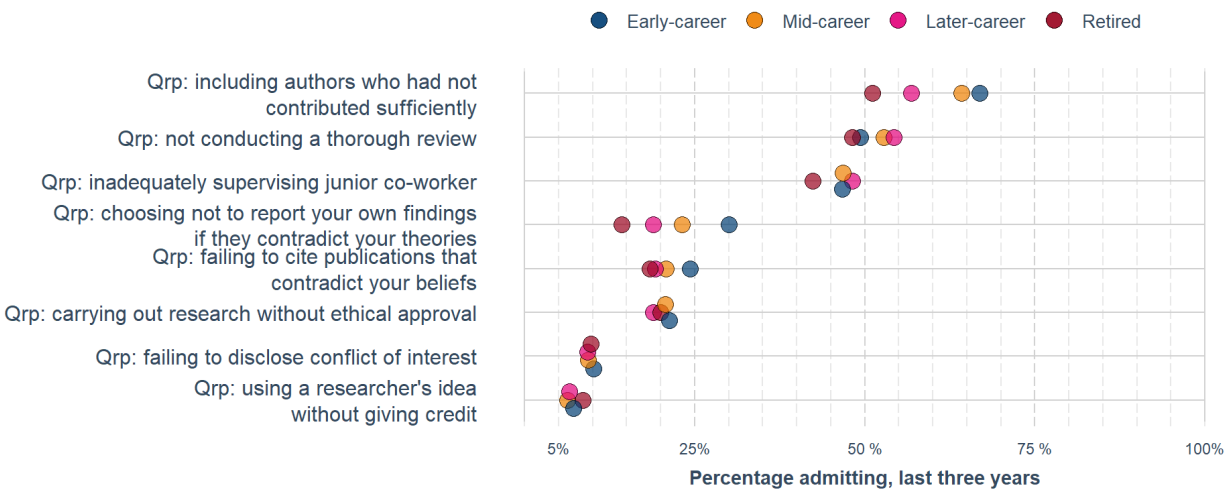


Figure 4.3 QRPs admitted by career stage

While there are not great differences for most of the QRPs, two stand out as having greater variability across the career stages. Early and mid-career respondents are more likely to report that researchers who have not contributed sufficiently to their publications have been included as authors. Those in their early career are more likely to not report their research findings if they contradict their theories.

### 4.3.3 Questionable Research Practices by Sex

Next, we consider any difference in the prevalence of engagement in QRPs by sex. While responses show similar frequency of admission across QRPS for both sexes and those who preferred not to say, men report slightly more often that they did not conduct a thorough peer review and carried out research without ethical approval than women.

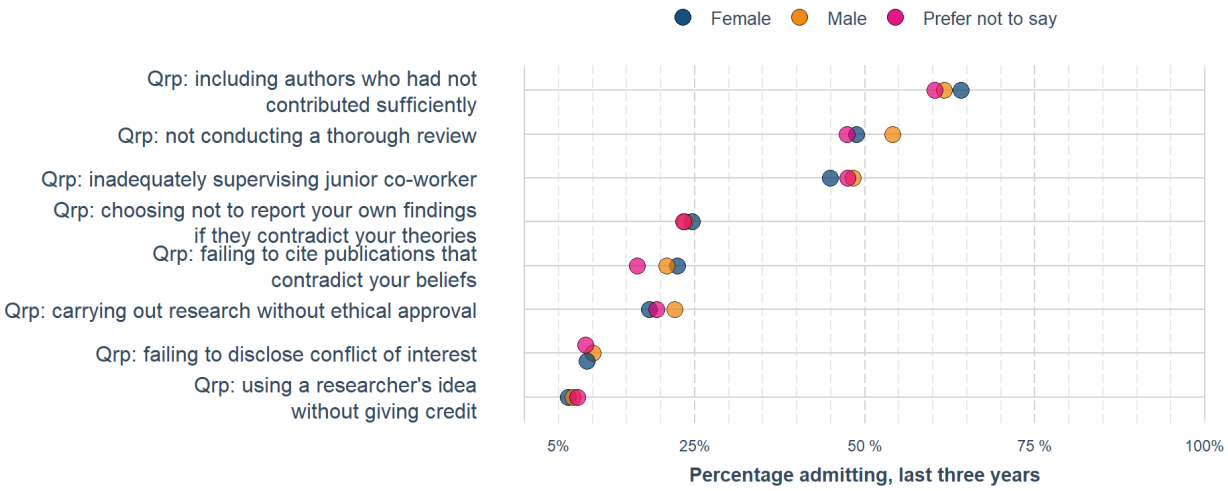


Figure 4.4 QRPs admitted by sex

### 4.3.4 Questionable Research Practices by Country

Table 10 Percentage of respondents admitting each QRP, by country

| | Including authors who had not contributed sufficiently | Not conducting a thorough review | Inadequately supervising junior co-worker | Choosing not to report your own findings if they contradict your theories | Failing to cite publications that contradict your beliefs | Carrying out research without ethical approval | Failing to disclose conflict of interest | Using a researcher's idea without giving credit | Mean QRP |
|---|---|---|---|---|---|---|---|---|---|
| Greece | 76 | 57 | 53 | 31 | 28 | 26 | 18 | 8 | 2.74 |
| Cyprus | 66 | 58 | 51 | 29 | 28 | 22 | 15 | 8 | 2.5 |
| Spain | 67 | 57 | 44 | 25 | 27 | 26 | 16 | 8 | 2.48 |
| Slovakia | 63 | 51 | 54 | 30 | 28 | 29 | 18 | 13 | 2.46 |
| Italy | 66 | 58 | 47 | 28 | 24 | 26 | 11 | 6 | 2.42 |
| Belgium | 74 | 52 | 53 | 27 | 20 | 22 | 8 | 7 | 2.41 |
| Lithuania | 63 | 53 | 52 | 34 | 30 | 28 | 14 | 11 | 2.39 |
| Czechia | 62 | 53 | 54 | 32 | 22 | 18 | 12 | 10 | 2.38 |
| Estonia | 63 | 54 | 50 | 28 | 23 | 25 | 13 | 7 | 2.37 |
| Luxembourg | 74 | 59 | 43 | 26 | 20 | 22 | 6 | 8 | 2.36 |
| Croatia | 65 | 52 | 46 | 27 | 25 | 23 | 16 | 8 | 2.36 |

| | Including authors who had not contributed sufficiently | Not conducting a thorough review | Inadequately supervising junior co-worker | Choosing not to report your own findings if they contradict your theories | Failing to cite publications that contradict your beliefs | Carrying out research without ethical approval | Failing to disclose conflict of interest | Using a researcher's idea without giving credit | Mean QRP |
|---|---|---|---|---|---|---|---|---|---|
| Latvia | 64 | 54 | 53 | 31 | 31 | 18 | 16 | 7 | 2.36 |
| Finland | 61 | 58 | 57 | 25 | 23 | 14 | 10 | 10 | 2.35 |
| Switzerland | 70 | 57 | 47 | 27 | 20 | 16 | 7 | 6 | 2.34 |
| Portugal | 70 | 53 | 41 | 23 | 24 | 25 | 10 | 4 | 2.33 |
| Bulgaria | 66 | 48 | 44 | 28 | 30 | 26 | 22 | 9 | 2.32 |
| Austria | 68 | 53 | 47 | 29 | 17 | 20 | 10 | 5 | 2.28 |
| Germany | 62 | 53 | 49 | 29 | 21 | 24 | 9 | 8 | 2.28 |
| Slovenia | 70 | 51 | 45 | 19 | 18 | 22 | 13 | 10 | 2.24 |
| Romania | 65 | 47 | 48 | 25 | 26 | 26 | 15 | 7 | 2.21 |
| Norway | 66 | 57 | 51 | 18 | 16 | 15 | 5 | 6 | 2.18 |
| Denmark | 64 | 55 | 49 | 18 | 18 | 16 | 7 | 4 | 2.14 |
| France | 64 | 46 | 38 | 23 | 22 | 28 | 8 | 7 | 2.13 |
| Hungary | 64 | 47 | 43 | 25 | 21 | 22 | 11 | 6 | 2.11 |
| Netherlands | 60 | 48 | 45 | 23 | 18 | 24 | 7 | 6 | 2.11 |
| Malta | 61 | 55 | 38 | 22 | 17 | 23 | 10 | 6 | 2.1 |
| Poland | 51 | 50 | 45 | 25 | 22 | 19 | 9 | 8 | 2.03 |
| Australia | 59 | 48 | 46 | 19 | 20 | 13 | 6 | 6 | 1.99 |
| Sweden | 57 | 52 | 43 | 19 | 19 | 15 | 6 | 5 | 1.96 |
| Iceland | 61 | 48 | 54 | 13 | 12 | 15 | 3 | 4 | 1.91 |
| Ireland | 57 | 49 | 42 | 18 | 16 | 13 | 4 | 5 | 1.88 |
| Canada | 51 | 45 | 47 | 20 | 18 | 13 | 6 | 6 | 1.82 |
| USA | 49 | 46 | 53 | 20 | 18 | 13 | 6 | 7 | 1.79 |
| UK | 53 | 48 | 43 | 19 | 16 | 15 | 5 | 7 | 1.78 |

notes: weighted percentages, "does not apply" dropped

Table 10 shows the percentages of respondents in each country acknowledging the eight QRPs. The countries are ranked by the mean number of QRPs admitted per respondent in each country. These means are shown in the right-most column of the table. . A consistent 'virtuous' pattern of responses is seen in the UK, USA, Canada, Ireland, Sweden and Australia. Respondents in these countries report fewer QRPs than others. Countries reporting more QRPs include Greece, Cyprus, Spain, Slovakia, Belgium and Lithuania. Between these two groupings are countries from Northern, Eastern, Southern and Western Europe. Explaining why conducting research without ethical approval is reported by one in four respondents from Greece, Spain, Slovakia, Italy, Lithuania, Estonia, Portugal, Bulgaria and France is beyond the scope of this research. It is, however, a signal to the competent authorities in those countries to press the case for effective research ethics procedures. The same logic applies to the other QRPs It should be noted, however, that the rank ordering of most to least commonly reported QRPs is very similar in each country. This implies that there are substantial commonalities in the way in which researchers' behaviour is structured across all countries surveyed.

## 4.4 Conclusion

85 percent of researchers acknowledged engaging in at least one questionable research practice during their publications over the last 3 years.

Of our 8 example items, most frequent were:

- Including authors on a paper who had not contributed sufficiently to the work to merit authorship
- When reviewing a manuscript, not investing the effort necessary to conduct a thorough review.
- Inadequately supervising or mentoring junior co-workers.

Least frequent were:

- In a publication, failing to disclose relevant personal, financial, political or intellectual conflicts of interests.
- Deliberately using another researcher's unpublished idea without giving credit. For example, publishing an idea voiced by a colleague at an informal meeting without giving them credit.

There were few differences in engagement in QRPs between the sexes, disciplines, or career stage although early-career researchers were more likely to admit to not reporting their findings if they did not support their theories. There is some difference in the reported prevalence of engagement with QRPs across different countries with lower reported engagement in English-speaking countries.

# 5. Perceptions of current organisational effectiveness in Research Integrity

## 5.1 Introduction

Having now sketched a selection of questionable researcher behaviours and how they are distributed across countries and other demographics, in order to see where changes can be made, and where researchers might be most receptive to policy implementation, we wanted to first understand what measures are already in place to support research integrity across organisations. This will help us to assess potential demand for new or more policies, and to understand researcher receptivity to such policies, as well as degrees of confidence researchers have in the institution to manage these procedures. (Note that in a survey of researchers our understanding can only be about what researchers perceive to be in place rather than what actually is in place, although lack of awareness is a possible sign of the ineffectiveness of policies.)

## 5.2 The survey questions

The first thing we wanted to find out was whether or not a researcher's organisation has a written statement on research integrity, as a basic commitment to research integrity, and if so, how it was communicated to researchers.

We then expanded our inquiry to look more broadly at different elements of a research environment that might impact on the ability to produce high quality research. Previous research carried out by our project uncovered 9 key areas considered most important for ensuring research integrity and the highest standards of research. We drew on this research to define nine descriptions of what could be considered the ideal standards in place for each topic as detailed in the panel below:

**Working environment**

Collegial, and without harmful publication pressure, detrimental power imbalances or conflict.

**Supervision and mentoring**

Supervisors encourage responsible research practices and are selected if they meet specified criteria. Guidelines are in place for the supervision and mentoring of researchers at different career stages.

**RI training**

Training in research integrity is provided to all researchers, at all career stages, by qualified trainers.

**Ethics structures**

Dedicated and adequately trained research ethics committees are in place. Ethics reviews are relevant to various research areas and disciplines within the organisation.

**Integrity breaches**

Researchers can consult a qualified person in confidence with any research integrity concerns. Breaches are detected and sanctioned in a fair and standardized way, protecting both whistleblowers and those accused of misconduct.

**Data management**

Infrastructure is in place for storing and sharing data securely and complies with national and international regulations. Guidance on secure data management is provided.

**Publication and Communication**

Open access and clarity in public engagement are encouraged. Researchers are supported with publication matters such as preregistration, reproducibility, handling authorship disputes, responsible peer review practices.

**Research Collaboration**

Support is offered for ensuring responsible research collaboration can occur across disciplines, sectors or countries where guidelines and legislation may differ.

**Declaration of interests**

There is transparency and guidance in how to declare conflicts of interests in: research conduct; funding; peer review; promotion; and collaboration across sectors.

To gain a sense of the current research landscape across our countries of interest, we asked respondents to tell us how closely their working environment resembled each of the nine descriptions given above. We then wanted to understand whether researchers were aware of policies in these 9 research integrity areas which would provide a sense of where there is a greater need for policy and whether additional policies might therefore be welcome or unwelcome.

Recognising that the existence of a policy does not mean the policy is adequate, respondents who stated that they were aware of organisational policies on specific RI topics were asked how effective those policies were in achieving their objectives. We also checked that the areas our previous research had identified as being important for conducting high quality research were considered important more widely by our current respondents.

Lastly, to gain a sense of researchers' trust in their organisations, we asked researchers to tell us how much confidence they have that the management in their organisation is effective in ensuring a high level of research integrity.

## 5.3 Results

The following sections show the results of these seven questions about the current research environment and organisational arrangements for ensuring research integrity, considering any differences reported by field of study, career stage or country.

### 5.3.1 Organisational written statement on research integrity

We asked researchers if their research institution had a written statement on research integrity. Just over half of respondents (53 percent) confirmed that their organisation had a written statement on research integrity, with one in ten being certain that their organisation did not have one and the remaining respondents (37 percent) not knowing if there was a written statement or not.

Figure 5.1 shows this information for all respondents as well as by field of study, career stage and country group.

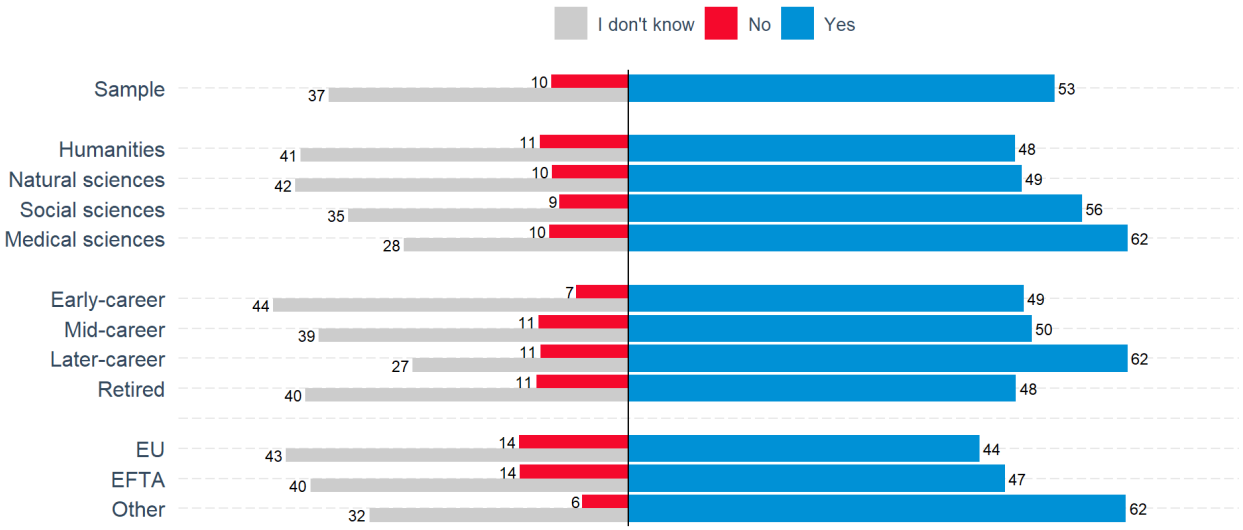


Figure 5.1 Percentage aware of a written statement on RI by field, by career stage, and by country group

Later-career researchers are more aware of the existence of an organisational statement on research integrity (62 percent compared with approximately half of researchers at other stages of their career), as are researchers in the medical and social sciences (62 and 56 percent respectively, compared with just under half of researchers in the two other field groups).

For both career stage and field of study we see similar percentages of researchers declaring that there is no integrity statement. The difference in the frequency of positive answers is thus produced by the differences in the percentage of respondents who do not know whether a statement exists or not (slightly higher for early-career researchers). Consequently, the results might reflect a lack of awareness in these groups rather than a real lack of written statements which might suggest a sub-optimal communication strategy from organisations in these cases.

It is evident that a substantially lower percentage of researchers working in EU or EFTA countries are aware of the existence of a written statement on RI, compared to researchers working in Non-EU countries of interest (including the UK). Specifically, according to our respondents, a little less than half of organisations in EU and EFTA countries provide a written statement on RI, while nearly two thirds of non-EU countries of interest provide a statement.

Figure 5.2 provides a more detailed picture by individual country, including an average for EU countries.

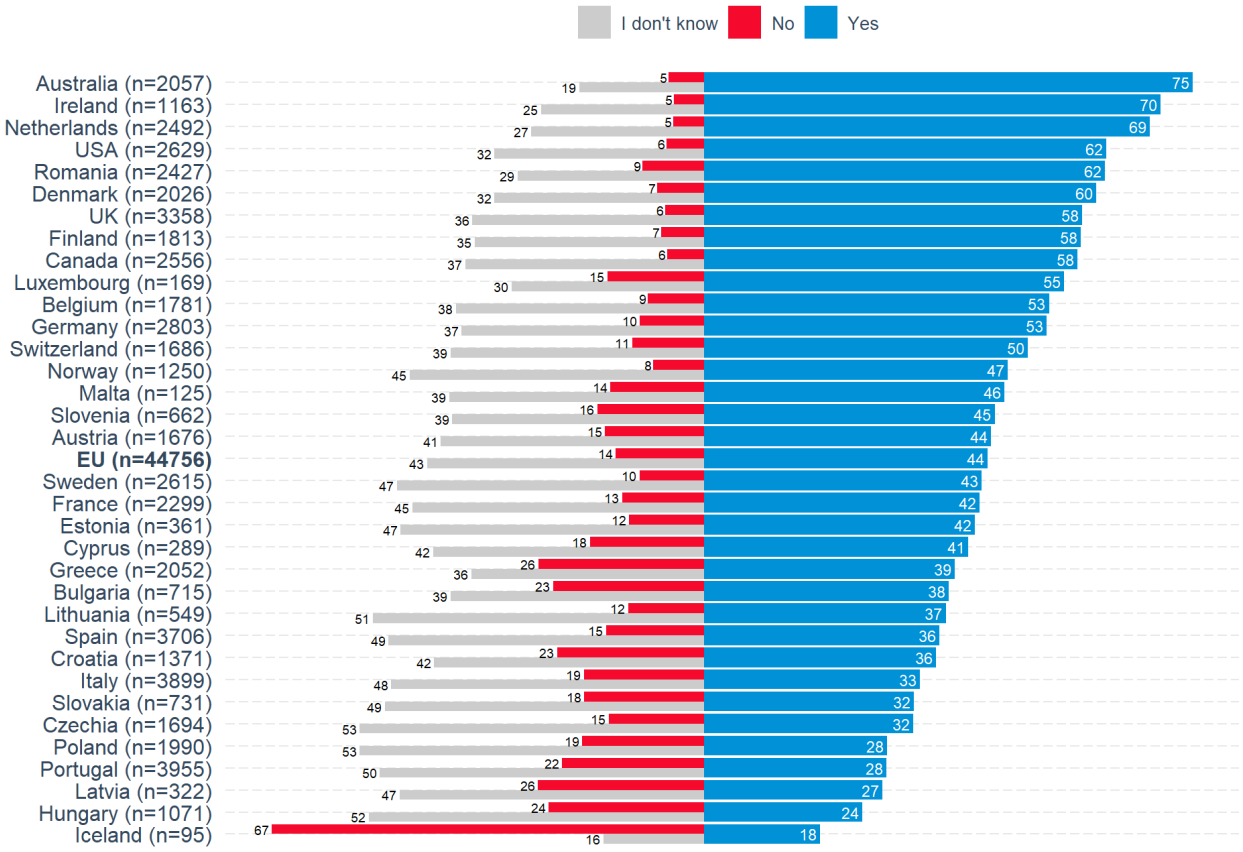


Figure 5.2 Percentage aware of organisational written statement on RI, by country

The results indicate that English-speaking and North European countries provide written statements on RI more frequently compared to Eastern and Southern European countries, which largely occupy the lower half of the graph.

### 5.3.2 Communication of organisational research integrity statements

We then asked researchers whose organisation does have a statement, how this was communicated to them, selecting all options that applied. Written statements on research integrity, where they exist, have been communicated predominantly via formal communication channels (approximately two-thirds of respondents). One in five researchers looked for it themselves. We also looked at whether the proportions in each communication channel varied by geo-political region. We find no substantial differences.

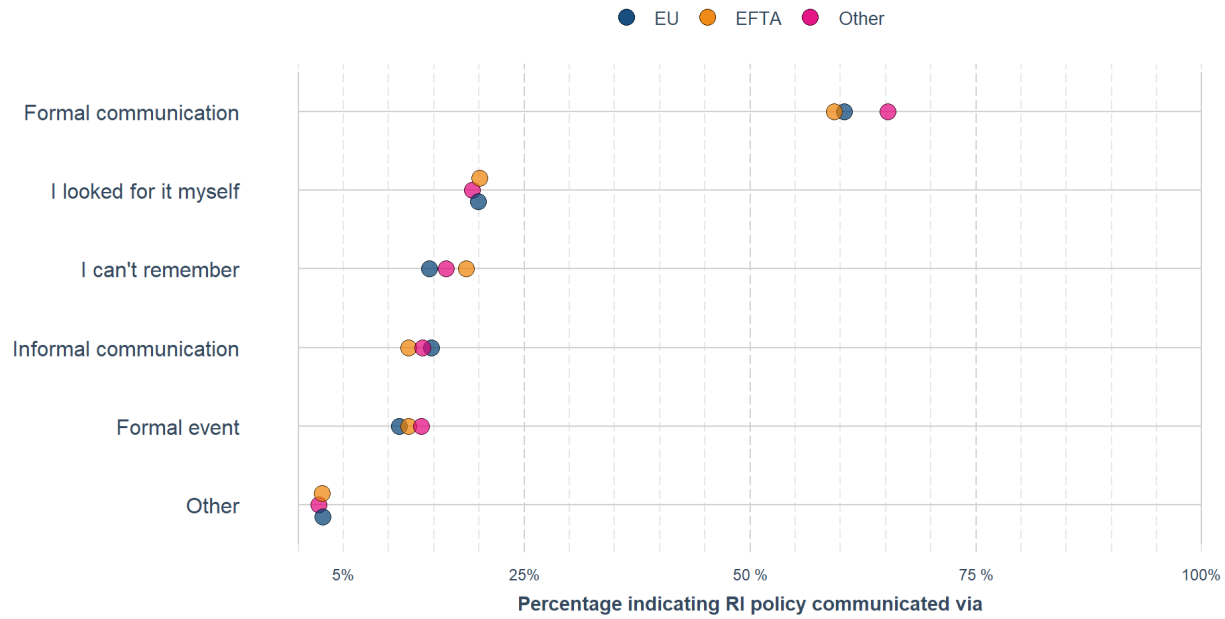


Figure 5.3 How organisational statement on research integrity is communicated, by geo-political unit

### 5.3.3 Resemblance of working environment to research integrity ideals

We asked researchers to tell us, for each of the nine areas such as data management, or ethics structures as detailed above, how closely their working environment resembles the descriptions set out earlier in this chapter. These describe organisational environments and policies that are close to 'ideal-types' for promoting responsible research practices. Reported resemblance to these ideal types show how researchers perceive their organisations. They do not necessarily imply that there are no policies or procedures in place. Nevertheless, it is important to understand how those responsible for carrying out research regard the contexts in which they are working. In the following sections we examine these perceptions broken down by country group and,career stage.

### 5.3.4 Institutional adherence to high research integrity standards, by country group.

Figure 5.4 shows researchers' perception of how closely their organisation resembles the 9 ideal descriptions laid out above, by country group (European Union, European Free Trade Association, and other countries of interest US, UK, Canada and Australia).

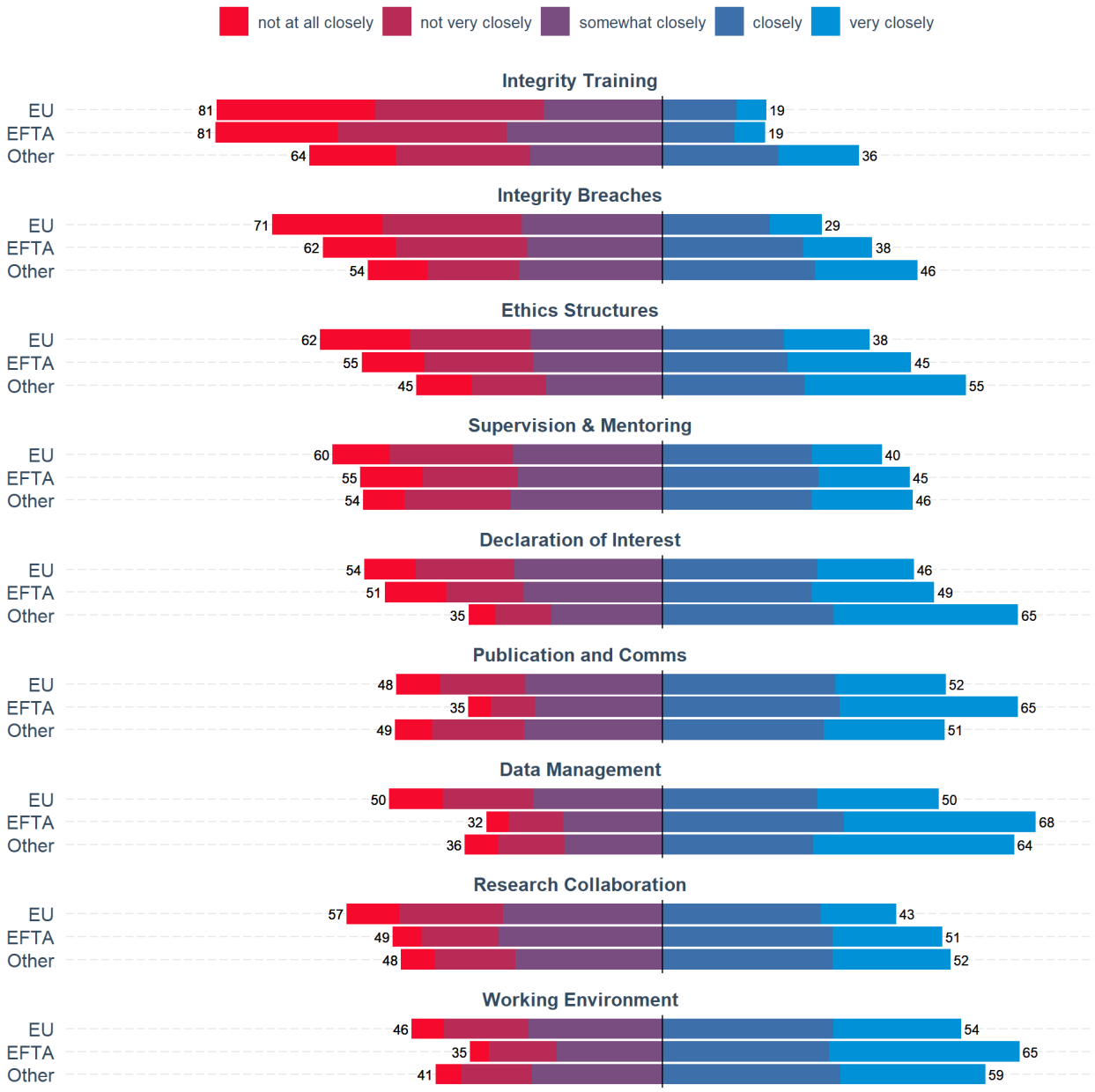


Figure 5.4 Perception of alignment of working environment to high RI standards, broken down by geo-political unit and by topic.

The black vertical line on the bars connotes what we regard as the key distinction between responses. Respondents selecting the blue categories of 'very closely' and 'closely' arguably see their organisations as relatively well-aligned with the ideal type description, whereas those choosing the red categories seem to indicate some misalignment. The majority of respondents perceived their working environment as having at least some resemblance to the high RI standards as described in

the survey for most of the topics but many of the areas are not seen by a majority as being closely or very closely resembling the ideal. For all areas there are substantial percentages of researchers who see their environments as not very or not at all closely resembling the ideal types. This is particularly the case for integrity training and integrity Breaches, where fewer respondents think that their working environment resembles the ideal even somewhat closely. This is most noticeable for researchers in the EU and EFTA. We see the greatest discrepancy/variation in cross-country group responses regarding organisational arrangements for integrity breaches, which might suggest that there are relatively large differences in how RI is safeguarded in different geo-political areas, for example how whistleblowing channels, allegation procedures, and sanctions are orchestrated or how visibly integrity safeguards were communicated within organisations.

Researchers across all three geo-political areas report a similar picture regarding their overall working environment and the arrangements in place for supervision and mentoring. Generally however, respondents from non-EU countries of interest report their organisations as living up to research integrity ideals more than the two other groups do, or at similar levels to those from EFTA countries, with two exceptions. Arrangements for adhering to high RI standards in Data Management and in Publication and Communication are reportedly strongest in EFTA countries. In almost all areas, respondents from EU countries perceived that their working environment was less close to high RI standards compared to the respondents in the other geo-political groups.

### 5.3.5 Institutional adherence to high research integrity standards, by career stage

Figure 5.5 shows researchers' perception of how closely their organisation resembles the 9 ideal descriptions laid out above, by career stage (early-career, mid-career, later-career or retired). Not much difference can be seen across the four different career stages in how closely researchers think their research environment matches the ideal for standards of high research integrity in five of the nine research integrity areas. We see greater variation in responses when considering availability of integrity training; procedures for handling integrity breaches; ethics structures and arrangements for supervision and mentoring. In all cases, mid-career and retired researchers have a lower opinion of the measures in place in these areas. (Or conversely, early-career and later-career researchers report more favourable comparisons between their research environment and the research integrity ideal).

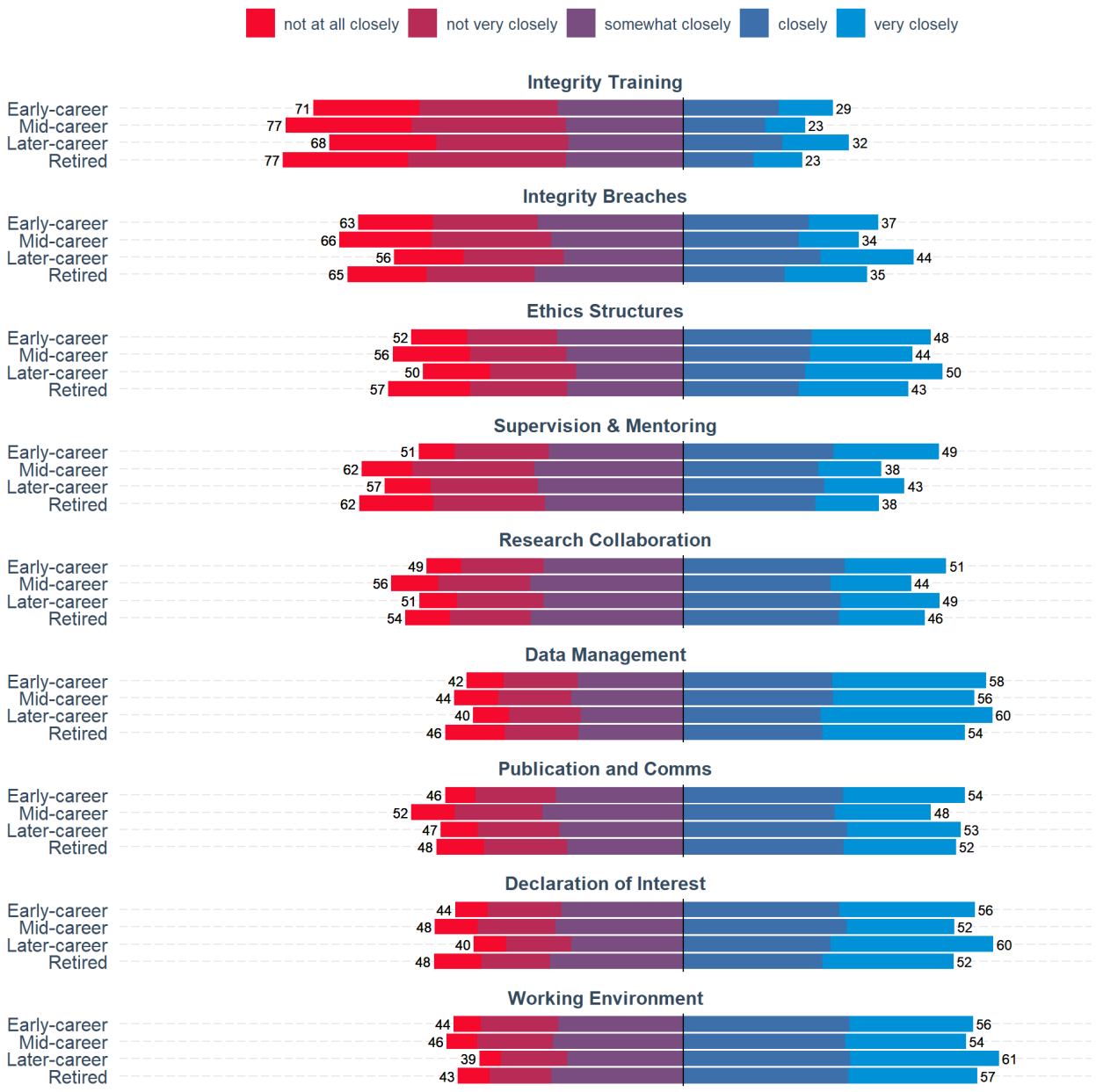


Figure 5.5 Perception of alignment of working environment to high RI standards, broken down by career stage and by topic.

### 5.3.6 Awareness of organisational policies

We asked researchers whether they are aware of any policies that exist within their organisation which address the 9 research integrity areas we had identified as being important for ensuring high quality research. We should note here that lack of awareness of organisational RI policies might either indicate their non-existence, or a failure of effective communication of existing policies to an organisation's members.

### 5.3.7 Awareness of organisational policies by geo-political country groupings

The picture painted by our respondents is that many organisations have policies in place that researchers are aware of for data management, for ethical review, and for publication and communication, but fewer have known policies for integrity training, breaches of integrity or for managing research collaboration. Awareness of organisational policies differs substantially across different topics and across different geo-political country groupings , as shown in Figure 5.6.

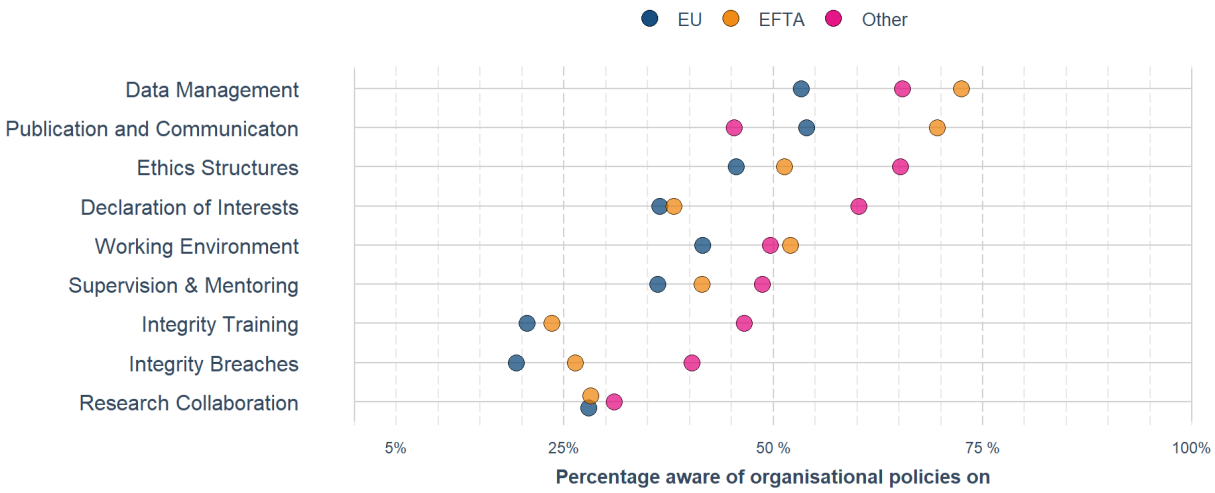


Figure 5.6 Awareness of organisational policies by geo-political unit

Overall, the results show that for almost all the topics, researchers from EU countries were less aware of the existence of policies than their counterparts in EFTA and non-EU countries of interest. For example less than 20 percent in the EU are aware of policies for integrity training or integrity breaches while the corresponding percentages in the other OECD countries are between 40 and 50 percent.

The results suggest that researchers working outside Europe (or in the UK) were more aware of organisational policies on RI related topics than researchers working in Europe (EU countries and European Free Trade Association (Non EU), not including the UK). Non-European countries stand out as having significantly more researchers aware of organisational policies for declaring interests, for integrity training and for handling breaches of integrity compared with researchers in Europe.

### 5.3.8 Awareness of organisational policies by career stage

The level of awareness of policies per topic across career level is more similar than seen across country groupings as seen in Figure 5.7. Later-career researchers seem more aware of organisational policies, specifically, they represent the career stage which most frequently said that they were aware of relevant policies for eight out of the nine RI topics. As we might expect, retired researchers were least aware of the existence of policies in general although more aware of policies relating to publication and communication than those at other stages of their career. Perhaps surprisingly, mid-career researchers were least aware of organisational policies relating to supervision and mentoring.

Excepting retired researchers who may reasonably be less familiar with organisational policies, we see that in general, awareness of policies increases with career longevity. This suggests that there need to be increased efforts at communicating policies to early career researchers.

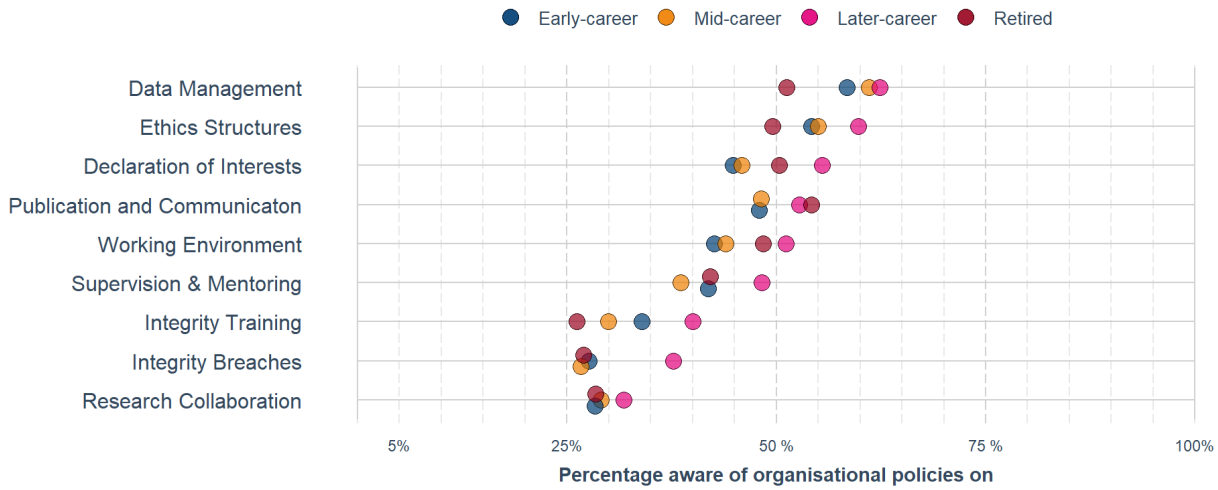


Figure 5.7 Awareness of organisational policies by career stage

### 5.3.9 Perception of effectiveness of organizational policies

Where researchers had told us that policies exist, we wanted to get a sense of how effective those policies are and asked researchers to make a judgement as to whether they are effective or not.

In both Figure 5.8 and Figure 5.9 we include the percentages of those who said they did not know how effective policies are alongside those who told us they do not think that the policies in place are effective. There is a difference between thinking a policy is not effective, and not knowing how effective it is, but in this context

both are considered in contrast with the response "yes", which we consider to be a positive endorsement of existing policies.

Figure 5.8 shows the perception of effectiveness of policies by researchers across country groups. Overall, those who are aware of their organisation's RI policies are likely to think them to be effective. For most areas the percentage endorsing is between 60 and 80 percent. That said, researchers in EU countries have less trust in the effectiveness of their organisational policies than their counterparts in EFTA and other countries. This is most noticeable with regards policies for integrity training.

Figure 5.9 shows the perception of effectiveness of policies by researchers across career stages. Researchers have increasing trust in the effectiveness of their organisational policies the more senior they become. Conversely early and mid-career researchers experience their organisation's policies as being less effective than later-career or retired researchers do.

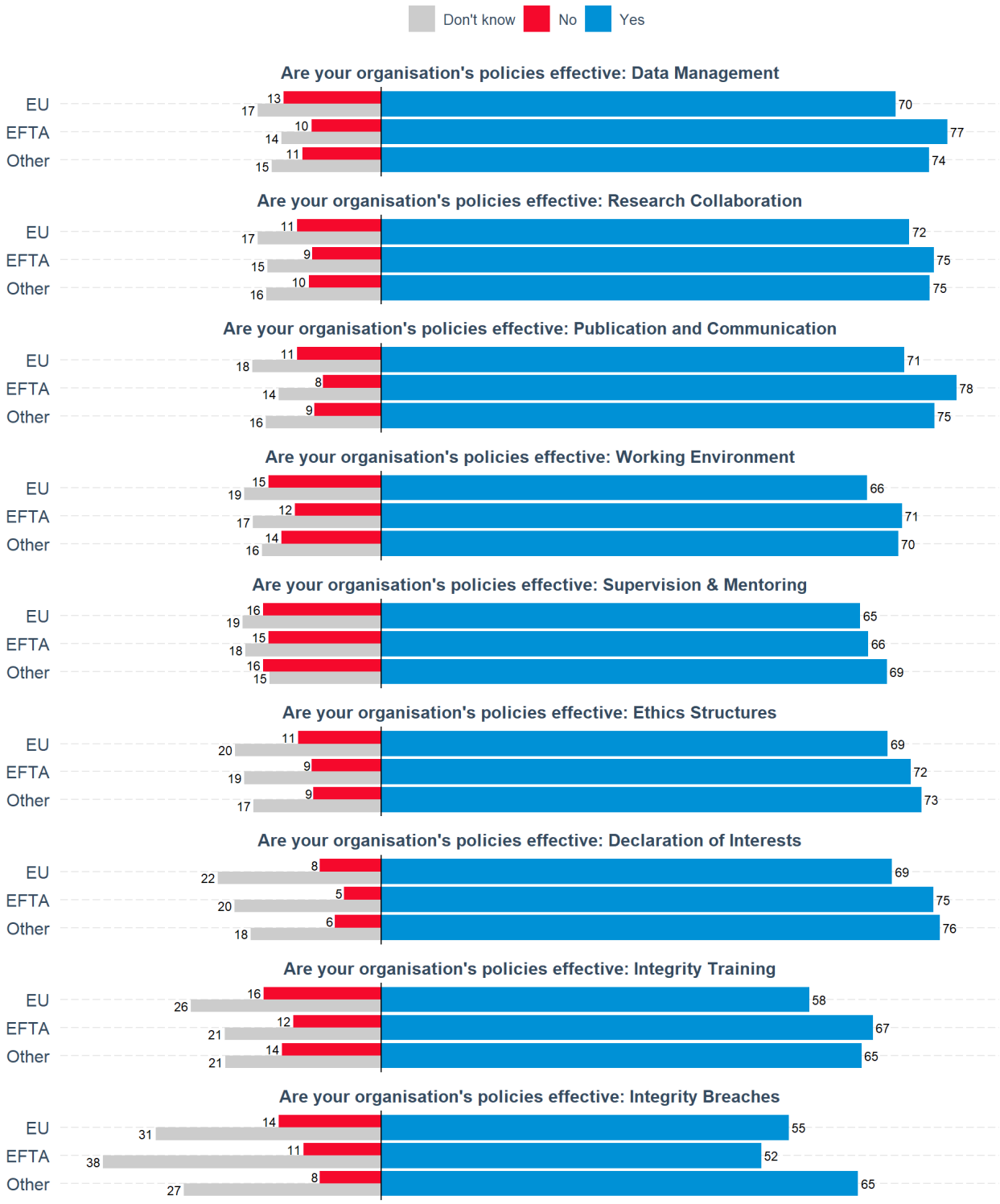


Figure 5.8 Perception of effectiveness of organisational policies, by geo-political unit

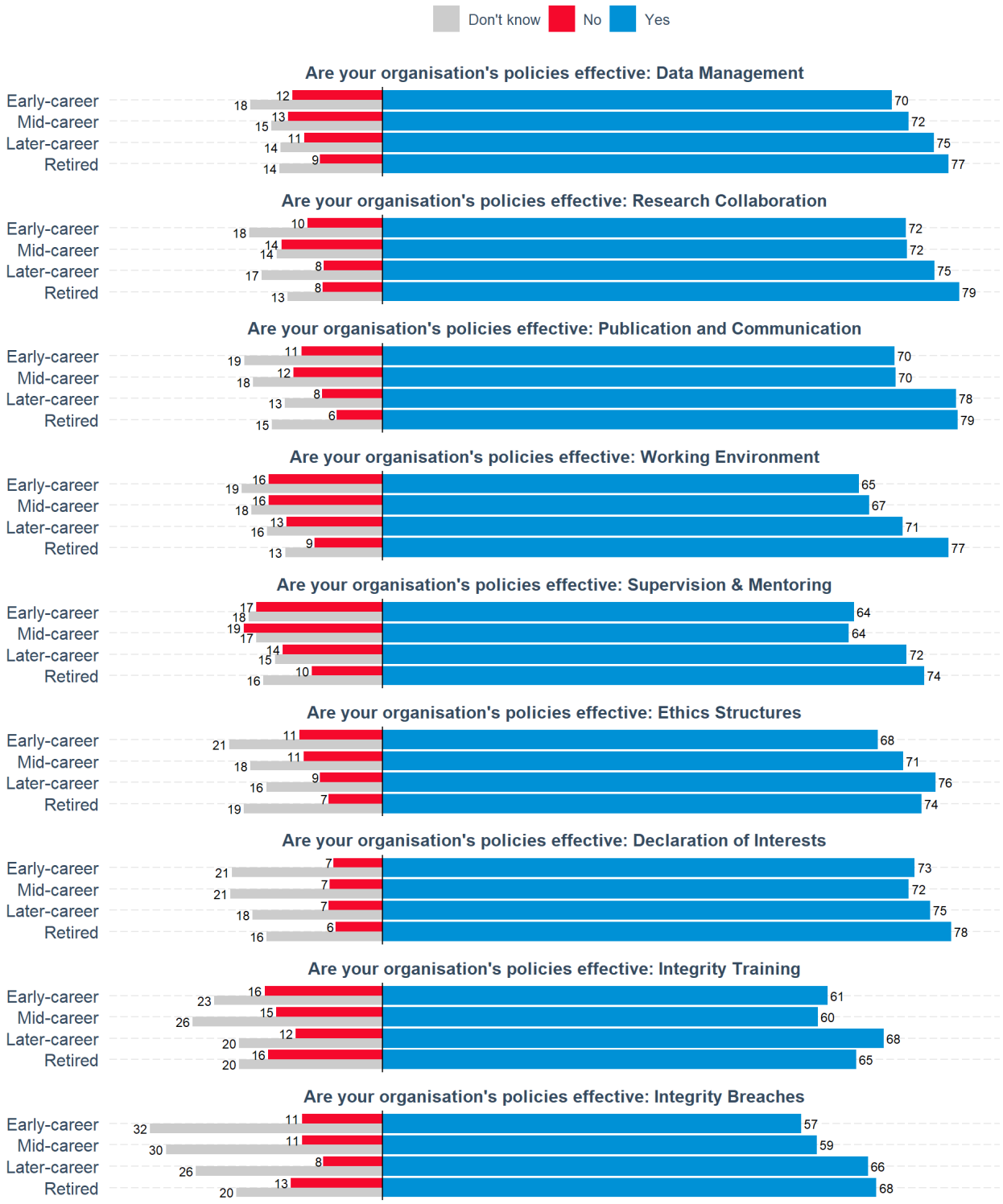


Figure 5.9 Perception of effectiveness of organisational policies, by career stage

### 5.3.10 Importance of research integrity areas for ensuring high quality research

Having asked researchers how closely their organisations resemble the research integrity ideal across nine topic areas, what policies are in place in those areas, and how effective researchers deem them to be, we wanted to assess whether researchers actually considered these nine areas important for ensuring high levels of research integrity.

All the nine research integrity areas identified in previous work packages were evaluated by most respondents as being fairly, very, or extremely important for RI. A collegial working environment was seen as the most important area for ensuring high quality research carried out with integrity.

As shown in Figure 5.10, there are no substantial disparities in the importance given to each of the research integrity areas by researchers in different country groups. In almost all cases, researchers from all geo-political areas confirm the belief that each of the areas is important to some degree. Only trivially few think that any of the RI topics are not important at all.

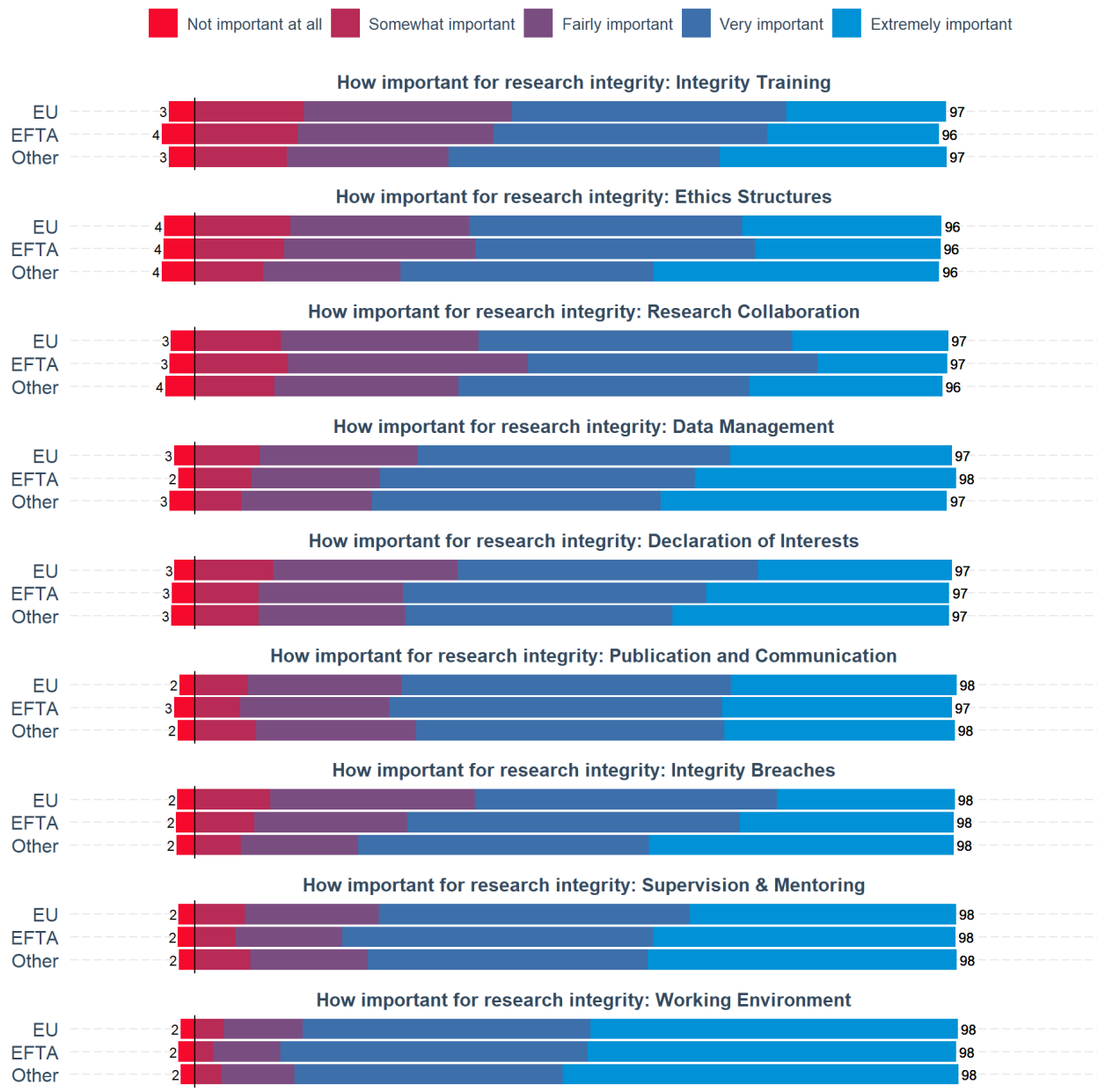


Figure 5.10 Importance of research integrity area for ensuring high quality research, by geo-political unit

Again, in Figure 5.11 we see that thereare no substantial differences in the importance given to each of the research integrity areas by researchers at different stages of their career. With respect to all other career stages, early-career researchers give the highest importance to all RI topics and retired researchers the lowest, but this is a minimal difference.

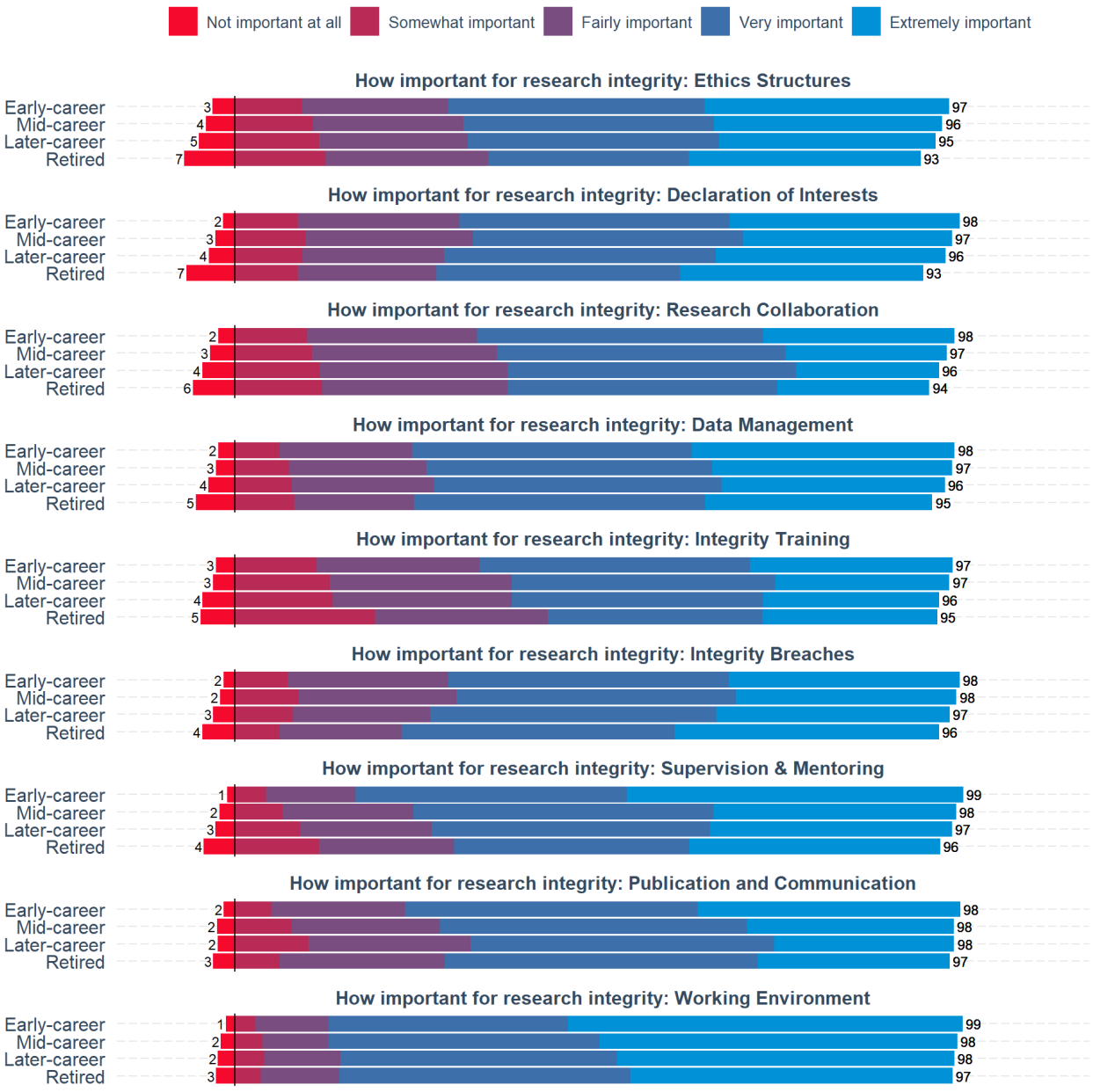


Figure 5.11 Importance of research integrity area for ensuring high quality research, by career stage

## 5.3.11 Confidence in organisations in ensuring a high level of RI

Finally, we wanted to know how much confidence researchers had that the management of their organisation is effective in ensuring a high level of research integrity.

Overall, 75 percent of respondents have at least some confidence in their organization to ensure high levels of research integrity (we locate the black vertical line to denote this cutpoint). Figure 5.12 shows that researchers in the medical sciences have the most faith in their organization in this regard, with 82 percent having some, a great deal, or complete confidence in their organization. Social scientists (76 percent) also have greater confidence than researchers in the humanities (72 percent) or natural sciences (71 percent). This does mean however that a non-trivial minority have little to no confidence in their organisation to ensure high levels of research integrity (1 in 5 researchers in the medical sciences, 1 in 4 researchers in the social sciences and more than 1 in 4 researchers in the humanities and natural sciences). Interpretation of this finding

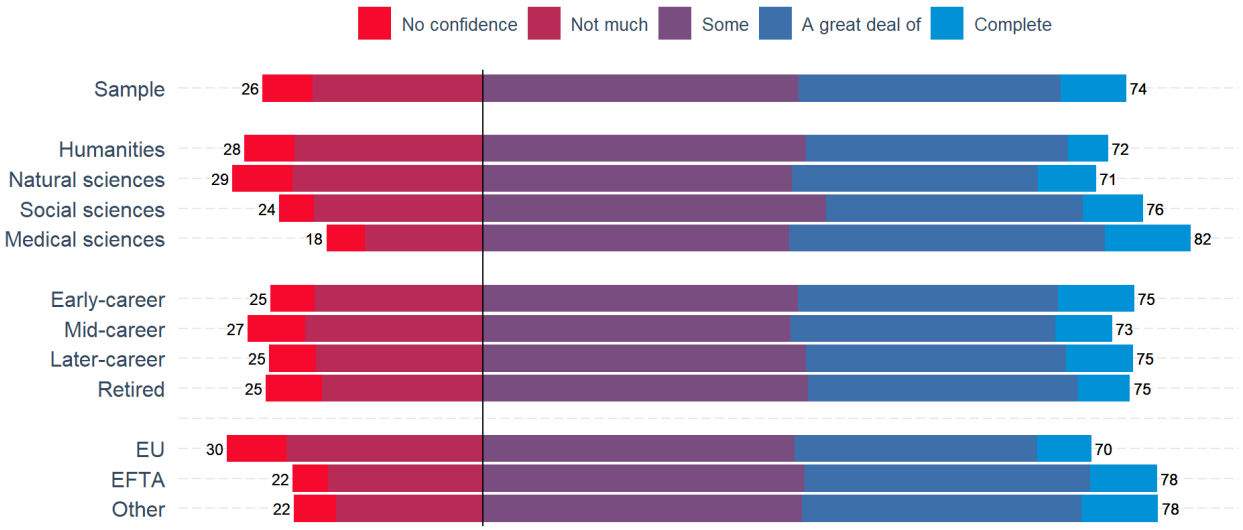


Figure 5.12 Confidence in organisation to ensure high level of research integrity, by field, by career stage and by geo-political unit

Figure 5.13 shows levels of confidence by individual county. Broadly speaking, researchers from either northern European countries or English-speaking countries tend to have greater faith in their organisation than southern and eastern European countries.

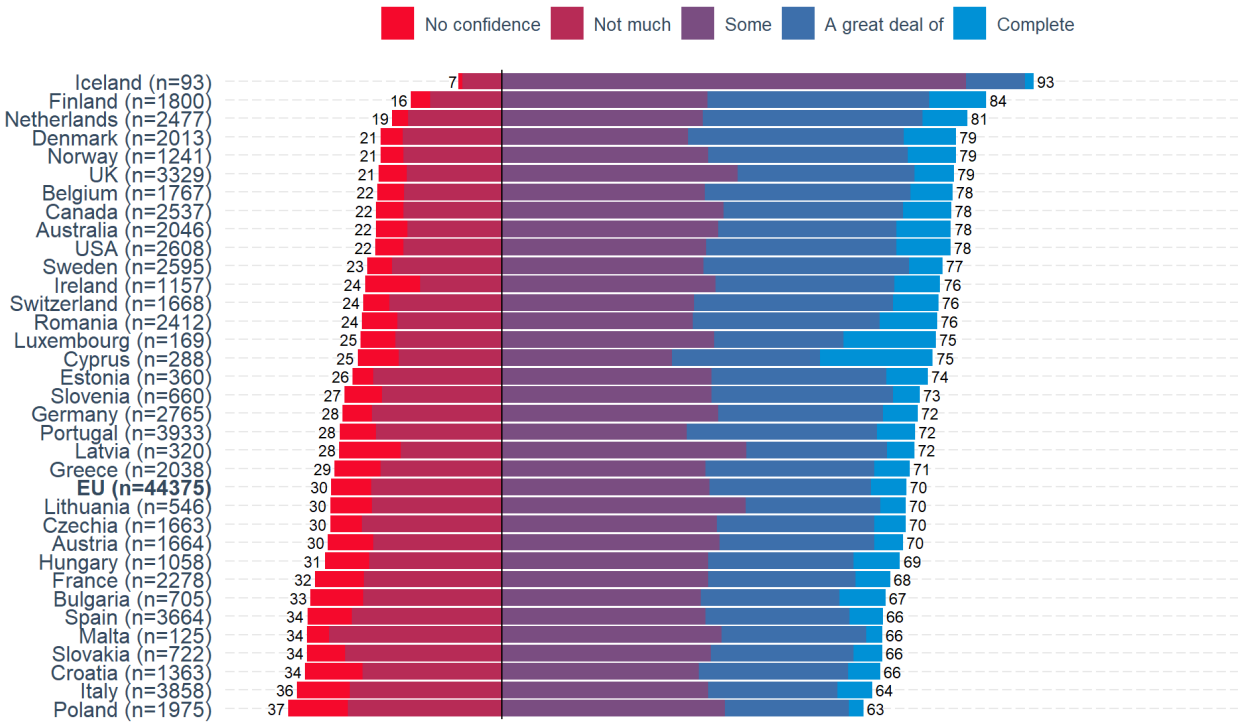


Figure 5.13 Confidence in organisation to ensure high level of research integrity by country

## 5.4 Conclusion

A little more than half of the respondents are aware of written policy on research integrity, while a little more than one third are not aware whether there is a written statement on research integrity. However, this differs by geographical area. Specifically, two thirds of the respondents from non-European countries, including the UK, are aware of a written policy on research integrity, compared with less than half in EU and EFTA countries. Later-career researchers are more aware of written integrity statements and policies in the nine research integrity areas, and have greater trust in their effectiveness. According to the respondents, these written statements have been communicated by organisations through formal channels.

The majority of respondents perceived their working environment as having at least some resemblance to the high RI standards as described in the survey for most of the topics. In addition, not much difference was seen across the four different career stages in five of the nine research integrity areas. Researchers in the EU report less favourable comparisons between their working environments and our research integrity ideals than their counterparts in EFTA and non-EU countries of interest.

Awareness of organisational policies differs significantly across different topics and across different geographical country groupings. Overall, the results show that for almost all the topics, researchers

from EU countries were less aware of the existence of policies than their counterparts in EFTA and non-EU countries of interest.

Researchers report an increasing trust in the effectiveness of their organisational policies the more senior they become.

All of the nine research integrity areas identified in previous work packages were evaluated by most respondents as being fairly, very, or extremely important for RI.

Overall, 75 percent of respondents have at least some confidence in their organization to ensure high levels of research integrity. The remaining 25 percent of researchers have little to no confidence that their organisation can ensure this.

# 6. Researcher Attitudes to Research Integrity

## 6.1 Introduction

Having explored self-reported researcher behaviour and gained a sense of what organisational provisions are already in place, we next look at the attitudes of researchers towards organisational research integrity measures to identify what might be potential obstacles for organisations when implementing research integrity promotion plans.

We wanted to establish researchers' attitudes and beliefs towards RI policies in general and whether or not they see value in policies for improving their research. This is key to understanding whether researchers will be receptive to plans implemented by their organisations.

Throughout this section we explore whether researchers feel the institution has a role at all in overseeing research integrity and whether they believe policies support better research.

## 6.2 The question

We first wanted to explore what level of oversight researchers felt their organisation should have for ensuring research carried out to the highest standard. We wanted to understand whether a researcher felt their institution had a legitimate role in this, or whether they would consider it outside the remit of the organisation and thus be less receptive to policies and procedures introduced by their organisation. We asked them what level of responsibility they felt their organisation should have for overseeing that their research was carried out to the highest standards.

Participants in previous stages of our research have expressed concerns that organisations will implement policies simply to say they have done so, without any real commitment to improving research. So we asked researchers to what extent they considered research integrity policies as just "box-ticking" exercises to satisfy bureaucratic administrative requirements rather than assessing the actual merit of the policies.

Next we asked researchers to tell us whether they think research integrity policies help to improve the quality of their research.

Lastly, we wanted to see how positive researchers would be to engaging in research integrity training as a proxy measure for the "cost" of investing in research integrity procedures. We asked them how positive they would feel about attending research integrity training on some aspect of research integrity that already interested them.

## 6.3 Results

### 6.3.1 Responsibility of research integrity

Researchers were asked to choose which of the following statements most closely matches where they think responsibility should lie for ensuring the highest standards of research.

- It is up to me without any oversight from my organisation
- It is up to me with some oversight from my organisation
- It is up to me with a lot of oversight from my organisation

Just over two-thirds of respondents believed that their organisation had a valid role in overseeing the integrity of their research. More respondents felt that this should be a shared responsibility between them and their organisation, with their organisation having "some" oversight, than thought the organisation should take greater responsibility with a lot of oversight. Almost one in three researchers overall thought that they should be responsible for ensuring high quality research without any oversight from their organisation.

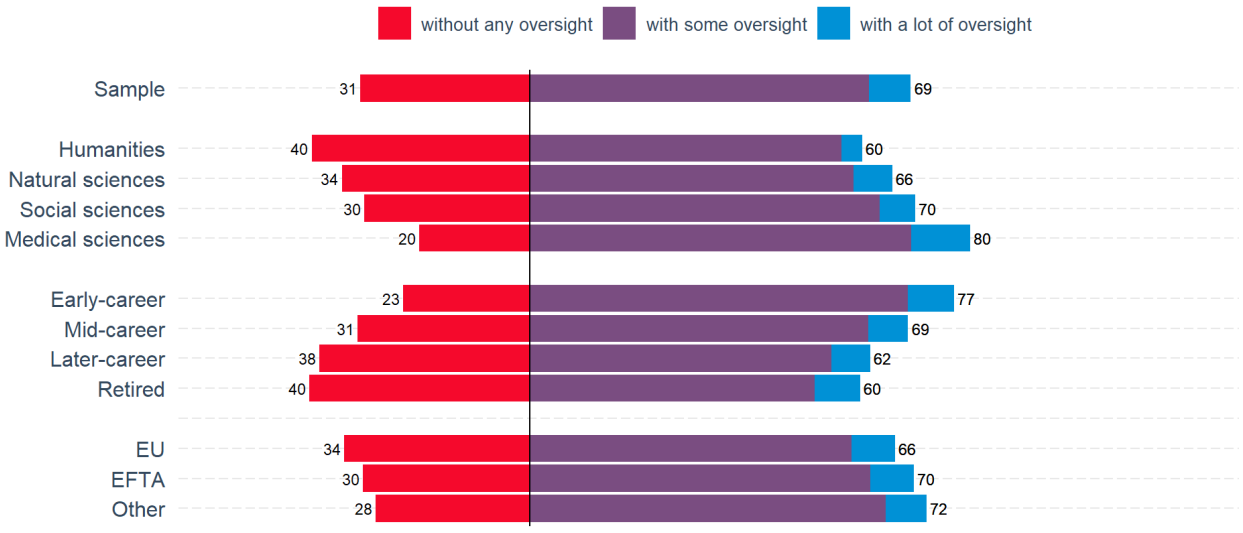


Figure 6.1 Frequencies of research integrity locus of responsibility, by field, by career stage and by geo-political unit

A further breakdown of the results by career stage of the respondents reveals are a more interesting pattern. As presented in Figure 6.1, more early career stage researchers thought their organisation should have at least some oversight (77 percent) compared to mid-career (69 percent), later-career (62 percent) and retired ones (60 percent). The results suggest that the more experienced the researcher, the less they believe their organisation should have any oversight for the integrity of their research. Less experienced researchers might be more receptive therefore to organisational oversight.

Similarly, when looking at field of study, more researchers in the Medical sciences believe their organisation should have at least some oversight (80 percent) compared to other fields (60-70 percent). A much smaller percentage of respondents from the medical sciences thought there should be no oversight from the organisation (20 percent compared with 30-40 for the other fields). Researchers in the arts and humanities were least likely to see a role for their organisation in overseeing research. EU countries have a slightly lower proportion of respondents indicating support for organisational oversight compared to the two other groups.

Figure 6.2 shows this information for researchers from each country.

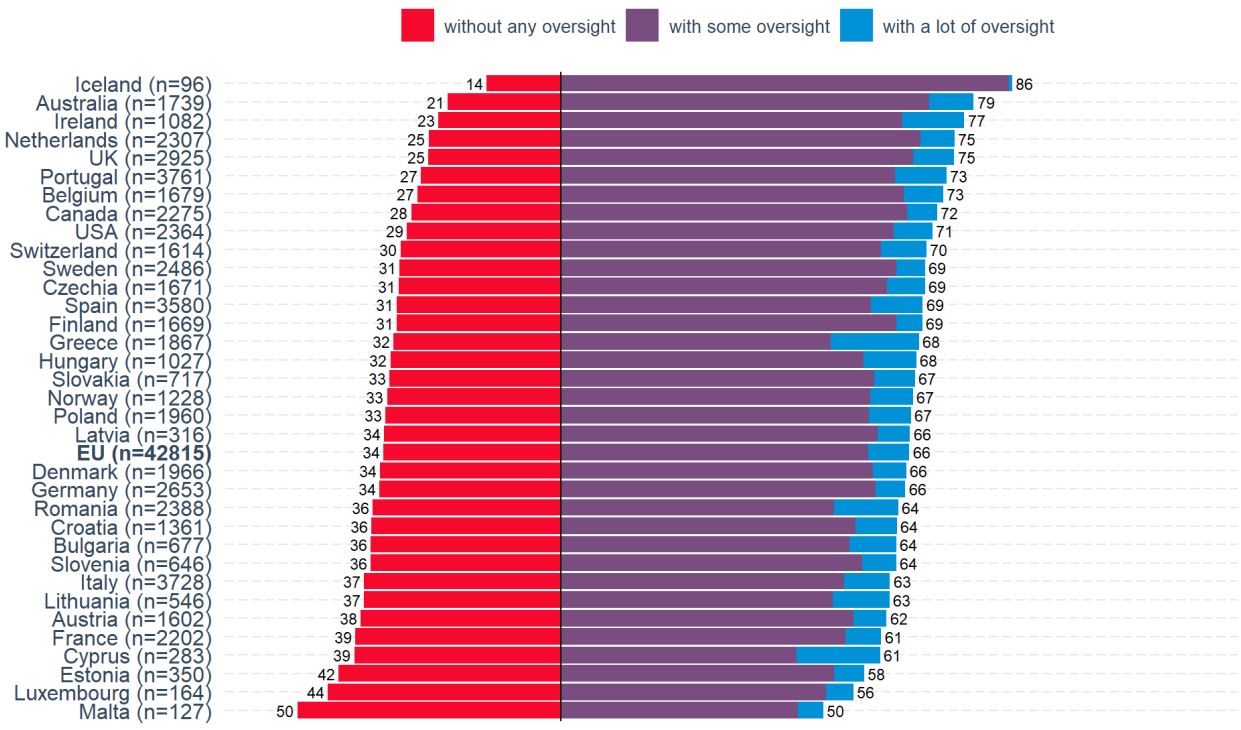


Figure 6.2 Frequencies of locus of responsibility for RI, by country

The countries with the highest percentages of respondents indicating they believed their organisation should have a lot of oversight were Greece and Cyprus, with more than 15 percent responses.

On the contrary, the countries with the highest percentage of respondents indicating an 'individual' locus of responsibility were Malta (50 percent), Luxembourg (44 percent) and Estonia (42 percent). ANother way of looking at this is to focus on those who think that organisations should have no role. Figure 6.2 orders countries according to the proportion of its researchers that adopt this view. Here we see that the other OECD countries are all amongst the least likely to think this,- less than 30 percent, compared to the EU average of 34 percent. .

### 6.3.2 Research integrity as box-ticking exercise

The majority of respondents (80 percent) felt that research integrity policies were box ticking exercises at least some of the time, with 36,5 percent of those considering research integrity to be always or mostly box-ticking exercises. (43 percent only sometimes).

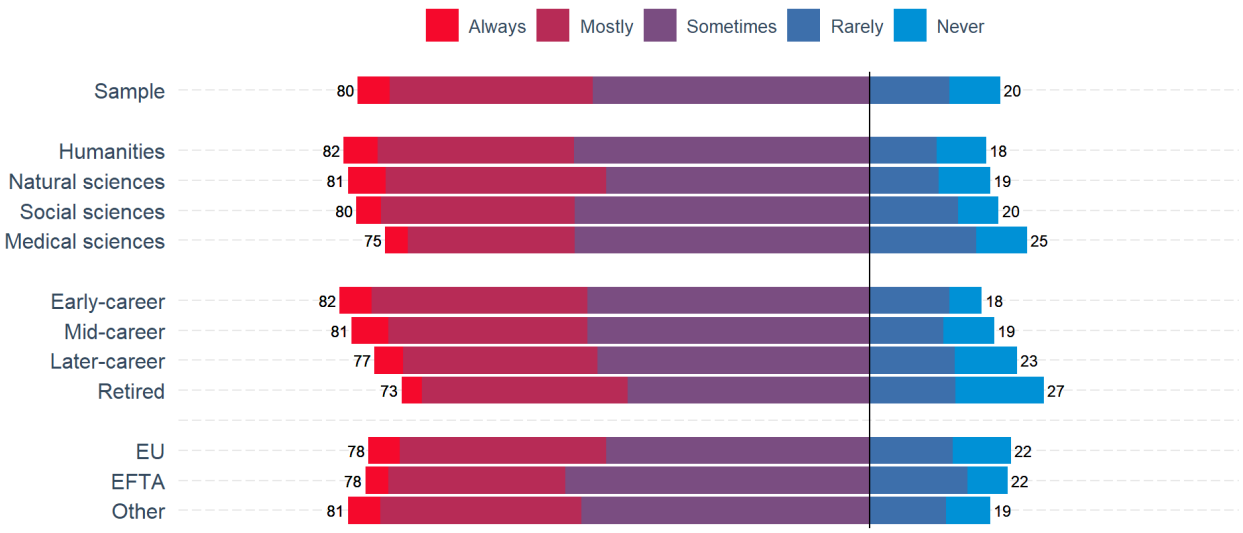


Figure 6.3 Frequencies of "research integrity as box-ticking exercises" by field, by career stage and by geo-political unit

Figure 6.3 shows that early career researchers are the least positive compared to mid and late-career ones, or retired. This is an interesting and potentially important finding. Although the differences are not great, it is puzzling that early career researchers would be more cynical than senior colleagues about formal RI policies, and could have implications for support for such initiatives from those most likely to benefit in the future.

We can also observe that participants from the medical sciences were the least negative towards research integrity policies compared to the other groups. There is little difference between country groups.

Figure 6.4 shows the results by individual country. The results of this questionnaire item across countries appear reasonably consistent,with some country variation. The highest percentages of respondents thinking research integrity policies are at least some times box-ticking exercises were recorded in: Iceland (92 percent), Slovakia (86 percent), Czechia (85 percent) and UK (85 percent). The most positive, considering the option of rarely or never box-ticking were: Romania (30 percent), Luxemburg (29 percent), and Portugal (29 percent).

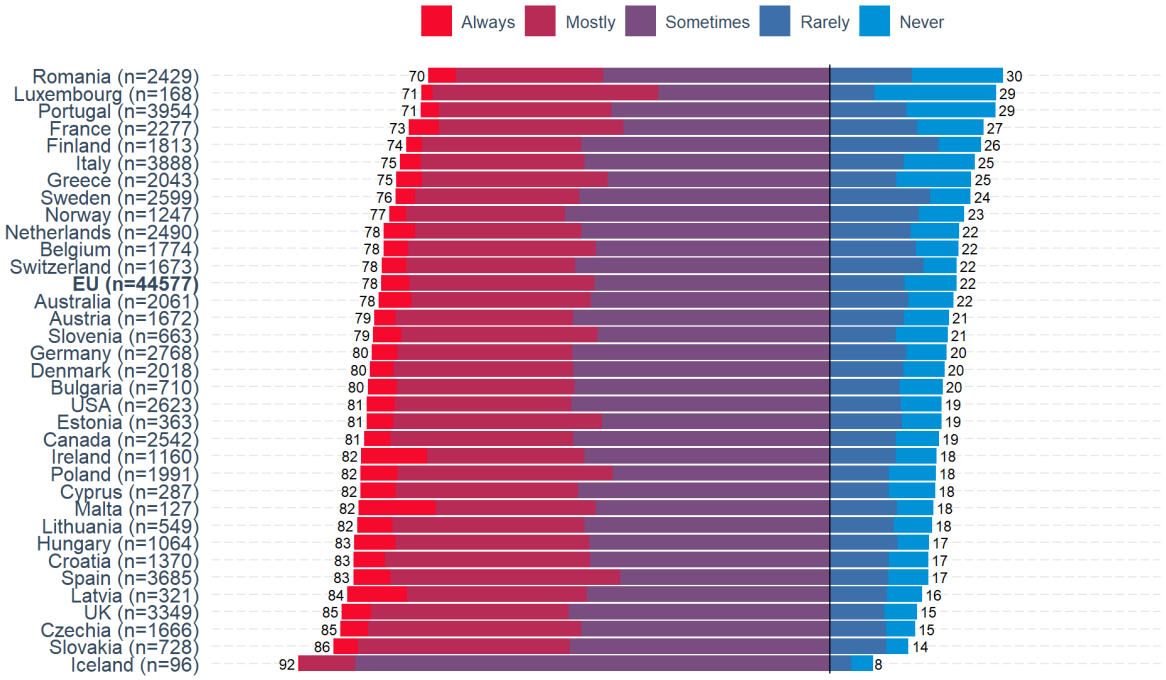


Figure 6.4 Frequencies of "research integrity as box-ticking exercise", by country

## 6.3.3 Research integrity policies improve my research

In this section, we explore the perceived impact of research integrity policies on the quality of research. Figure 6.5 shows that the majority of participants consider that research integrity policies help improve the quality of their research (69 percent adding always, mostly and sometimes improve the quality of research). A substantial minority holds a more sceptical view about RI and quality of their research, 7 percent of respondents opted for the option 'never improve the quality of research', and 23 percent chose 'rarely improve the quality of research'.

When we analyse the responses by career stage, we identify another clear pattern. Early career researchers are the least positive about research integrity policies and the percentage of those who are more positive about the potential for RI policies to improve research increases at later career stages. We can observe that participants from the medical sciences were the most positive about the role of research integrity policies in improving research compared to the other groups.

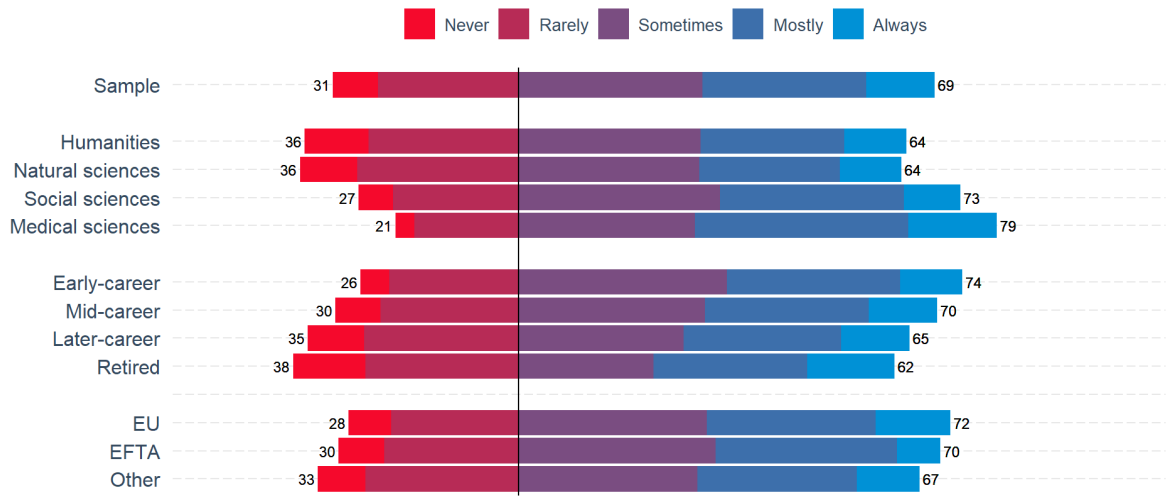


Figure 6.5 Frequencies for "RI policies improve my research" by field, by career stage, and by geo-political unit

Next, in Figure 6.6 we examine the differences across countries on the same item. The countries with the highest percentage of respondents that selected the option 'never improve the quality of research' are Malta and Ireland with 13 percent, followed by France with 10 percent. The countries with the highest percentages of respondents that selected 'always improve the quality of research' are Romania and Portugal (both 27 percent).

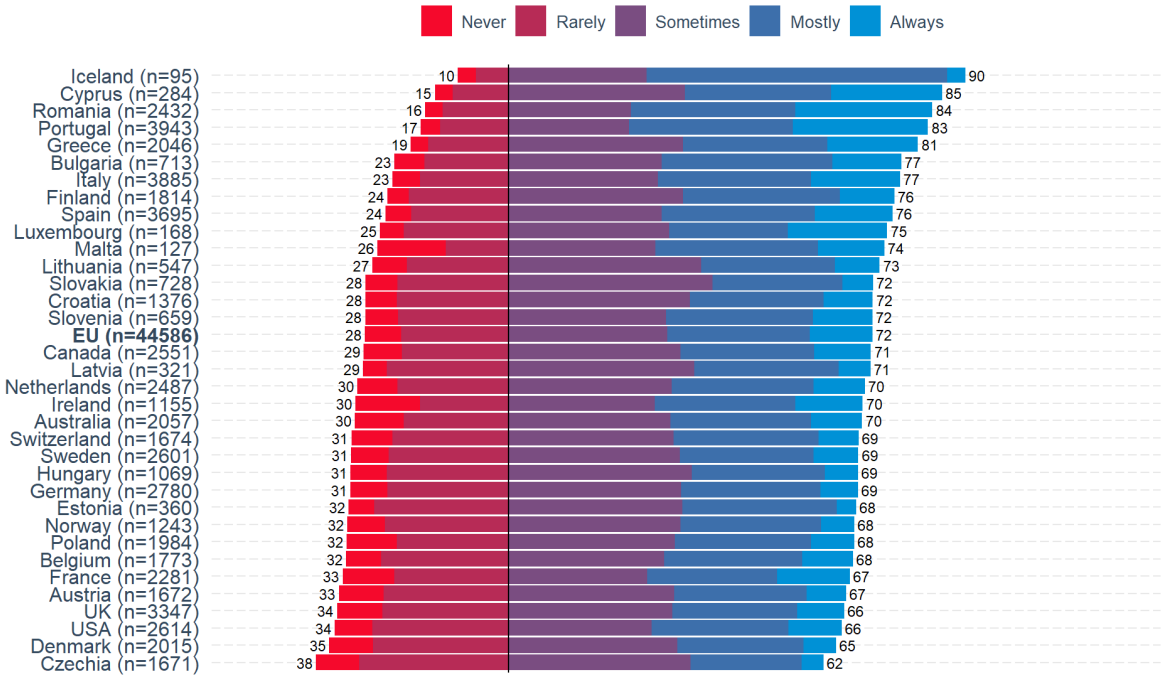


Figure 6.6 Frequencies for "RI policies improve my research" by country

### 6.3.4 Research Integrity training

In the last section of this chapter, we explore the preferences of our sample about the type of training in research integrity that they would like to receive, voluntary or mandatory  Bothl options are well received, with more than 60percent of researchers making positive evaluations (very positive plus slightly positive). The option with the highest percentage of 'very positive' is voluntary training followed by mandatory training. Although voluntary training is preferred by a small margin, the appetite for mandatory training is shared by a substantial majority, indicating that for many researchers, more mandatory training would likely not meet with particular resistance.

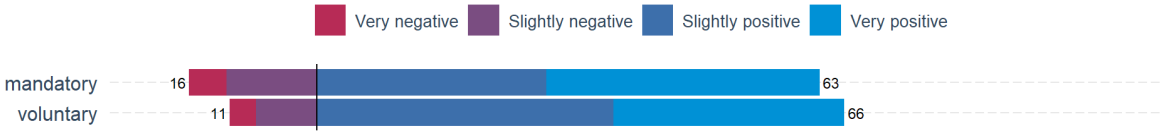


Figure 6.7 Positivity towards RI training according to form of training

## 6.4 Conclusion

In conclusion, we can summarise the findings of this chapter in the following four points:

The majority of respondents think that there should be some oversight from their organisation for research integrity. Minor differences exist between countries. A clearer pattern emerges if we consider participants' career stage: early-career individuals think that organisations should have oversight than senior colleagues. In addition, medical sciences researchers think that organisations should have more oversight than their counterparts in other fields, but the differences are not large.

Moving to the possibility that research integrity might just be considered a box-ticking exercise, a large majority of respondents believe this possibility very real. Some country difference exists but is minor. Early career researchers appear to be the most pessimistic about research integrity policies compared to more senior colleagues. Across fields, the most positive about the sincerity of research integrity policies were researchers from the medical sciences.

The large majority of respondents agreed that research integrity could improve one's research. There are, however, some noticeable differences across career stages and fields. Early career researchers are the least positive about RI policies improving their research compared to more senior researchers. Once more, if we consider research fields, researchers from the medical sciences were the most positive about RI policies enhancing their research.

Lastly, most researchers were positive about receiving training in research integrity, with voluntary training being the most appreciated by a small margin compared to mandatory.

# 7. Researchers' motivation to adhere to research integrity procedures

## 7.1 Introduction

The final part of the picture, having identified researcher behaviours, current provision of research integrity measures and attitudes towards them, and spheres of influence that might impact on receptivity to proposed policies, is to look at what might motivate researchers to follow research integrity procedures that are likely to become necessary.

## 7.2 The question

Respondents were asked how motivating a number of potential benefits would be in encouraging them to adhere to formal research integrity procedures.

The ten motivating factors were:

- Better reputation in my field
- Higher salary or income
- Increased funding opportunities
- Increased self confidence in my research
- More trust in my research by the general public
- More trust in my research by my peers or colleagues
- Increased chance of promotion
- Being able to publish in higher status outlets
- Facilitates collaboration with other researchers
- More reliable scientific knowledge

## 7.3 Results

Figure 7.1 shows the contrast between intrinsic and extrinsic motivating factors. The latter, 'extrinsic motivation', addresses promotion chances and salary. Looking at mean scores for these two items, we see that they fall close to the 'fairly motivating' range. By contrast, intrinsic motivation (capturing more reliable scientific knowledge and more trust in my research by colleagues) are

judged on average to be 'very motivating'. The other factors lie between these two sets of extremes. That more reliable scientific knowledge is the most motivating factor is striking endorsement of the commitment to research integrity. Moreover, none of the cited factors are regarded as irrelevant or not exerting some motivational pull on adherence to RI procedures.

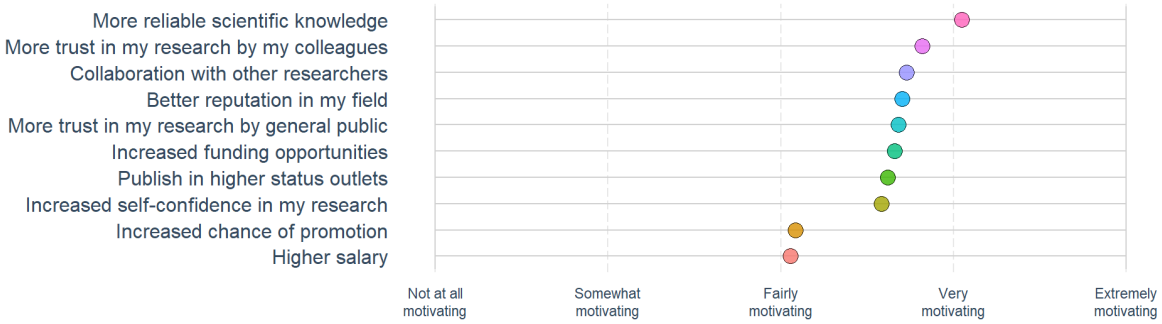


Figure 7.1 Motivational pull of different outcomes of research integrity procedures: full sample, mean scores

Figure 7.2 shows the motivational pull of the ten factors across the four scientific fields. Of note here is that all the factors apart from promotion and salary, are most motivating within the medical sciences. By contrast, of the other field groups, the general picture of the humanities, is of somewhat lower motivational appeal of most factors. The motivational pull of more reliable scientific knowledge is lower by 0.5 units in humanities compared to the medical sciences.

Figure 7.2 shows considerable homogeneity of motivational pull factors across the four fields. Within that context natural scientists are more motivated than others by salary and promotion prospects.

While more reliable scientific knowledge is rated as motivational by at least 90 percent of respondents in all fields, the gap between the medical and natural sciences and the humanities is hardly surprising given the limited role of science to the humanities.

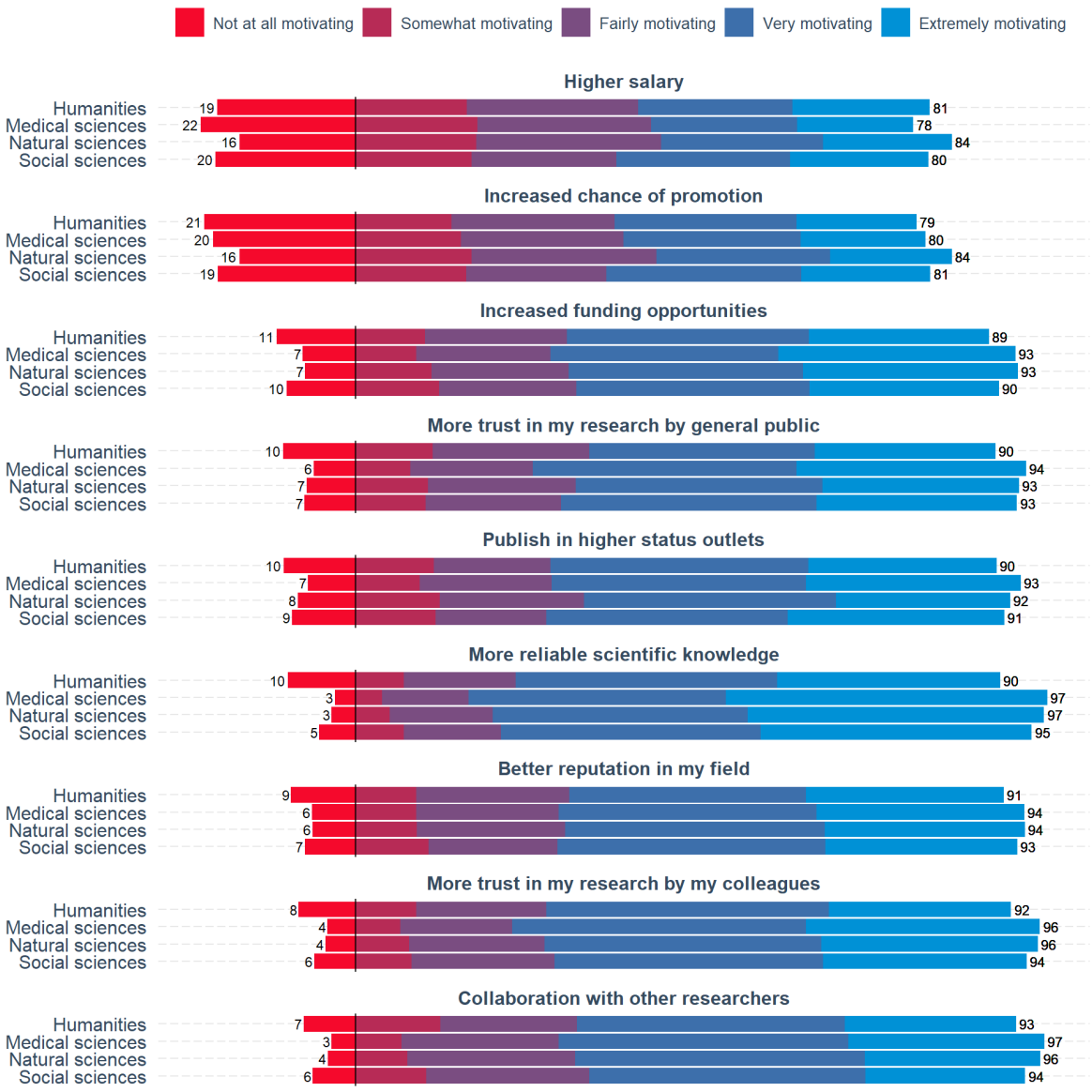


Figure 7.2 Motivational pull of different outcomes of research integrity procedures, by field

Figure 7.3 shows the motivational pull of the ten factors across the career stages. There is a striking association between career stage and motivational pull. Those in the early career stage report greater motivational pull for all of the ten factors, followed by mid-career and, lastly, later career. For early-career researchers, adherence to research integrity procedures is seen not only as a route to more reliable scientific knowledge but also career progression and enhanced salary.

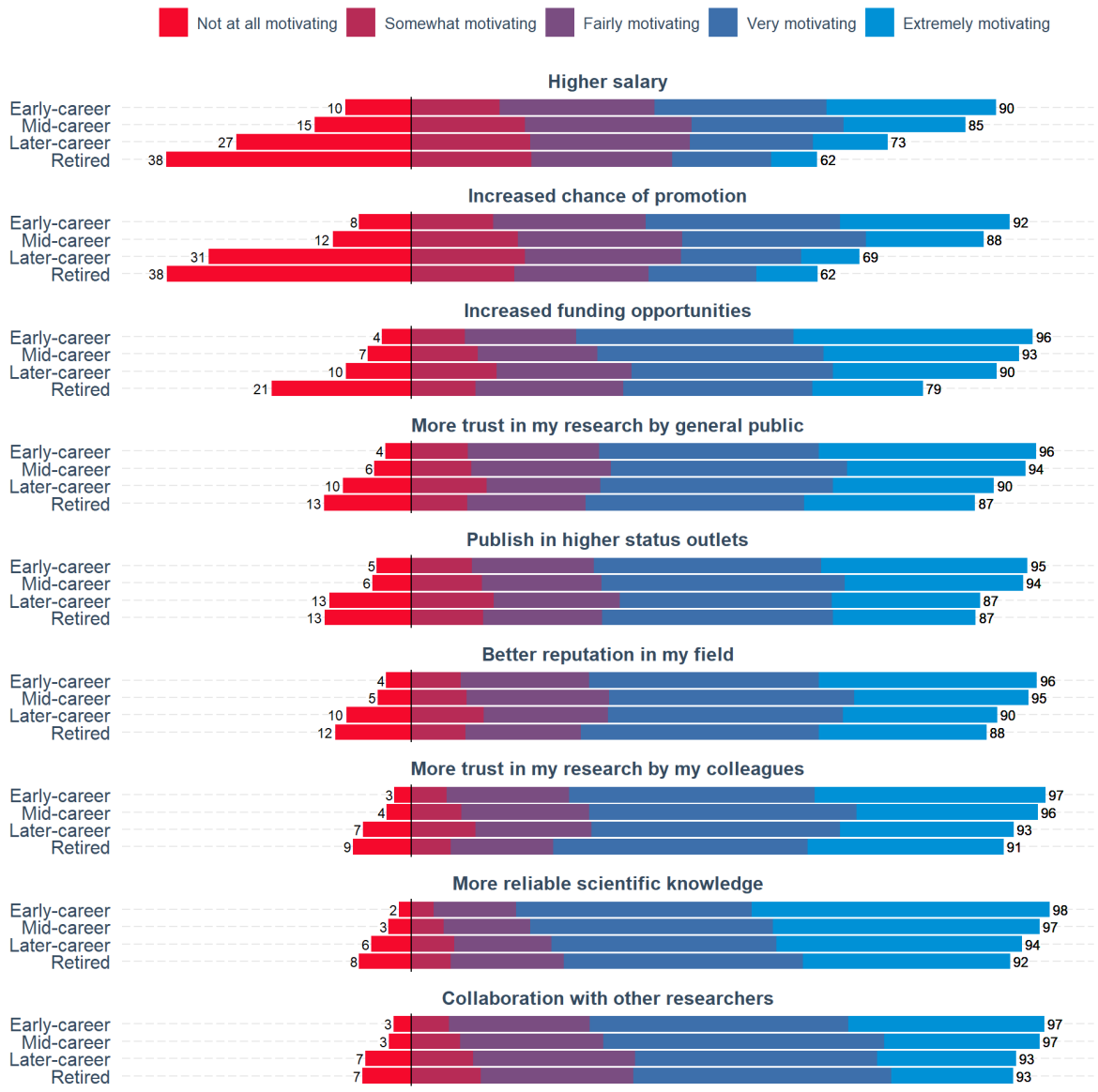


Figure 7.3 Motivational pull of different outcomes of research integrity procedures, by career stage

Figure 7.4 presents the motivational pull broken down by temporary, permanent and no contract (e.g., self-employed). Those on temporary contracts find the motivational pull of the ten factors greater than those with a permanent contract.

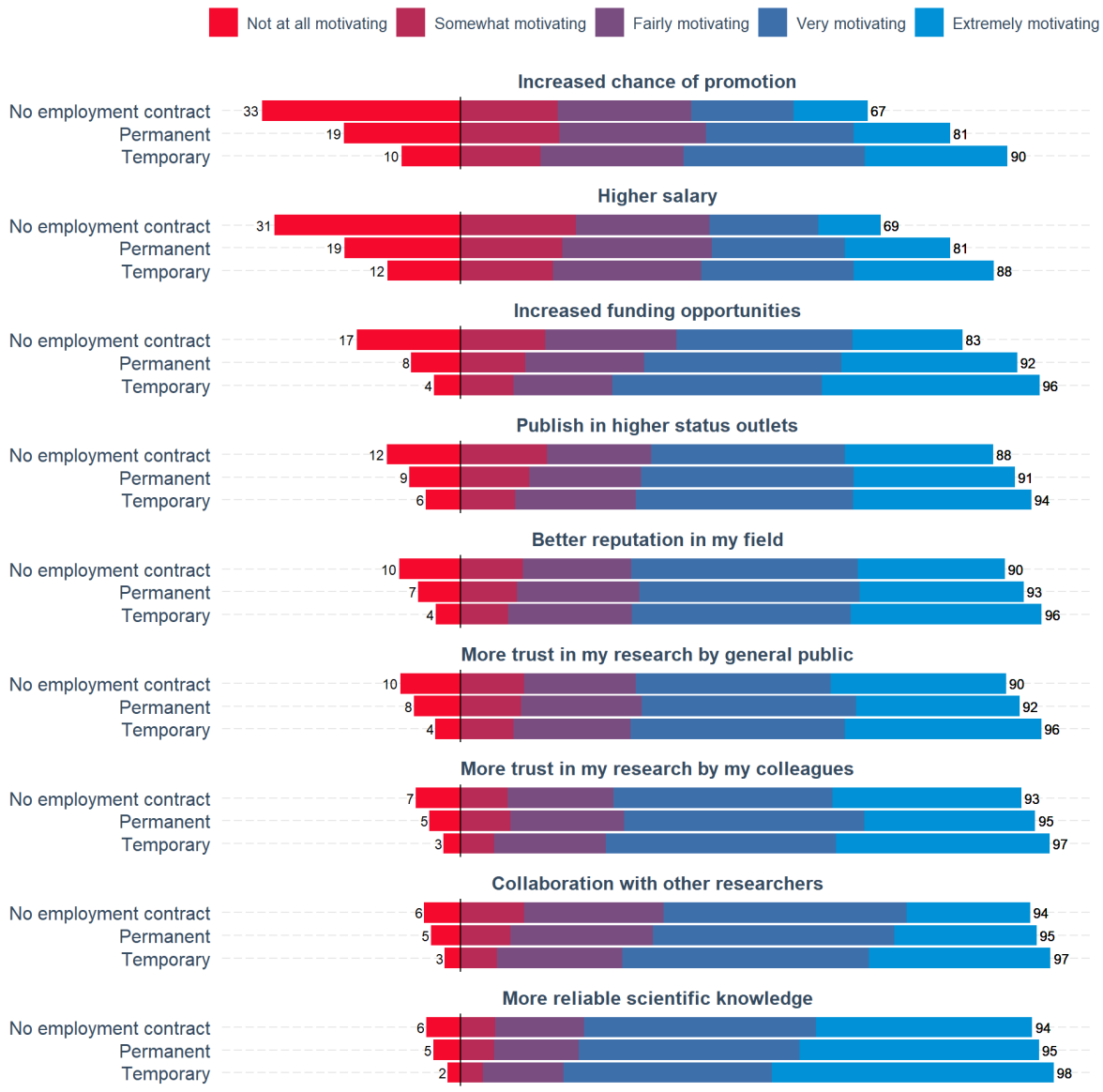


Figure 7.4 Motivational pull of different outcomes of research integrity procedures, by contract

Figure 7.5 shows the motivational pull broken down by sex. Women find all ten factors more motivating than men. It is well established that women are disadvantaged in labour markets and in research (reference to be added) possibly leading to greater interest in following research integrity procedures as an added credential.

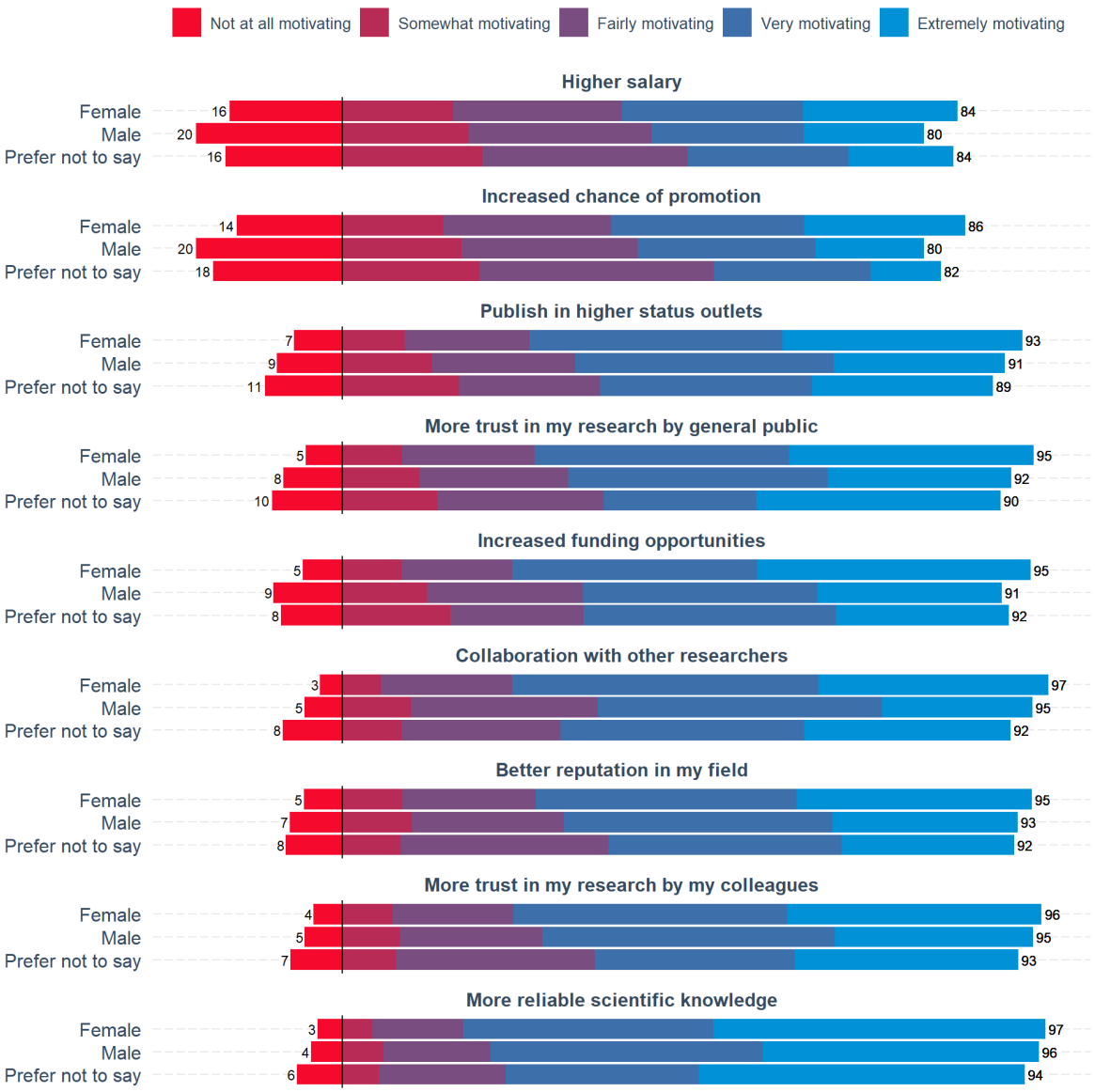


Figure 7.5 Motivational pull of different outcomes of research integrity procedures, by sex

Figure 7.6 presents the motivational pull across the three geo-political groupings. The motivational pull of more reliable scientific knowledge is evidenced in the three groupings with extrinsic motivation promotion and salary being lowest in the European non-EU. This might reflect the relatively higher salaries in Norway and Switzerland.

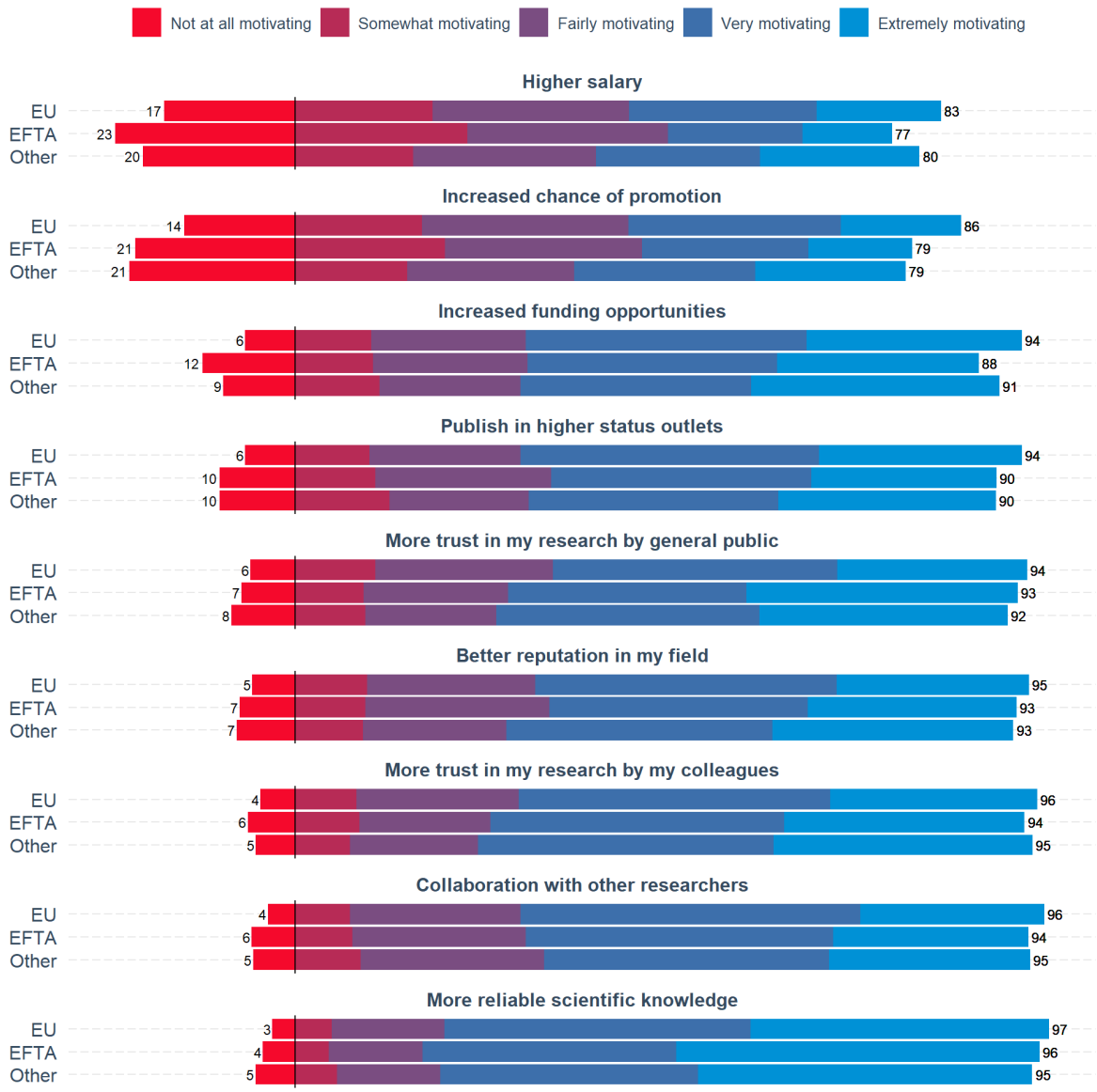


Figure 7.6 Motivational pull of different outcomes of research integrity procedures, by geo-political group

## 7.4 Conclusion

Overall, given the opportunity to express an opinion, the intrinsic values attached to more reliable science, greater trust of colleagues and personal reputation, stemming from a commitment to research integrity procedures, are seen across all research fields, socio-demographic characteristics and geo-political groupings.

The pull of all motivational factors is positively correlated with career stage; early career researchers, compared to others, rate all the factors, intrinsic and particularly extrinsic, more highly.

In the promotion of research integrity policies, acceptance and implementation among the research community should acknowledge the role of intrinsic motivation.

# 8. Researcher identity and reference group.

## 8.1 Introduction

We have looked at researcher behaviour, and researcher attitudes to research integrity policies and their organisation's involvement in these matters. To build a fuller picture of the context within which researchers are influenced and supported, in this section we will discuss the way in which respondents identify as a researcher, their sense of belonging to various organisational or epistemic communities, and the channels through which they most commonly receive information regarding research integrity.

## 8.2 The Question - Identity

Respondents were asked with whom, as a researcher, they identify with the following question.

How much do you identify as a researcher of:
- your department or centre
- your organisation
- the country where you work
- professional societies you are affiliated with
- a scholarly community

The response alternatives to capture the sense of belonging ranged from 'Not at all' (1) to 'A great deal' (5). The figures below present the results regarding this question by conveying the share of responses to the various categories, broken down by fields, career stages, and geo-political units. The figures graphically distinguish the sets of respondents not identifying with a particular collective, from those who identify at least a little with a given collective.

## 8.3 Results - Identity

In general, we note that respondents identify fairly strongly with all five categories asked for, with all mean scores indicating at least a modest amount of identification. Respondents identify most with their department or centre (mean score 3.9) and their organisation at large (3.6). Hence, institutional identity is prevalent. To a lesser degree, researchers identify with disciplinary or epistemic collectives including scholarly communities (3.4) and professional societies (3.2). Respondents generally identify least as a researcher of the country they work in (mean score 3.2).

When breaking down the answers by various categories (disciplinary fields, career stages, and countries of affiliation), we note that, generally, very little difference between the various categories is

reported. Respondents from all categories tended to answer the questions regarding their sense of identity in a similar way.

When considering the minor differences that do exist, we note that, considering disciplinary fields, the institutional perception of identity (department/centre and organisation) is least strong in the Humanities, while researchers in this discipline tend to identify more strongly with their scholarly community, compared to other disciplines.

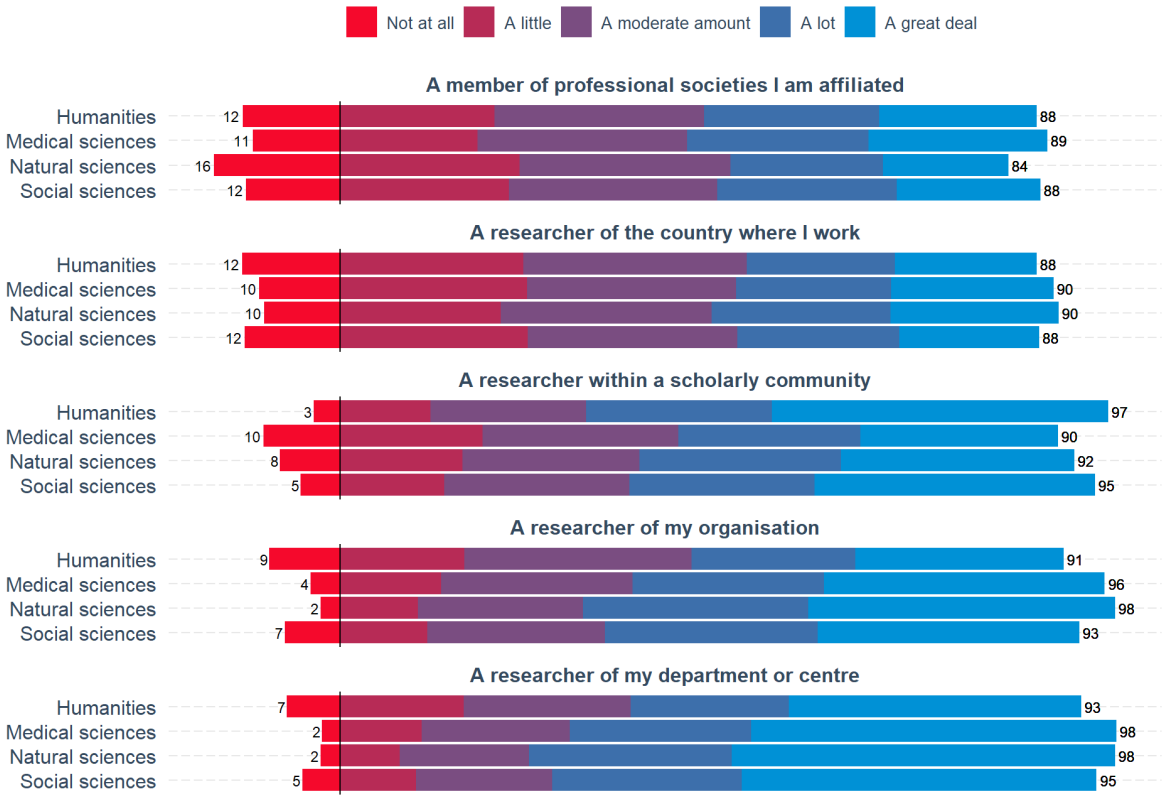


Figure 7.7: The extent to which respondents identify with diverse collectives as a researcher, by disciplinary fields.

When comparing researchers in different career stages, a small but notable difference can be detected between early and mid-career researchers on the one hand, and late-career and retired researchers on the other. Respondents from the former groups tend to identify less with all categories, in particular being less likely to identify 'a great deal' with any of the categories. Hence, in general they tend to feel a weaker sense of belonging to both institutional, geographical and epistemic collectives compared to their more senior colleagues. This pattern is most striking in respondents' level of identification with their scholarly community.

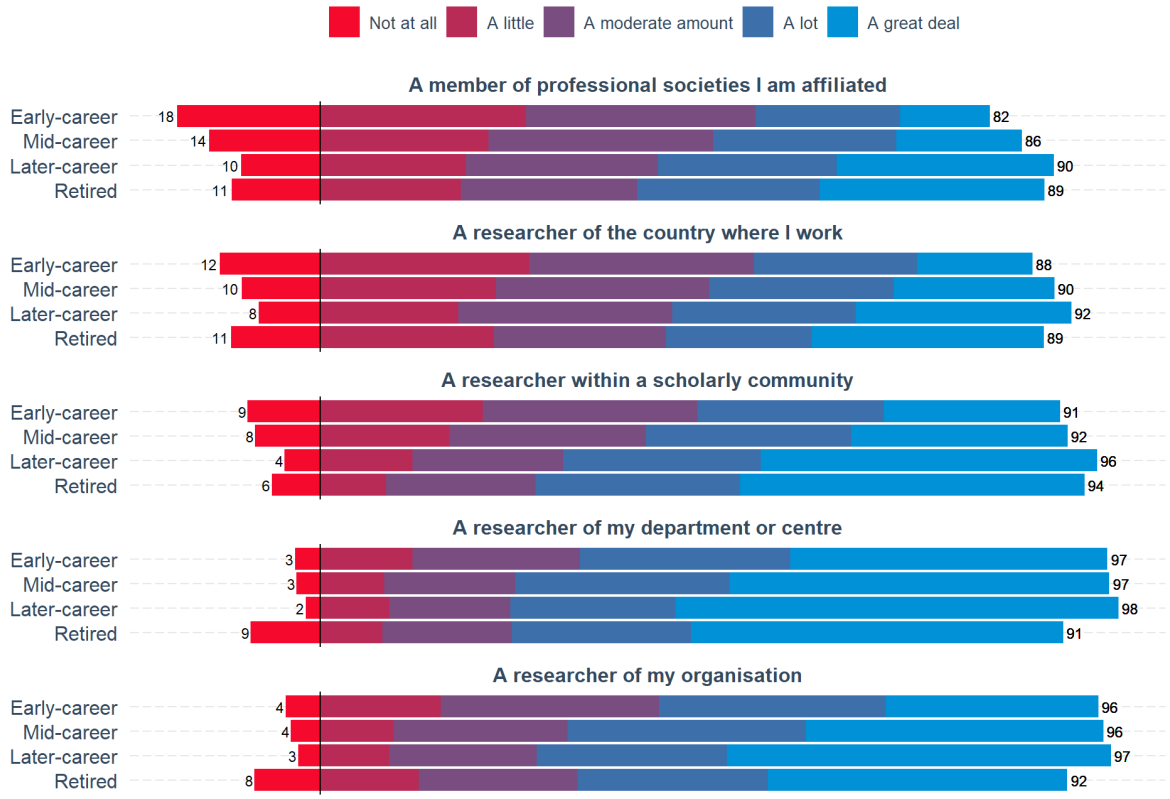


Figure 7.8 The extent to which researchers identify with each item, by career stage

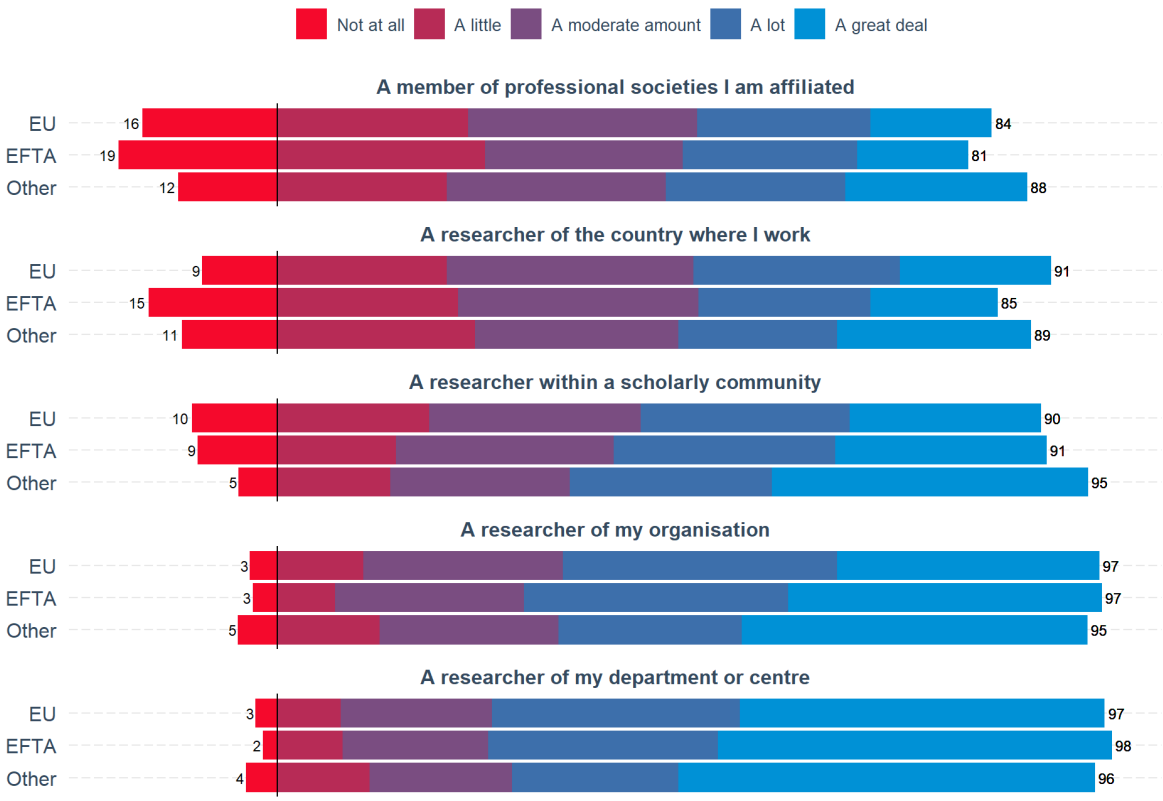


Figure 7.9 The extent to which researchers identify with each item, by geo-political unit

## 8.4 The Question - Valuing the opinion of one's research

Related to the question of with whom or what researchers identify, respondents were asked whose opinion about their research they value the most. The reference groups included researchers in the country I am currently working, professional societies I am affiliated with, my scholarly community, my organisation, and my department or centre. Respondents were asked to select only one reference group.

## 8.5 Results

In total, 63 percent of respondents indicated to value the opinion of their scholarly community the most. The remaining respondents were equally distributed over the other categories, including their department or centre (12 percent), their professional society (11 percent), researchers within the same country (8 percent) and researchers within their organisation at large (6 percent). Hence, even though researchers may identify with multiple groups and feel a sense of belonging to various

communities, the vast majority indicate that they value the opinions of their scholarly community - researchers publishing in the same journal or attending the same conferences - the most.

As in the previous set of questions, respondents tended to answer this question consistently across respondent categories and only small differences between respondent demographic categories are apparent. It is notable that researchers in the Humanities value most highly the opinions of their scholarly community (76 percent), while those in the medical sciences indicate the lowest score here (55 percent). The response pattern of the medical scientists is more diverse than others and they show a stronger valuation of opinions from their professional societies (13 percent) compared to the other fields (7 or 8 percent). We also note that, even though respondents from the natural sciences tend to both identify strongly with their organisational context as well as value opinions from those within their organisation, they tend to have the lowest confidence in their organisation ensuring research integrity (see section 4.3.7). There hence seems to be a difference between how they perceive their organisation as an entity on its own and the people working within it.

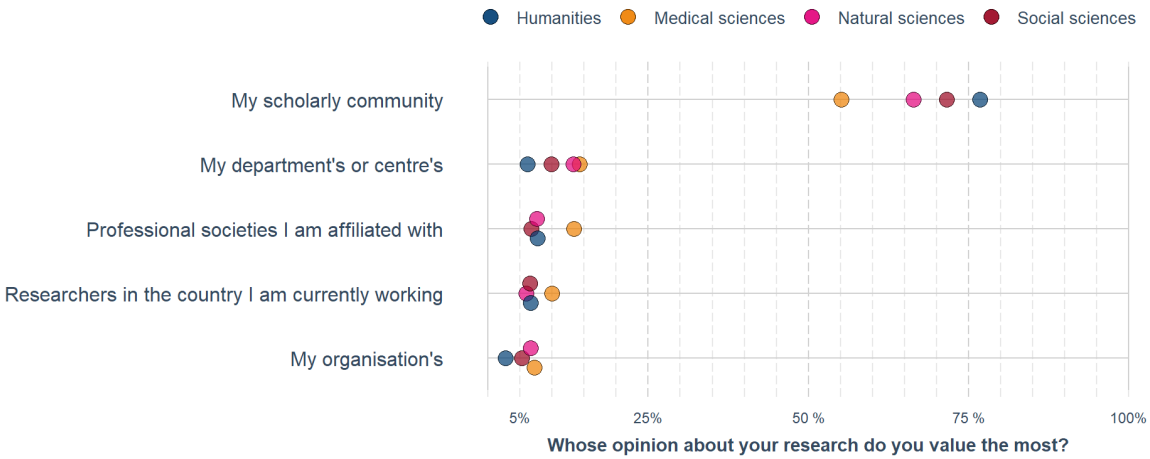


Figure 7.10 The percentage of respondents valuing the opinion of different actors by disciplinary fields.

When differentiating between career stages, a notable difference can be witnessed between early- and mid-career researchers on the one hand, and late-career or retired researchers on the other. Whereas the former are more inclined to value their department members' opinion (13 – 18 percent vs. 5 – 7 percent), the latter value their scholarly communities' opinion more (72 – 75 percent vs. 61 – 62 percent).

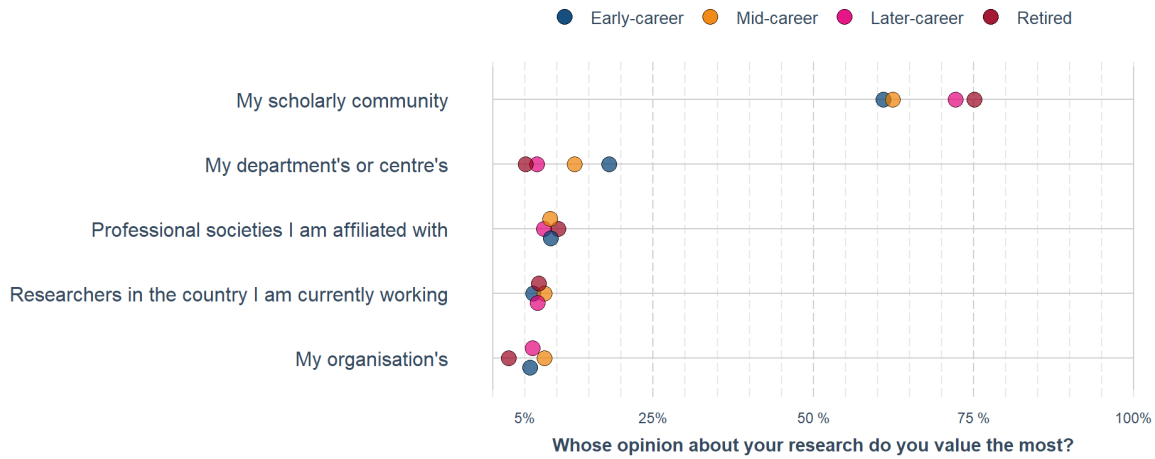


Figure 7.11 The percentage of respondents valuing the opinion of different actors about their own research by career stage.

## 8.6 The question - Information flow

Lastly, we present findings about how respondents receive information regarding research integrity. For eleven different channels, respondents were asked to what extent they obtained information about research integrity through this channel, ranging from 'No', through 'a little' and 'some', to 'a lot' of information. Lastly, respondents could indicate that a certain channel does not apply to them. The eleven channels included were:

- Organisations providing research guidelines in my country
- Funding organization providing me with money
- My organization
- Senior colleague, supervisor or mentor
- My department or centre
- Organisations providing guidelines internationally
- Professional bodies I am affiliated with
- My scholarly community
- Research collaborators
- Other researchers on social media
- Published editorials or articles in my discipline

## 8.7 Information Flow - Results

In the descriptions below, we dichotomize the response categories, distinguishing respondents who indicate they obtained no information, from those who indicate they obtained at least a little information.

In general, we note that respondents indicate that they obtained at least a little information from nearly all channels, with only social media being indicated as a source by less than 80 percent of the respondents (75 percent). Among all high scoring other categories, most respondents indicate that they received at least a little information from their research collaborators (96 percent) and from their scholarly community (94 percent). Hence, most information seems to be spread in the daily practices of working together or working on similar research topics. More formal channels such as funding organisations (80 percent), and national (81 percent) or international (84 percent) organisations providing guidelines, are relatively less frequently indicated as information sources.

Comparing between research disciplines, we note that medical scholars indicate that they received information from more channels than scholars from other disciplines, in particular rating 'organisations providing guidelines', both nationally and internationally, higher. Apart from that, responses across the disciplines closely resemble each other.

When comparing respondents in different career stages, we again conclude that information channels are used in similar ways across the categories. Notable differences can nevertheless be spotted between early/mid-career researchers and their more senior or retired colleagues, when it comes to the use of social media as an information channel, as well as – unsurprisingly – the extent to which they receive information from a senior colleague, supervisor or mentor. Both channels are used more frequently by early and mid-career researchers.

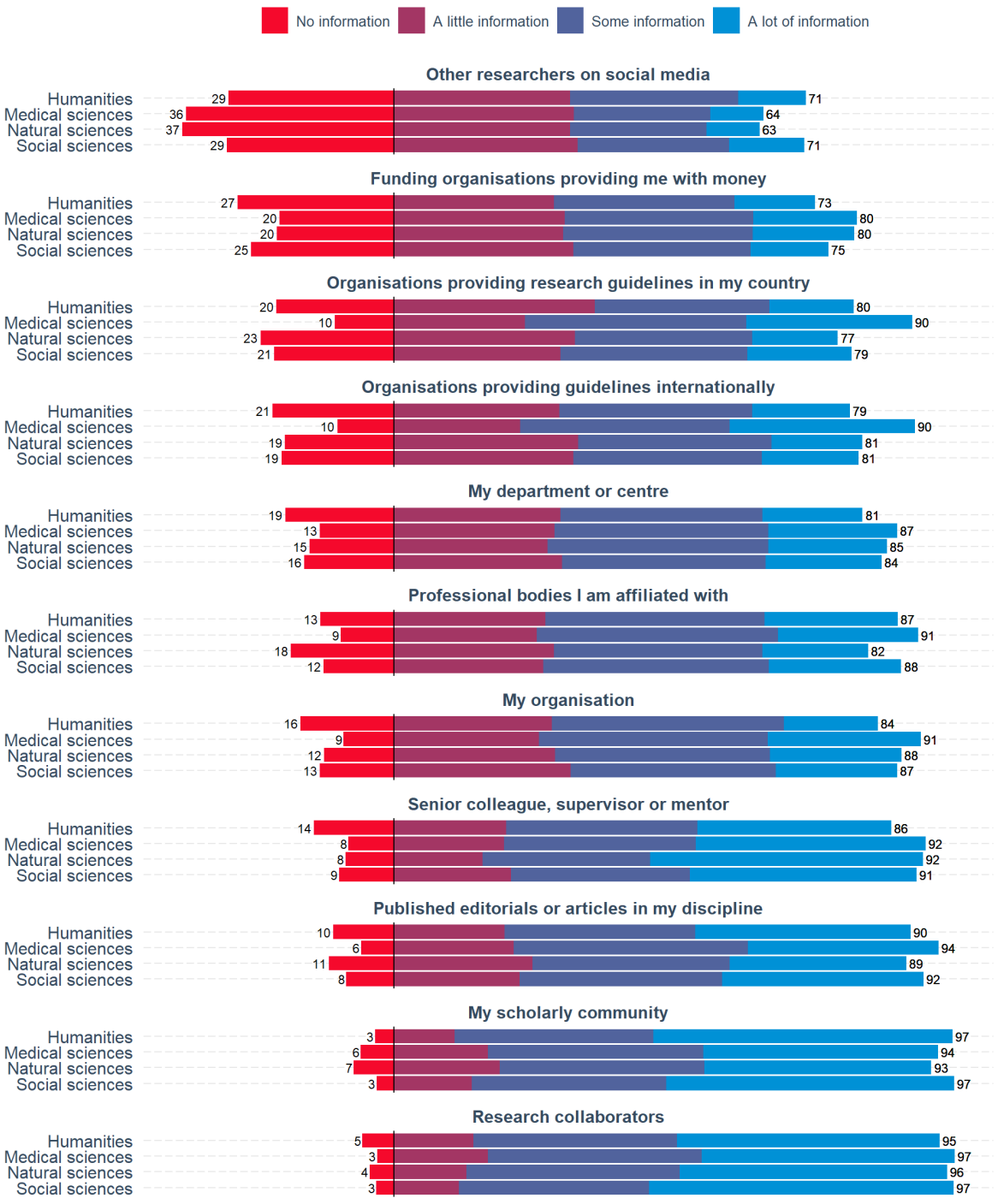


Figure 7.12 The proportion of respondents indicating to receive at least some information regarding research integrity from a specific source by disciplinary fields.

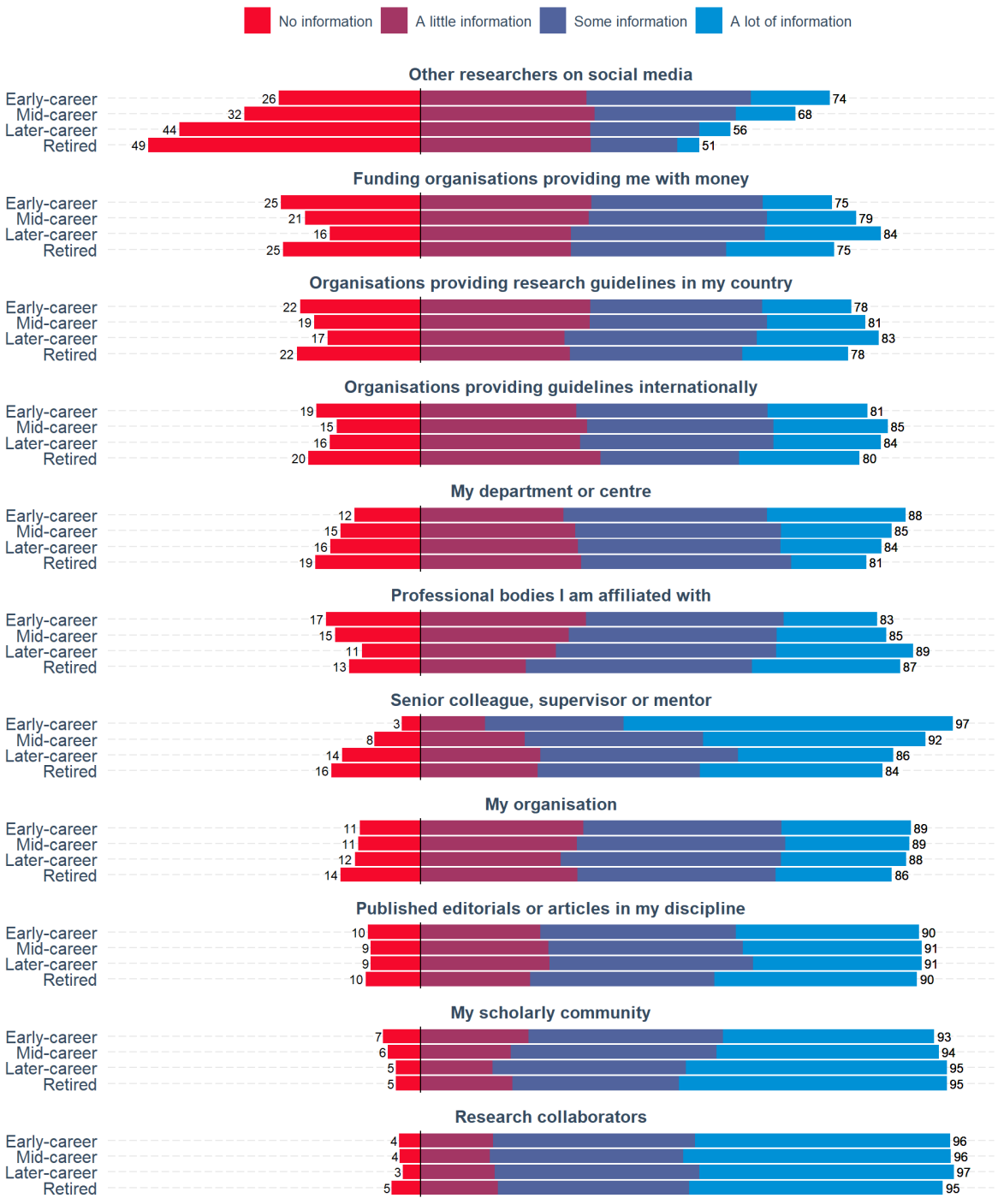


Figure 7.13 The proportion of respondents indicating to receive at least some information regarding research integrity from a specific source by career stage.

## 8.8 Conclusion

In conclusion, our survey demonstrated that respondents tend to identify with multiple collectives of researchers, including those being institutionally and epistemically close to them. However, when asked whose opinions regarding their research respondents value most, the majority opts for the opinions of researchers in their scholarly community. Only minor differences between researchers from different disciplines or career stages became visible.

Regarding information flow, respondents indicate that they obtained at least a little information from a wide range of channels, with only social media being indicated as a source by less than 80 percent of respondents, mainly due to a lack of usage among late-career and retired researchers.

# 9. Summary

The main objective of IRIS was to examine the perceived need for organizational research integrity policies and procedures among researchers. It also examined the extent to which researchers engage in QRPs, with which groups they most identify and whose opinions they value the most. The survey investigated motivations for complying with RI policies and researchers' awareness of and beliefs in the efficacy of current organisational policies. How information was communicated to researchers by their organisations was also investigated.

## 9.1 QRPs

There are non-trivial amounts of questionable or detrimental research practices being carried out. More than half of respondents report that they had included authors on recent publications that had not contributed sufficiently to warrant inclusion, had given inadequate peer reviews of research papers and had inadequately supervised junior co-workers. Just under a quarter said that they have chosen not to report their own findings if they contradict their own theories.

The frequency of QRPs reported does not vary a great deal by career stage, sex or scientific field. The mean number of QRPs admitted to by researchers does vary by country, ranging from more than 2.5 in Greece to 1.8 in the UK. On average, researchers from EU countries were slightly more likely to report QRPs than those outside of the EU.

## 9.2 RI policies

Just over half of researchers said that their organisation had a written statement on research integrity. Nearly 40 percent did not know whether or not there was one. Medical researchers were more likely than other fields to know about a written statement, as were later career researchers. Only 44 percent of EU researchers were aware, while 62 percent of those from outside Europe were aware. Country variation in awareness is considerable. Between 14 and 38 percent, depending on the RI topic, don't know whether organisational RI policies are effective, although a substantial majority think that they are.

Researchers were asked to rate their own organisations against 'ideal type' situations regarding policies and practice in nine different RI areas. There is considerable variation in opinions about this, with similar proportions rating their own environments as closer or further from the ideal. RI training policies were found less than ideal by a majority. In general, EU researchers believe that their organisations are further from the ideal on RI policies than do researchers outside of Europe.

A majority of researchers has confidence in their organisation to ensure high levels of RI, but as many as 30 percent of EU researchers have little or no confidence. Over a third thinks that RI policies are always or mostly 'box-ticking' exercises while 28 percent think that they rarely or never improve the quality of research.

Overall, a substantial majority is generally favourable towards RI policies and has some confidence in their organisations. However, a significant minority is less favourable, less engaged and less confident in their organisation's ability to ensure high levels of RI.

## 9.3 Identity, information and motivations

Respondents identify with multiple collectives of researchers, including those being institutionally and epistemically close to them. The majority of respondents value opinions of researchers in their scholarly community more than other reference groups. There is only small variation in this finding between researchers from different disciplines or career stages. Respondents indicate that they receive information regarding research integrity from many different sources. While this is encouraging in principle, it creates the risk of diverse sources conveying dissimilar or even contradicting messages regarding RI.

Researchers are motivated by a range of factors, both intrinsic (more reliable knowledge, more trust by the public and by colleagues) as well as extrinsic (enhanced reputation, higher salary, promotion) The most significant patterning of these 'motivational pulls' comes between early and later career researchers. Early career researchers find RI procedures more motivating in general than later career researchers. Medical researchers are more motivated to engage in RI policies than in other fields. Humanities researchers are least motivated. For all groups, salary and promotion prospects were the least motivating factors (although still on average 'fairly motivating'). For those in temporary contracts, promotion, salary and increased funding opportunities were more motivating than they were for those working under permanent contracts.

The analyses in this report are limited to descriptives and at most to examining association of two variables. No causal inferences should be made. As such, our results should be regarded as a first step in mining these data for insights. In future steps, SOPs4RI consortium members will undertake multivariate analyses focused on particular research questions. It is also our hope that the data from this study, that we will make freely available, will be analysed by other researchers to produce further useful insights about organisational policies on research integrity and how they are perceived by and affect researchers creating new knowledge.

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# 11. Appendices

## 11.1 Appendix I. List of countries where Census sampling occurred

| Country | Census sampling | | |
|---|---|---|---|
| | All fields | Social Sciences | Humanities |
| Austria | x | | |
| Belgium | x | | |
| Bulgaria | x | | |
| Croatia | x | | |
| Cyprus | x | | |
| Czech Republic | x | | |
| Denmark | x | | |
| Estonia | x | | |
| Finland | x | | |
| Greece | x | | |
| Hungary | x | | |
| Iceland | x | | |
| Ireland | x | | |
| Latvia | x | | |
| Liechtenstein | x | | |
| Lithuania | x | | |
| Luxembourg | x | | |
| Malta | x | | |
| Norway | x | | |
| Portugal | x | | |
| Romania | x | | |
| Slovakia | x | | |

| Country | Census sampling | | |
|---|---|---|---|
| | All fields | Social Sciences | Humanities |
| Slovenia | x | | |
| Switzerland | x | | |
| Australia | | | x |
| Canada | | | x |
| France | | | x |
| Germany | | | x |
| Italy | | | x |
| Netherlands | | | x |
| Poland | | x | x |
| Sweden | | x | x |

# 11.2 Appendix II. Survey Development

The survey rationale was developed and agreed in consultation with partners as detailed in protocol document D6.1, submitted in November 2020. Following the submission of deliverable D6.1, a group of survey and topic experts from across work packages met on 20/11/20 to discuss items that should be included within the survey to meet the agreed rationale. A first draft of the survey, drawing on this feedback, was subsequently compiled by WP6 at the University of Essex and circulated for review by the full survey content development team at a meeting on 22/1/21. Following this meeting a smaller working group was formed across work packages 4, 6 and 7 to consider in detail how to test specific issues that had arisen from co-creation workshops in WP4 and how the survey might be used to inform the work of WP7 in pilot testing the output of the wider project within a select group of institutions (meeting 8/2/21).

A second survey draft was circulated for comment following these meetings and was used for cognitive testing (details below) which occurred during the period 22/2/21- 5/3/21.

The wider group met again to discuss the results of cognitive interviews on 10/3/21 and to agree amendments to the survey, prior to fielding a pilot study in April 2021.

A third draft of the survey was created and circulated to a small select group of survey experts, external to the project, for comment, on 23/3/21.

Minor changes were made to produce a fourth draft for further detailed meeting with WP4. Due to the ongoing concurrent work of WP4, final meetings were held on 6th and 7th of April to ensure the most material possible could be tested within the survey, without placing inappropriate burden on the participant.

A fifth draft was produced for pilot testing.

The pilot study ran from 21st April – 12th May. Changes as a result of the pilot study (detailed below) resulted in the final survey instrument which was released at the end of June 2021.

## 11.2.1 Cognitive testing

Eight cognitive interviews were carried out during the two-week period from 22/2/21-5/3/21. These interviews were intended to serve as a sense check, confirming the usability of the survey and ensuring that key terms were understood. The interviews were conducted by project partners using Microsoft Teams due to covid restrictions. Participants were from the social, natural and medical sciences and humanities. Participants were French Canadian, Portuguese, Greek, Italian, Belgian and Dutch and currently working in Portugal, United Kingdom, Belgium, Denmark and Greece. The interviews, which were conducted both in English and in non-English where that was the mother tongue of both interviewer and interviewee, included junior and senior researchers.

No major issues were presented, except concerns about the length of the “landscape” section where the survey aimed to identify the current landscape within organisations for 9 key research integrity areas. This section was maintained unchanged for the pilot survey due to its particular importance to the project overall but with some changes to how the information was presented to respondents. Only minor changes elsewhere in the survey were made as a result of the feedback

received. These included providing a clearer definition of what was meant by research for assessing how much time was spent engaging in research; improving progression through the survey by removing or shortening misleading or over-lengthy introductions to new sections; and providing "don't know" as a response option when evaluating the effectiveness of institutional guidelines.

The accidental inclusion of 'Politics, Religion and Ethics' instead of 'Philosophy, Religion and Ethics' was raised but misinterpreted and consequently this error was not corrected.

### 11.2.2 Pilot testing

Following the cognitive testing, a simple random sample of 5000 email addresses were selected from the sampling frame of 3.2 million email addresses for a pilot study which ran from 21st April to 12th May 2021. 300 responses were generated from 5000 emails, at a rate of 6 percent although approximately 14 percent of emails were not delivered. Of those who had a chance to receive the email, 7 percent responded.

Several experiments to test the impact of using different communication methods on survey participation were included at the pilot stage. These included personalised and non-personalised email communication; wording the survey invitation either as offering a chance to participate or entreating for assistance; sending correspondence at different times of day; and changing the amount of time between communication stages (prenotification, invitation and reminders).

No substantial difference was found in the response rates of those with emails sent at different times of day (OR 1.03, p=0.8), or different style of email (OR 1.04, p=0.7). The odds of a person taking the survey with longer gaps between sending the survey and a subsequent reminder were slightly lower, but this was not statistically significant (OR 0.92, p=0.475). However, sending personalised correspondence did increase the odds of responding (OR 1.43, p=0.003).

The impact of survey length on survey completion, and whether the inclusion of potentially invasive questions about questionable research practices would cause respondents to break off from answering the survey were also tested by randomly assigning respondents to a shorter or longer version of the survey and placing the QRP questions at different points in the survey. There was no difference in the percentage of people who completed the survey in the groups with the long or short surveys and no-one dropped out during this set of questions about questionable research practices. The bulk of survey breakoff occurred at the consent/eligibility or demographics stages before the survey started (62 percent) and during the lengthy landscape section (25 percent).

The findings of the pilot study led to the following changes prior to releasing the mainstage survey. Sampling frame data was further cleaned by the team at Aarhus, removing typos in email addresses and identifying probable duplicate cases, to increase the number of deliverable emails. Algorithms were used to identify probable names from email addresses to assist in sending personalised correspondence.

Following feedback from participants, greater emphasis was placed in the invitation text and in the opening two screens of the survey on the study being relevant for all fields. Additional text was added at the start of the survey to better introduce respondents to the topic ("Honesty, accounta-

bility, reliability and respect are really important principles for the conduct of research and scholarship in all fields of enquiry, but principles are often hard to put into practice. In this survey we will be exploring some of these ideas with you and we hope you will share your own views and experience with us.")

We removed potential barriers for those respondents who were wavering or undecideds about participating and who might be more easily persuaded to break off at the beginning. Consent was moved to the email invitation text such that clicking on the email link was confirmation of consent, rather than during the Qualtrics survey itself. Demographic questions that could sit naturally in other sections were moved from the beginning to make the survey more interesting earlier on and a question on age which we did not feel was adding anything to the analysis, was replaced with a question on sex on the assumption that there may be interest in analysing women in science.

To reduce missingness and survey breakoff during the landscape section, one question was removed, the descriptions of each of the 9 RI areas were shortened and the carousel-style format was replaced with a matrix.

Given the importance of the survey topic and that the pilot study showed that survey length did not increase survey breakoff, the full version of the survey was maintained.

In relation to eligibility, on learning that automatically excluding respondents on the grounds of their not having a PhD might systematically exclude participants from certain fields or countries where currently or historically a PhD was not a requirement for a career in research, we no longer fielded respondents out of the survey at this point, although we continued to state that the survey was intended for those with a PhD or equivalent.

Additionally, we added an option for those who are retired to tell us so and included additional text to explain to those who are not employed or retired that we would value their input, but we ask a number of questions that related to organisations. They were asked to think of their most recent organisational affiliation when answering questions.

Response rates for the pilot study were used to calculate the sample size required.

# 11.3 Appendix III. Survey content

## 11.3.1 Demographics

The individual field categories listed as response options in the survey were taken from the Frascati manual. Fields were subsequently grouped into 4 categories which were condensed from the 6 Frascati manual categories as follows.

a. Natural Sciences => Natural sciences (including technical science)
b. Engineering and technology => Natural sciences (including technical science)
c. Medical and health sciences => Medical sciences (including biomedicine)
d. Agricultural and veterinary sciences => Natural sciences (including technical science)
e. Social sciences => Social sciences
f. Humanities and the arts => Humanities

The countries of interest for our study were:

- 27 European Union countries
- 4 European Financial Trade Agreement Countries
- 4 other countries of interest for comparison (UK, Canada, Australia and America).

A remaining list of countries taken from a Qualtrics response option library were included at the end of the list of countries of interest.

## 11.3.2 Science Values

Our science values questions were modified from the following three studies:

| Topic | Question | Source |
|---|---|---|
| Universalism | *Do you think that researchers should always publish findings that are scientifically sound, even if they are contrary to their personal or political beliefs?* | Bray & Storch 2017 |
| Communism | *Do you think that researchers should openly share new findings with colleagues?* | Martinson, Anderson & De Vries 2005 |

| Topic | Question | Source |
|---|---|---|
| Disinterested-ness | *Do you think that intellectual work should be influenced by personal beliefs and values?* | Bray & Storch 2017 |
| Disinterested-ness | *Do you think that researchers should change their research interests to access funding opportunities?* | MacFarlane & Cheung 2008 |
| Organised Scepticism | *Do you think that researchers should consider all new evidence, hypotheses, theories, and innovations, even those that challenge or contradict their own work?* | Martinson, Anderson and De Vries, 2005 |

### 11.3.3 Questionable Research Practices (QRPs)

We drew on the experience of two previous surveys when compiling questions about this potentially sensitive topic area, the National Survey of Research Integrity (NSRI) study (OSF | National Survey on Research Integrity) and PRINT (PRINT@CFA, 2021).

Our question format was taken from NSRI.

NSRI Question:

*Please specify how often you engage in the research practices listed on the following screens. If the research practice does not apply to you, please select 'Not applicable'.*

*[In the last three years, I ……. ]*

SOPs4RI Question:

*Thinking about research carried out for your publications over the last three years, how often has the following occurred?*

Most example QRPs came from the PRINT survey, although one came from NSRI and one we included ourselves. We adapted the wording to suit our purposes. Our wording is shown in the table below alongside the source and question topic.

| Topic | Question | Source |
|---|---|---|
| Selective citing | Wilfully failing to cite relevant publications that contradict your own beliefs, theories, hypotheses, methods or findings. | PRINT |
| Reviewing | When reviewing a manuscript, not investing the effort necessary to conduct a thorough review. | PRINT |
| Selective Reporting | Choosing not to report your findings if they could weaken or contradict your theories or hypotheses. | PRINT |
| Recycling | Deliberately using another researcher's unpublished idea without giving credit. For example, publishing an idea voiced by a colleague at an informal meeting without giving them credit. | PRINT |
| Authorship | In a publication, failing to disclose relevant personal, financial, political or intellectual conflicts of interests. | PRINT |
| Authorship | Including authors on a paper who had not contributed sufficiently to the work to merit authorship. | PRINT |
| Supervision | Inadequately supervising or mentoring junior coworkers. | NSRI |
| Ethical Approval | Carrying out research without getting the required ethical approval. | SOPs4RI |

### 11.3.4 Full Questionnaire

SOPs4RI_UESSEX_WP6_finalsurvey.pdf

## Eligibility

Standard Operating Procedures For Research Integrity

Thank you for agreeing to participate in this survey on research integrity. Every response is valuable and will contribute towards improving the quality of research in the future. We appreciate your insights.

This is a survey for researchers in all fields, including the arts & humanities, social sciences, natural, medical, agricultural and veterinary sciences, engineering and any other. We are interested in those who have already completed doctoral level training or equivalent. You can find out more about our project here and our ethical review outlining how we will protect your data here.

You are free to withdraw at any point.

*The Standard Operating Procedures for Research Integrity (SOPs4RI) has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No. 824481*

*Ethical approval reference number ETH2021-0441*

## Demographics

Honesty, accountability, reliability and respect are really important principles for the conduct of research and scholarship in all fields of enquiry, but principles are often hard to put into practice. In this survey we will be exploring some of these ideas with you and we hope you will share your own views and experience with us.

We are interested in analysing field differences. We want to know in which field you **mainly** work. Please select your field from the options below.

*(We are using the fields of research and development (FORD) classification from the OECD Frascati manual. Please select the category that most closely matches your main field of work. We understand it is possible to work across more than one field, but please indicate the one that best describes what you mainly do.)*

**Natural sciences**
- Biological sciences
- Chemical sciences
- Computer and information sciences
- Earth and related environmental sciences
- Mathematics
- Physical sciences
- Other natural sciences

**Engineering and technology**
- Civil engineering
- Chemical engineering

Please could you indicate your highest qualification.

- ◯ PhD / DPhil / Doctorate

- ◯ Masters Degree
- ◯ Undergraduate Degree

Was your doctoral training also in **${q://QID54/ChoiceGroup/SelectedChoices}**?

- ◯ Yes
- ◯ No

Which best describes the research discipline or sector your completed your doctoral training in?

**Natural sciences**
- Biological sciences
- Chemical sciences
- Computer and information sciences
- Earth and related environmental sciences
- Mathematics
- Physical sciences
- Other natural sciences

**Engineering and technology**
- Chemical engineering
- Civil engineering

We are also very interested in analysing country differences. Please could you tell us in which country your employer is currently based.

Please select…

It is very important to our study to know which country you are currently working in. If you missed this question, please click the back button below and enter this information. If you prefer not to tell us, please click the forward button to continue with the survey.

Is ${q://QID241/ChoiceGroup/SelectedChoices} the country where you are based most of the time?

- ◯ Yes
- ◯ No

Is ${q://QID241/ChoiceGroup/SelectedChoices} the country where you obtained your PhD?

- ◯ Yes
- ◯ No

In which country are you currently based?

Please select…

In which country was your PhD awarded?

Please select…

In which country did you spend most of your life until you were aged 18?

Please select…

Could we just check your level of English?

- Fluent
- Intermediate
- Basic

What best describes your current career stage?

- Early-career (e.g. postdoc, assistant professor, junior researcher)
- Mid-career (e.g. associate professor, senior researcher)
- Later-career (e.g. full professor, dean, director of research)
- Retired

As someone who has published recently, we value your opinions. Some of our questions relate to organisations. If you are not still affiliated with an organisation, please think of your most recent organisation when answering the following questions.

In what year were you awarded your PhD (or equivalent doctoral qualification)?

Please select...

What is your sex?

- ◯ Female
- ◯ Male
- ◯ Prefer not to say

And lastly, what type of employment contract do you currently hold?

- ◯ Permanent
- ◯ Temporary
- ◯ No employment contract (e.g. self-employed)

As an active researcher we value your opinion on these issues. Some of the following questions relate to research organisations. If you are not currently affiliated with an organisation then please think about an organisation with which you have been affiliated in the past when answering these questions.

## Identity

Thank you for your responses so far. We are now going to ask you a few questions concerning how you feel about being part of the research culture around you.

Thinking about your role as a researcher, how much do you identify as each of the following:

| | Not at all | A little | A moderate amount | A lot | A great deal | Does not apply |
|---|---|---|---|---|---|---|
| A researcher of my department or centre | ○ | ○ | ○ | ○ | ○ | ○ |
| A researcher of my organisation | ○ | ○ | ○ | ○ | ○ | ○ |
| A researcher of the country where I am currently working | ○ | ○ | ○ | ○ | ○ | ○ |
| A member of professional societies I am affiliated with | ○ | ○ | ○ | ○ | ○ | ○ |
| A researcher within a scholarly community (e.g. Researchers publishing in the same journals as me) | ○ | ○ | ○ | ○ | ○ | ○ |

In your current job, how much of your working time would you say you spend on research (including applying for research grants and research-related activities as opposed to for instance, teaching, general administration or management).

- ○ All of my time
- ○ About two-thirds of my time
- ○ About half of my time
- ○ About one-third of my time
- ○ None of the time

Whose opinion about your research do you value the most?

*(Even though you may value the opinion of all those mentioned, please say the most important to you.)*

- ◯ My department's or centre's
- ◯ My organisation's
- ◯ Researchers in the country I am currently working
- ◯ Professional societies I am affiliated with
- ◯ My scholarly community (e.g. Researchers publishing in the same journals as me)

Knowledge about best practice for research comes from a variety of sources. How much information about good practices in your field do you get from the following sources?

| | No information | A little information | Some information | A lot of information | Does not apply |
|---|---|---|---|---|---|
| Professional bodies I am affiliated with | ◯ | ◯ | ◯ | ◯ | ◯ |
| Funding organisations providing me with money | ◯ | ◯ | ◯ | ◯ | ◯ |
| Other researchers on social media | ◯ | ◯ | ◯ | ◯ | ◯ |
| My department or centre | ◯ | ◯ | ◯ | ◯ | ◯ |
| Published editorials or articles in my discipline | ◯ | ◯ | ◯ | ◯ | ◯ |
| My organisation | ◯ | ◯ | ◯ | ◯ | ◯ |

| | No information | A little information | Some information | A lot of information | Does not apply |
|---|---|---|---|---|---|
| Organisations providing research guidelines internationally | ○ | ○ | ○ | ○ | ○ |
| My scholarly community (e.g. Researchers publishing in the same journals as me) | ○ | ○ | ○ | ○ | ○ |
| Organisations providing research guidelines in my country | ○ | ○ | ○ | ○ | ○ |
| Research collaborators | ○ | ○ | ○ | ○ | ○ |
| Senior colleague, supervisor or mentor | ○ | ○ | ○ | ○ | ○ |

And please could you tell us which of these best describes your current workplace?

- ○ Academia / University
- ○ Industry
- ○ Not-for-profit research institute
- ○ Government research centre
- ○ Healthcare setting
- ○ Other

## Values

We are now going to ask you some general questions about your own beliefs and values.

The following few questions will describe a set of behaviours. We are interested to know whether you personally feel that these behaviours are the way researchers should behave (we are not asking you what researchers actually do, but what you think they should do).

Do you think that researchers should always publish findings that are scientifically sound, even if they are contrary to their personal or political beliefs?

- ◯ Yes, always should
- ◯ Usually should
- ◯ Sometimes should
- ◯ Rarely should
- ◯ No, never should

Do you think that researchers should openly share new findings with colleagues?

- ◯ Yes, always should
- ◯ Usually should
- ◯ Sometimes should
- ◯ Rarely should

- ◯ No, never should

Do you think that intellectual work should be influenced by personal beliefs and values?

- ◯ Yes, always should
- ◯ Usually should
- ◯ Sometimes should
- ◯ Rarely should
- ◯ No, never should

Do you think that researchers should change their research interests to access funding opportunities?

- ◯ Yes, always should
- ◯ Usually should
- ◯ Sometimes should
- ◯ Rarely should
- ◯ No, never should

Do you think that researchers should consider all new evidence, hypotheses, theories, and innovations, even those that challenge or

contradict their own work?

- ◯ Yes, always should
- ◯ Usually should
- ◯ Sometimes should
- ◯ Rarely should
- ◯ No, never should

Please select the response below which most closely matches where you think responsibility should lie for ensuring the highest standards of research.

- ◯ It is up to me to carry out research to the highest standard without any oversight from my organisation
- ◯ It is up to me to carry out research to the highest standard with some oversight from my organisation
- ◯ It is up to me to carry out research to the highest standard with a lot of oversight from my organisation

Research organisations often have policies that aim to enhance research integrity. By **research integrity** we mean the attitude and habits of researchers in conducting their research according to appropriate ethical, legal and professional frameworks, obligations and standards. It describes an approach for conducting and organising good scientific work.

People have different views on how effective and worthwhile these policies are. We'd like to know what you think.

## Beliefs

Do you think research integrity policies are just "box-ticking" exercises (by which we mean satisfying bureaucratic administrative requirements rather than assessing the actual merit of the policies)?

- ◯ Always box-ticking exercises
- ◯ Mostly box-ticking exercises
- ◯ Sometimes box-ticking exercises
- ◯ Rarely box-ticking exercises
- ◯ Never box-ticking exercises

Do you think that research integrity policies help to improve the quality of your research?

- ◯ Always improve the quality of my research
- ◯ Mostly improve the quality of my research
- ◯ Sometimes improve the quality of my research
- ◯ Rarely improve the quality of my research
- ◯ Never improve the quality of my research

## Positivity towards training

Suppose that your organisation sends you an email inviting you to attend a research integrity masterclass on some aspect of research integrity that interests you.

How would you feel about attending it?

- ◯ Very positive
- ◯ Positive
- ◯ Neither positive or negative
- ◯ Negative
- ◯ Very negative

Suppose that your organisation sends you an email inviting you to attend a research integrity training session on some aspect of research integrity that interests you.

How would you feel about attending it?

- ◯ Very positive
- ◯ Slightly positive
- ◯ Neither positive or negative
- ◯ Slightly negative
- ◯ Very negative

Suppose that your organisation sends you an email requiring you to attend a research integrity masterclass on some aspect of research integrity that interests you.

How would you feel about attending it?

- ◯ Very positive
- ◯ Slightly positive
- ◯ Neither positive or negative
- ◯ Slightly negative
- ◯ Very negative

Suppose that your organisation sends you an email requiring you to attend a research integrity training session on some aspect of research integrity that interests you.

How would you feel about attending it?

- ◯ Very positive
- ◯ Slightly positive
- ◯ Neither positive or negative
- ◯ Slightly negative
- ◯ Very negative

**Landscape**

We are now going to ask you in more detail about research integrity in the place where you work.

First of all, does your research institution have a written statement on research integrity?

- ◯ Yes
- ◯ No
- ◯ I don't know

How was this communicated to you?

*(Please tick all that apply)*

- [ ] Formal event
- [ ] Formal communication
- [ ] Informal communication (eg colleague)
- [ ] I looked for it myself
- [ ] I can't remember
- [ ] Other

In general, how much confidence do you have that the management in your organisation is effective in ensuring a high level of research integrity?

- ◯ Complete confidence
- ◯ A great deal of confidence
- ◯ Some confidence
- ◯ Not much confidence
- ◯ No confidence

We are now going to ask you about research integrity topics that other researchers have identified as being particularly important.

For each of the following descriptions, how closely does this resemble your working environment?

| | Resembles my environment **very closely** | Resembles my environment **closely** | Resembles my environment **somewhat closely** | Resembles my environment **not very closely** | Resembles my environment **not at all closely** |
|---|---|---|---|---|---|
| **Working Environment** Collegial, and without harmful publication pressure, detrimental power imbalances or conflict. | ○ | ○ | ○ | ○ | ○ |
| **Supervision and Mentoring** Supervisors encourage responsible research practices and are selected if they meet specified criteria. Guidelines are in place for the supervision and mentoring of researchers at different career stages. | ○ | ○ | ○ | ○ | ○ |
| **Integrity Training** Training in research integrity is provided to all researchers, at all career stages, by qualified trainers. | ○ | ○ | ○ | ○ | ○ |
| **Ethics Structures** Dedicated and adequately trained research ethics committees are in place. Ethics reviews are relevant to various research areas and disciplines within the organisation. | ○ | ○ | ○ | ○ | ○ |

| | Resembles my environment **very closely** | Resembles my environment **closely** | Resembles my environment **somewhat closely** | Resembles my environment **not very closely** | Resembles my environment **not at all closely** |
|---|---|---|---|---|---|
| **Integrity Breaches** Researchers can consult a qualified person in confidence with any research integrity concerns. Breaches are detected and sanctioned in a fair and standardized way, protecting both whistleblowers and those accused of misconduct. | ○ | ○ | ○ | ○ | ○ |
| **Data Management** Infrastructure is in place for storing and sharing data securely and complies with national and international regulations. Guidance on secure data management is provided. | ○ | ○ | ○ | ○ | ○ |
| **Research Collaboration** Support is offered for ensuring responsible research collaboration can occur across disciplines, sectors or countries where guidelines and legislation may differ. | ○ | ○ | ○ | ○ | ○ |
| **Declaration of Interests** There is transparency and guidance in how to declare conflicts of interests in: research conduct; funding; peer review; promotion; and collaboration across sectors. | ○ | ○ | ○ | ○ | ○ |

| | Resembles my environment **very closely** | Resembles my environment **closely** | Resembles my environment **somewhat closely** | Resembles my environment **not very closely** | Resembles my environment **not at all closely** |
|---|---|---|---|---|---|
| **Publication and Communication** Open access and clarity in public engagement are encouraged. Researchers are supported with publication matters such as preregistration, reproducibility, handling authorship disputes, responsible peer review practices. | ○ | ○ | ○ | ○ | ○ |

Thinking about the things that you just read about, are you aware of any policies that exist within your organisation which address the following research integrity areas?

*Please select all that apply.*

- ☐ **Working Environment**
  Collegial, without harmful pressure or conflict
- ☐ **Supervision and Mentoring**
  Supervisors encourage responsible research; guidelines for supervising different career stages
- ☐ **Integrity Training**
  Training for all researchers at all stages in research integrity
- ☐ **Ethics Structures**
  Dedicated and adequately trained research ethics committees, relevant to discipline
- ☐ **Integrity Breaches**
  Standardized and fair approach to managing breaches of research integrity
- ☐ **Data Management**
  Infrastructure in place for safe handling of data; guidance and training on data management

- [ ] **Research Collaboration**
  Guidelines to ensure research collaboration can be done responsibly where legislation may differ
- [ ] **Declaration of Interests**
  Transparency in declaring interests
- [ ] **Publication and Communication**
  Open access encouraged; advice on publication matters such as authorship, peer review

You told us that you are aware of policies in your organisation in the following areas. For each of these areas, do you think the policies in your organisation are effective as they are?

| | Yes | No | Don't know |
|---|---|---|---|
| Working Environment | ○ | ○ | ○ |
| Supervision and Mentoring | ○ | ○ | ○ |
| Integrity Training | ○ | ○ | ○ |
| Ethics Structures | ○ | ○ | ○ |
| Integrity Breaches | ○ | ○ | ○ |
| Data Management | ○ | ○ | ○ |
| Research Collaboration | ○ | ○ | ○ |
| Declaration of Interests | ○ | ○ | ○ |
| Publication and Communication | ○ | ○ | ○ |

## Most/least important

Thank you for taking the time to answer our questions about research integrity so far.

We would now like to know, for each of the following research integrity areas, how important do you think it is for ensuring high quality research integrity in your field?

| | Not important at all | Somewhat important | Fairly important | Very important | Extremely important |
|---|---|---|---|---|---|
| **Research Collaboration** Guidelines to ensure research collaboration can be done responsibly where legislation may differ | ○ | ○ | ○ | ○ | ○ |
| **Declaration of Interests** Transparency in declaring interests | ○ | ○ | ○ | ○ | ○ |
| **Supervision and Mentoring** Supervisors encourage responsible research; guidelines for supervising different career stages | ○ | ○ | ○ | ○ | ○ |
| **Working Environment** Collegial, without harmful pressure or conflict | ○ | ○ | ○ | ○ | ○ |
| **Ethics Structures** Dedicated and adequately trained research ethics committees, relevant to discipline | ○ | ○ | ○ | ○ | ○ |
| **Publication and Communication** Open access encouraged; advice on publication matters such as authorship, peer review | ○ | ○ | ○ | ○ | ○ |

| | Not important at all | Somewhat important | Fairly important | Very important | Extremely important |
|---|---|---|---|---|---|
| **Integrity Training** Training for all researchers at all stages in research integrity | ○ | ○ | ○ | ○ | ○ |
| **Data Management** Infrastructure in place for safe handling of data; guidance and training on data management | ○ | ○ | ○ | ○ | ○ |
| **Integrity Breaches** Standardized and fair approach to managing breaches of research integrity | ○ | ○ | ○ | ○ | ○ |

## Confidence

Overall, how confident are you that your research is meeting high standards of research integrity?

- ○ Very confident
- ○ Somewhat confident
- ○ Not very confident
- ○ Not at all confident

Are there any areas where you would value additional support?

*(Please select all that apply)*

- ☐ Working Environment
- ☐ Supervision and Mentoring

- [ ] Integrity Training
- [ ] Ethics Structures
- [ ] Integrity Breaches
- [ ] Data Management
- [ ] Research Collaboration
- [ ] Declaration of Interests
- [ ] Publication and Communication

## Benefits

And now, how motivating would each of the following factors be in encouraging you to adhere to formal research integrity procedures?

| | Not at all motivating | Somewhat motivating | Fairly motivating | Very motivating | Extremely motivating |
|---|---|---|---|---|---|
| Better reputation in my field | ○ | ○ | ○ | ○ | ○ |
| Higher salary or income | ○ | ○ | ○ | ○ | ○ |
| Increased funding opportunities | ○ | ○ | ○ | ○ | ○ |
| Increased self-confidence in my research | ○ | ○ | ○ | ○ | ○ |
| More trust in my research by the general public | ○ | ○ | ○ | ○ | ○ |
| More trust in my research by my peers or colleagues | ○ | ○ | ○ | ○ | ○ |
| Increased chance of promotion | ○ | ○ | ○ | ○ | ○ |

| | Not at all motivating | Somewhat motivating | Fairly motivating | Very motivating | Extremely motivating |
|---|---|---|---|---|---|
| Being able to publish in higher status outlets | ○ | ○ | ○ | ○ | ○ |
| Facilitates collaboration with other researchers | ○ | ○ | ○ | ○ | ○ |
| More reliable scientific knowledge | ○ | ○ | ○ | ○ | ○ |

## QRPs introduction

The next few questions are about questionable research practices (QRPs). These are less than ideal research practices which might happen unintentionally. They are not research misconduct (ie fabrication, falsification, or plagiarism).

We will present you with a set of research practices and ask you to what extent you have engaged in them when working towards producing your **publications over the last three years**.

The next few questions are about questionable research practices (QRPs). These are less than ideal research practices which might happen unintentionally. They are not research misconduct (ie fabrication, falsification, or plagiarism).

We will present you with a set of research practices and ask you to what extent you have engaged in them when working towards producing your **publications over the last three years**.

*(You will notice that response options for the next few questions will be provided in your assumed native language. This is to help us with a methodological study we are conducting. We thank you for your participation.)*

**QRPs loop**

Thinking about research carried out for your publications over the last three years, how often has the following occurred?

**${lm://Field/1}**

- ◯ Nie
- ◯ Fast Nie
- ◯ Manchmal
- ◯ Oft
- ◯ Trifft nicht zu

Thinking about research carried out for your publications over the last three years, how often has the following occurred?

**${lm://Field/1}**

- ◯ Nie
- ◯ Selten
- ◯ Gelegentlich

- ◯ Oft
- ◯ Trifft nicht zu

Thinking about research carried out for your publications over the last three years, how often has the following occurred?

**${lm://Field/1}**

- ◯ Mai
- ◯ Quasi mai
- ◯ A volte
- ◯ Spesso
- ◯ Non pertinente

Thinking about research carried out for your publications over the last three years, how often has the following occurred?

**${lm://Field/1}**

- ◯ Nikada
- ◯ Gotovo nikada
- ◯ Ponekad
- ◯ Često
- ◯ Ne primjenjuje

Thinking about research carried out for your publications over the last three years, how often has the following occurred?

**${lm://Field/1}**

- ◯ Nunca
- ◯ Quase nunca
- ◯ Algumas vezes
- ◯ Muitas vezes
- ◯ Não se aplica

Thinking about research carried out for your publications over the last three years, how often has the following occurred?

**${lm://Field/1}**

- ◯ Nigdy
- ◯ Prawie nigdy
- ◯ Od czasu do czasu
- ◯ Często
- ◯ Nie dotyczy

Thinking about research carried out for your publications over the last three years, how often has the following occurred?

**${lm://Field/1}**

- ◯ Nunca
- ◯ Casi nunca
- ◯ A veces
- ◯ A menudo
- ◯ No se aplica

Thinking about research carried out for your publications over the last three years, how often has the following occurred?

**${lm://Field/1}**

- ◯ Jamais
- ◯ Presque jamais
- ◯ Parfois
- ◯ Souvent
- ◯ Ne s'applique pas

Thinking about research carried out for your publications over the last three years, how often has the following occurred?

**${lm://Field/1}**

- ◯ Nikdy
- ◯ Téměř nikdy
- ◯ Někdy
- ◯ Často
- ◯ Neplatí

Thinking about research carried out for your publications over the last three years, how often has the following occurred?

**${lm://Field/1}**

- ◯ Ποτέ
- ◯ Σχεδόν ποτέ
- ◯ Μερικές φορές
- ◯ Συχνά
- ◯ Δεν ισχύει

Thinking about research carried out for your publications over the last three years, how often has the following occurred?

**${lm://Field/1}**

- ◯ Often
- ◯ Sometimes
- ◯ Rarely
- ◯ Never
- ◯ Does not apply in my case

## Introduction to training and supervision sections

Many thanks indeed for your responses so far. We are almost at the end of the survey.

The SOPs4RI project will provide a toolbox of policies, guidelines and procedures to help organisations support their staff in the responsible conduct of research. Extensive work has been carried out with experts to identify those areas researchers consider to be the most important for ensuring research integrity.

We value your opinion as an active researcher, and in a moment we will ask you briefly for your opinions about research integrity in a small sample of those areas. You will have the opportunity to tell us anything else that you wish in free text space provided, on the topic of research integrity in these areas.

Finally we will provide two ideas for improving research integrity for you to comment on.

## Training section

How important would the following features be in encouraging you to participate in a research integrity training course?

| | Not important at all | Somewhat important | Fairly important | Very important | Extremely important |
|---|---|---|---|---|---|
| Intellectually stimulating | ○ | ○ | ○ | ○ | ○ |
| Applicable across multiple fields | ○ | ○ | ○ | ○ | ○ |
| Takes a short amount of time | ○ | ○ | ○ | ○ | ○ |
| Available online in your own time | ○ | ○ | ○ | ○ | ○ |
| Of practical use to me in my research | ○ | ○ | ○ | ○ | ○ |

| | Not important at all | Somewhat important | Fairly important | Very important | Extremely important |
|---|---|---|---|---|---|
| Would help me supervising staff / students | ○ | ○ | ○ | ○ | ○ |
| Enjoyable | ○ | ○ | ○ | ○ | ○ |
| Delivered face to face with the trainer | ○ | ○ | ○ | ○ | ○ |
| Would help me making grant applications | ○ | ○ | ○ | ○ | ○ |

How important are the following characteristics for you, that a research integrity trainer should have?

| | Not important at all | Somewhat important | Fairly important | Very important | Extremely important |
|---|---|---|---|---|---|
| Specialist knowledge of research integrity | ○ | ○ | ○ | ○ | ○ |
| Member of my own department | ○ | ○ | ○ | ○ | ○ |
| In-depth knowledge of my own field | ○ | ○ | ○ | ○ | ○ |
| Being an active researcher | ○ | ○ | ○ | ○ | ○ |
| Respected in their field | ○ | ○ | ○ | ○ | ○ |
| External to my organisation | ○ | ○ | ○ | ○ | ○ |

## Mentoring and Supervision

How important do you think the following features are for promoting supervision of the highest quality?

| | Not important at all | Somewhat important | Fairly important | Very important | Extremely important |
|---|---|---|---|---|---|
| Tangible rewards for good supervision | ○ | ○ | ○ | ○ | ○ |
| Support structures in place for the well-being, care and mental health issues of supervisee | ○ | ○ | ○ | ○ | ○ |
| Procedure in place to change supervisor if necessary | ○ | ○ | ○ | ○ | ○ |
| Evaluation structures for supervision in place | ○ | ○ | ○ | ○ | ○ |

In your current role do you have responsibility for supervising research staff or doctoral students?

- ○ Yes
- ○ No

And how positive do you feel about having supervisory responsibilities?

- ○ Very positive
- ○ Positive
- ○ Neither positive nor negative
- ○ Negative
- ○ Very negative

How confident are you that you are meeting the needs of your supervisees?

- ◯ Very confident
- ◯ Somewhat confident
- ◯ Not very confident
- ◯ Not at all confident

How important are the following characteristics for you, that a supervisor should have?

| | Not important at all | Somewhat important | Fairly important | Very important | Extremely important |
|---|---|---|---|---|---|
| Ability to act as exemplar | ◯ | ◯ | ◯ | ◯ | ◯ |
| Knowledge of institutional support structures | ◯ | ◯ | ◯ | ◯ | ◯ |
| Familiarity with PhD or relevant procedures | ◯ | ◯ | ◯ | ◯ | ◯ |
| Ability to engage supervisee in decision-making process | ◯ | ◯ | ◯ | ◯ | ◯ |
| Ability to provide personal guidance | ◯ | ◯ | ◯ | ◯ | ◯ |
| Ability to communicate effectively with supervisees from different cultures | ◯ | ◯ | ◯ | ◯ | ◯ |

| | Not important at all | Somewhat important | Fairly important | Very important | Extremely important |
|---|---|---|---|---|---|
| Ability to create balance between providing support and facilitating independence | ○ | ○ | ○ | ○ | ○ |

## Evaluation

In the course of our research, experts have derived an expanded list of potential criteria on which researchers could be evaluated which goes beyond the quality of their research alone. When a researcher's performance is being evaluated by an employer or potential employer, how important do you think it is to include each of the following activities in making an assessment of their performance?

| | Not important at all | Somewhat important | Fairly important | Very important | Extremely important |
|---|---|---|---|---|---|
| Societal impact of their research | ○ | ○ | ○ | ○ | ○ |
| Teaching | ○ | ○ | ○ | ○ | ○ |
| Peer review | ○ | ○ | ○ | ○ | ○ |
| Editorship of journals and other publications | ○ | ○ | ○ | ○ | ○ |
| Supervisory responsibilities | ○ | ○ | ○ | ○ | ○ |
| Outreach and communication of research to public audiences | ○ | ○ | ○ | ○ | ○ |
| Leadership | ○ | ○ | ○ | ○ | ○ |

| | Not important at all | Somewhat important | Fairly important | Very important | Extremely important |
|---|---|---|---|---|---|
| Publication metrics (eg Journal Impact Factor, H index) | ○ | ○ | ○ | ○ | ○ |
| Collegiality | ○ | ○ | ○ | ○ | ○ |
| Participation in, or delivery of, research integrity training | ○ | ○ | ○ | ○ | ○ |

## Research integrity free text

Please add any further thoughts you may have about research integrity relating to training, evaluation and supervision. Please feel free to include your experience, your opinions, ideas or suggestions. Please do not mention the names of individuals or organisations or include any other identifying information.

## Two SOPs introduction

We now have two final ideas that we would like you to comment on. These have emerged from our discussions with other researchers.

## Two SOPs

## ${lm://Field/1}

Does this already happen in your organisation?

- Yes
- No
- Don't know

## ${lm://Field/1}

Do you think this is a good idea or not?

- Extremely good idea
- Very good idea
- Good idea
- Neither good nor bad idea
- Bad idea
- Very bad idea
- Extremely bad idea

## End of survey

Finally, if you have any comments you would like to make on any aspects of this survey or this study as a whole, or more generally about

research integrity issues, please make them here.

You can also give very quick feedback to inform our survey design using the response options below.

Do you think the survey was too short, about right, or too long?

- ◯ Too short
- ◯ About right
- ◯ Too long

Did you find it easy or hard to complete the questionnaire?

- ◯ Easy
- ◯ Neither easy nor hard
- ◯ Hard

And, taken as a whole, did you find the survey very interesting, interesting or not at all interesting?

- ◯ Very interesting
- ◯ Interesting
- ◯ Not at all interesting

Your participation has been very helpful to us. Would you be prepared to take part in future research by our research team?

- ◯ Yes
- ◯ No

| Question 12.1 Questionable Research Practices |
| --- |
| Wilfully failing to cite relevant publications that contradict your own beliefs, theories, hypotheses, methods or findings. |
| When reviewing a manuscript, not investing the effort necessary to conduct a thorough review. |
| Choosing not to report your findings if they could weaken or contradict your theories or hypotheses. |
| Deliberately using another researcher’s unpublished idea without giving credit. For example, publishing an idea voiced by a colleague at an informal meeting without giving them credit. |
| In a publication, failing to disclose relevant personal, financial, political or intellectual conflicts of interests. |
| Including authors on a paper who had not contributed sufficiently to the work to merit authorship. |
| Inadequately supervising or mentoring junior co-workers. |
| Carrying out research without getting the required ethical approval. |

| Question 19.1 Standard Operating Procedures Items |
| --- |
| Mandatory research integrity training should be integrated in the curriculum for Bachelor, Master, and PhD students. |
| All researchers should be required to complete research integrity training every 2-3 years to update their knowledge. |
| All researchers starting a new position should be required to complete research integrity training. |
| Training should be provided for non-research skills such as conflict management, listening, and other “soft” skills. |
| Established researchers should be required to follow training to build new skills and to update their methods. |
| Supervisors and supervisees should be required to sign agreements laying out the expectations and obligations of supervision at the outset. |
| An independent body should be in place for supervisees and supervisors to turn to in the event of problems. |
| Mandatory training on supervision should be provided to all supervisors. |
| Organisations should not assess researchers using metrics that emphasise quantity or journal-level impact, such as publication counts, H-index, and Journal Impact Factor. |
| Good researchers who are not suitable research leaders should be allowed to progress in their career without the need to take on research leader tasks. |
| Team leaders (e.g. principal investigators) should be periodically assessed by asking colleagues about their leadership skills. |
| Organisations should provide researchers with an independent research integrity counselling service that can provide advice on research integrity dilemmas or queries. |
| Organisations should appoint research integrity ‘champions’ (colleagues who can provide informal advice about day-to-day research integrity questions) within every department or unit of their institution. |
| Organisations should adopt policies on diversity and inclusion for scientific seminars and speaker panels. |
| Organisations should monitor and publicly report their commitment, achievements and setbacks in ensuring diversity and inclusion. |
| Researchers should have access to mental health professionals as part of their conditions of employment. |
| Where an organisation provides a research counselling service, research counsellors should be able to guarantee confidentiality and secrecy to researchers, even in cases in which misconduct is being discussed. |
| Organisations should set a maximum number of students a researcher can supervise at once. |
| Organisations should adopt policies on diversity and inclusion for executive boards and university management. |
| Organisations should ensure that assessment procedures include evaluation from direct colleagues and supervisees as well as from those in a senior position to the member of staff being assessed. |
| Organisations should actively facilitate peer support groups for researchers at different stages of their career. |

# 11.4 Appendix IV. Survey Distribution

We contacted the selected sample with a prenotification email, an invitation to the survey and three subsequent reminders. In total 4,325,827 emails were sent to our selected sample of 908,870 email addresses, in 46 batches, across five stages, during the period 22nd June – 28th July 2021. 12.8 percent of these emails bounced (555,778) according to the survey software.

## 11.4.1 Prenotification

A prenotification email was sent to the full sample of 908,870 researcher email addresses in 10 batches between 22nd June and 29th June 2021, informing recipients that they would be receiving an invitation to take part in the study. The number of batches was partly due to the differences in how we would address recipients, partly due to requirements of mailing list size in the survey software we were using and lastly due to the software not uploading all the email addresses for reasons we were unable to establish from the software provider.

Prenotification email text can be seen in Figures 1 and 2 below. The first text was sent to 858,964 email addresses on 22nd and 24th June. A slightly modified version, with explicit opt-out option was sent to a remaining 49,923 email addresses on 29th June.

## 11.4.2 Invitation

The invitation to the survey was sent using the Qualtrics survey platform mailing facility to email addresses which had not opted out, or taken the survey before receiving the formal invitation. Invitations were thus sent to 907,785 people, in 9 batches, (of which 105,808 reportedly failed or bounced). A first batch was sent to 34,059 email addresses on 25th June 2021. The bulk of emails were sent in five further batches at staggered times on 29th June, with two smaller batches picking up those that Qualtrics had not uploaded on 30th June and 2nd July. A final small batch of emails was sent on 5th July to a small group that had been excluded following an "email bounced" status at the prenotification stage, on discovery that a bounce at one attempt did not mean a bounce at subsequent stages.

## 11.4.3 First reminder

A reminder email was sent on the 9th July to a remaining 862,905 email addresses who had not opted out or taken the survey already (107,327 bounced). The email highlighted the opt out facility and repeated all the further information about consent and participation that was included in the survey invitation. All further communication continued to include this information.

### 11.4.4 Second reminder

A second reminder email was sent on the 20th July to 834,595 (114,259 bounced) addressed to all recipients as "Dear Colleague" as it was not realistically possible to manually change the names of those who had highlighted an incorrect name to us, before the automated reminders would be sent out. This reminder thanked recipients for their interest, addressed a number of issues that had been experienced, and repeated the previous information about the survey.

### 11.4.5 Final reminder

A final reminder email was sent on the 28th July, again addressed "Dear Colleague" to a remaining 811,655 email addresses that had not opted out or started the survey, alerting recipients that the survey would close at the end of the month (116,240 failed to send or bounced).

Full text of the prenotification, invitation and reminder emails is included below.

Dear FirstName LastName / Dear Dr. LastName / Dear Colleague,

We are writing to let you know that in a few days you will receive an invitation to take part in a survey of researchers from more than 30 countries, on the topic of 'research integrity'. Our project, Standard Operating Procedures for Research Integrity (SOPs4RI) is funded under the European Commission Horizon 2020 Programme. Informed by empirical research, our aim is to deliver an online, freely accessible and easy-to-use 'toolbox' that can help organisations producing and funding research to cultivate research integrity and to reduce detrimental practices.

We are offering selected active researchers in all fields of study, including the arts & humanities, social sciences, natural, medical, agricultural and veterinary sciences, and engineering, whose email addresses appear in their published work on Web of Science, the opportunity to contribute their expertise and experience to our project through participating in this survey. If we have inadvertently addressed one of your co-authors, please note that this invitation is intended for you as the recipient of this email.

By taking part, you will have the chance to inform the development of our work in a valuable way, and to help improve the quality of research in the future. We also hope that you will also find the survey interesting and thought-provoking. The study is being run from the University of Essex and directed by Professor Nick Allum.

There is no need for you to do anything now; you will receive an invitation to take the survey online in the next few days. However, if you would like in the meantime to learn more about the project, you can visit our website here: www.sops4ri.eu or see our recent piece published in Nature 'Research integrity: nine ways to move from talk to walk', which provides a readable introduction to research integrity and to our project.

With best wishes

Professor Nick Allum and the SOPs4RI team

University of Essex
Wivenhoe Park
Colchester
Essex CO4 3SQ

Dear FirstName LastName,

We are writing to let you know that in a few days you will receive an invitation to take part in a survey of researchers from more than 30 countries, on the topic of 'research integrity'. Our project, Standard Operating Procedures for Research Integrity (SOPs4RI) is funded under the European Commission Horizon 2020 Programme. Informed by empirical research, our aim is to deliver an online, freely accessible and easy-to-use 'toolbox' that can help organisations producing and funding research to cultivate research integrity and to reduce detrimental practices.

We are offering selected active researchers in all fields of study, including the arts & humanities, social sciences, natural, medical, agricultural and veterinary sciences, and engineering, whose email addresses appear in their published work on Web of Science, the opportunity to contribute their expertise and experience to our project through participating in this survey. If we have inadvertently addressed one of your co-authors, please note that this invitation is intended for you as the recipient of this email.

We hope you will be interested, however if you do not wish to hear from us again please use the link below to opt out of future emails.

${l://OptOutLink?d=Click here to unsubscribe}

By taking part, you will have the chance to inform the development of our work in a valuable way, and to help improve the quality of research in the future. We also hope that you will also find the survey interesting and thought-provoking. The study is being run from the University of Essex and directed by Professor Nick Allum.

There is no need for you to do anything now; you will receive an invitation to take the survey online in the next few days. However, if you would like in the meantime to learn more about the project, you can visit our website here: www.sops4ri.eu or see our recent piece published in Nature 'Research integrity: nine ways to move from talk to walk', which provides a readable introduction to research integrity and to our project.

With best wishes

Professor Nick Allum and the SOPs4RI team

University of Essex
Wivenhoe Park
Colchester
Essex CO4 3SQ

Dear FirstName LastName / Dear Dr. LastName / Dear Colleague,

We wrote to you last week to tell you that you would soon receive an invitation to take part in a survey of researchers from more than 30 countries, on the topic of 'research integrity'. We are interested in hearing from scholars across all fields of study, including the arts & humanities, social sciences, natural, medical, agricultural and veterinary sciences, and engineering. If we have inadvertently addressed one of your co-authors, please note that this invitation is intended for you as the recipient of this email.

Standard Operating Procedures for Research Integrity (SOPs4RI) is funded under the European Commission Horizon 2020 Programme and we are offering selected active researchers whose email addresses appear in their published work on Web of Science, the opportunity to contribute their expertise and experience to our project through participating in the survey, which we would like now to invite you to complete.

**Follow this link to the Survey:**
${l://SurveyLink?d=Take the Survey}

**Please use the link at the bottom of this email if you wish to opt out of any further communication.**

**Further information:**

Your participation is entirely voluntary and by clicking the link above you will consent to take part. You may refuse to take part in the research or exit the survey at any time without penalty or without needing to give a reason. You are free to decline to answer any particular question you do not wish to answer for any reason.

Your responses will be anonymised by removing any personal information and will be analysed alongside tens of thousands of other responses to produce aggregate results. In line with the open access movement, we will make a fully anonymised data publicly available on the Open Science Framework for use for research purposes. No identifying information will be contained in this dataset.

If you initially decide to participate but change your mind later, you are free to withdraw by sending an email to the team at sops4ri@essex.ac.uk. You do not have to provide us with reasons for the termination of your participation. When you withdraw from the study, all your confidential data will be destroyed. If your data has already been analysed, the results will be used but the source of the data will not be retrievable.

There are no direct personal benefits of participation in this study. However, by participating, you will contribute to the development of effective standard operating procedures (SOPs) and guidelines for research integrity, which will help research organisations, including your own institution, to foster research integrity and avoid and handle research misconduct.

If you have questions at any time about the study or the procedures, you may contact the principal investigator, Professor Nick Allum via email at sops4ri@essex.ac.uk

Further details of survey protocols and data protection procedures can be found at our Open Science Framework pages.

If you would like to learn more about the project in general, you can visit our website here: www.sops4ri.eu and see our recent piece published in Nature 'Research integrity: nine ways to move from talk to walk', which provides a readable introduction to research integrity and to our project.

**Follow this link to the Survey:**
${l://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser:
${l://SurveyURL}

We thank you very much for your participation and hope you find the survey enjoyable and thought-provoking.

With best wishes

Nick Allum and the SOPs4RI team

University of Essex
Wivenhoe Park
Colchester
Essex CO4 3SQ

Follow the link to opt out of future emails:
${l://OptOutLink?d=Click here to unsubscribe}

SOPs4RI

Ethical approval reference number ETH2021-0441

Dear FirstName LastName / Dear Dr. LastName / Dear Colleague,

We wrote to you inviting you to take part in a survey of active researchers from more than 30 countries, across all fields of study, whose email addresses appear in their published work on Web of Science, on the topic of 'research integrity'. Standard Operating Procedures for Research Integrity. We understand that you have many calls on your time, however, if you can spare some time to complete the survey, we would very much appreciate it. You can access the survey here.

**Follow this link to the Survey:**
${l://SurveyLink?d=Take the Survey}

If you have already started the survey, we would be delighted if you decide to finish it, which you can do by using the same link.

If you prefer not to take the survey please scroll to the end of this email and click on the link to unsubscibe to avoid further reminders.

**Further information:**

Your participation is entirely voluntary and by clicking the link above you will consent to take part. You may refuse to take part in the research or exit the survey at any time without penalty or without needing to give a reason. You are free to decline to answer any particular question you do not wish to answer for any reason.

Your responses will be anonymised by removing any personal information and will be analysed alongside tens of thousands of other responses to produce aggregate results. In line with the open access movement, we will make a fully anonymised data publicly available on the Open Science Framework for use for research purposes. No identifying information will be contained in this dataset.

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${l://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser:
${l://SurveyURL}

We thank you very much for your participation and hope you find the survey enjoyable and thought-provoking.

With best wishes

Nick Allum and the SOPs4RI team

University of Essex
Wivenhoe Park
Colchester
Essex CO4 3SQ

SOPs4RI

Follow the link to opt out of future emails:
${l://OptOutLink?d=Click here to unsubscribe}

Dear Colleagues,

We have been writing to you over the last few weeks about our survey Standard Operating Procedures for Research Integrity. We would like to thank so many of you for your interest, your kind words, offers of collaboration and overwhelming response to our project which is a clearly a very important topic for our community. We have tried hard to respond individually to as many of you as possible however this is simply not feasible and so we apologise if you have contacted us with well wishes or with queries that we have not yet managed to resolve. We will keep working through them and try to address some of the general issues that have arisen in this email (see Troubleshooting below).

Firstly, if you would like to avoid hearing from us again, please could you click here to unsubscribe:

${l://OptOutLink?d=Click here to unsubscribe}

*(Please note, in the rare event that we hold more than one email address for you, please click this link at both email addresses to ensure that each email address is opted out from further correspondence.)*

If you would like to start the survey or continue where you left off, you can do so here:

**Follow this link to the Survey:**
${l://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser:
${l://SurveyURL}

*(Please note if you have contacted us to say that you started the survey but do not wish to continue, for any reason, please click unsubscribe to avoid any further contact.*

*If the link is showing as closed please email us, using **Link Not Working** as the subject line).*

**********

**Troubleshooting**

**I have already completed the survey**
Thank you for your engagement with our project. We are sorry to have contacted you again. Please click unsubscribe to avoid further correspondence.

**Your emails are addressed to my co-author**
We have attempted to identify the correct author from your work held on Web of Science. Occasionally we have linked your email address with your co-author's name instead. We are truly sorry for any potential offence caused and hope that you will be willing to take the survey which was intended for you as the recipient. Please either take the survey or click to unsubscribe if you do not want to be contacted again.

**I cannot find my country**
We have had reports from a few people to say that they cannot find their country in the list of dropdown options. On checking we have been able to confirm that these countries are listed as response options and have been selected many times by other respondents. There are two possible solutions:

- Countries have been listed in two sets in alphabetical order. Our intention was to ease respondent burden by placing the countries where we expected most respondents to be based at the top of the list. This means that you might be looking in the wrong part of the list which can be resolved by scrolling up or down. For some we will have made it easier, for others we have caused confusion and we apologise for that.
- The survey software support team note that there may be a browser issue affecting the response options that you can see. Please try clearing your browser cookies or accessing the survey from a different browser.

If you have already submitted your survey but would like to add this information, please contact us using **Missing Country** in the subject line and we will reopen the link for you.

**The link is not working**
Please email us at sops4ri@essex.ac.uk placing **Link Not Working** in the subject line so that we can check it for you.

**********

**Further information:**

Your participation is entirely voluntary and by clicking the link above you will consent to take part. You may refuse to take part in the research or exit the survey at any time without penalty or without needing to give a reason. You are free to decline to answer any particular question you do not wish to answer for any reason.

Your responses will be anonymised by removing any personal information and will be analysed alongside tens of thousands of other responses to produce aggregate results. In line with the open access movement, we will make a fully anonymised data publicly available on the Open Science Framework for use for research purposes. No identifying information will be contained in this dataset.

If you initially decide to participate but change your mind later, you are free to withdraw by sending an email to the team at sops4ri@essex.ac.uk. You do not have to provide us with reasons for the termination of your participation. When you withdraw from the study, all your confidential data will be destroyed. If your data has already been analysed, the results will be used but the source of the data will not be retrievable.

There are no direct personal benefits of participation in this study. However, by participating, you will contribute to the development of effective standard operating procedures (SOPs) and guidelines for research integrity, which will help research organisations, including your own institution, to foster research integrity and avoid and handle research misconduct.

If you have questions at any time about the study or the procedures, you may contact the principal investigator, Professor Nick Allum via email at sops4ri@essex.ac.uk

Further details of survey protocols and data protection procedures can be found at our Open Science Framework pages.

If you would like to learn more about the project in general, you can visit our website here: www.sops4ri.eu and see our recent piece published in Nature 'Research integrity: nine ways to move from talk to walk', which provides a readable introduction to research integrity and to our project.

We thank you very much for your participation and hope you find the survey enjoyable and thought-provoking.

With best wishes

Nick Allum and the SOPs4RI team

University of Essex
Wivenhoe Park
Colchester
Essex CO4 3SQ

Dear Colleagues,

We have been writing to you over the last few weeks about our survey Standard Operating Procedures for Research Integrity.The survey will be closing in a few days on **31st July**. If you have been thinking about completing it, but haven't managed to do so yet, please do so here:

**Follow this link to the Survey:**
${l://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser:
${l://SurveyURL}

If you have raised an issue with the survey which we have not yet been able to address, we will respond as soon as possible, and we will be able to provide access to the survey after it closes in these cases.

If you are interested in further news from our project including the survey results (which we expect to release later in the year) please follow us on Twitter or visit our website .

We would like to thank you again for your interest and patience.

**********

**Further information:**

Your participation is entirely voluntary and by clicking the link above you will consent to take part. You may refuse to take part in the research or exit the survey at any time without penalty or without needing to give a reason. You are free to decline to answer any particular question you do not wish to answer for any reason.

Your responses will be anonymised by removing any personal information and will be analysed alongside tens of thousands of other responses to produce aggregate results. In line with the open access movement, we will make a fully anonymised data publicly available on the Open Science Framework for use for research purposes. No identifying information will be contained in this dataset.

If you initially decide to participate but change your mind later, you are free to withdraw by sending an email to the team at sops4ri@essex.ac.uk. You do not have to provide us with reasons for the termination of your participation. When you withdraw from the study, all your confidential data will be destroyed. If your data has already been analysed, the results will be used but the source of the data will not be retrievable.

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We thank you very much for your participation and hope you find the survey enjoyable and thought-provoking.

With best wishes

Nick Allum and the SOPs4RI team

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## 11.5 Appendix V. Data tables

| In which field do you mainly work? | n | raw % | weighted % |
|---|---|---|---|
| Biological sciences | 5432 | 8.89 | 13.31 |
| Chemical sciences | 1673 | 2.74 | 3.37 |
| Computer and information sciences | 2378 | 3.89 | 6.08 |
| Earth and related environmental sciences | 2331 | 3.81 | 5.10 |
| Mathematics | 1505 | 2.46 | 3.22 |
| Physical sciences | 2674 | 4.37 | 6.95 |
| Other natural sciences | 418 | 0.68 | 0.81 |
| Civil engineering | 786 | 1.29 | 1.53 |
| Chemical engineering | 393 | 0.64 | 0.68 |
| Electrical engineering, electronic engineering, information engineering | 1864 | 3.05 | 4.66 |
| Environmental engineering | 439 | 0.72 | 0.68 |
| Environmental biotechnology | 59 | 0.10 | 0.07 |
| Industrial biotechnology | 73 | 0.12 | 0.16 |
| Materials engineering | 660 | 1.08 | 1.48 |
| Mechanical engineering | 798 | 1.31 | 1.94 |
| Medical engineering | 265 | 0.43 | 0.55 |
| Nano-technology | 192 | 0.31 | 0.34 |
| Other engineering and technologies | 864 | 1.41 | 1.61 |
| Basic medicine | 766 | 1.25 | 1.46 |
| Clinical medicine | 4029 | 6.59 | 8.18 |
| Health sciences | 3537 | 5.79 | 7.67 |
| Medical biotechnology | 282 | 0.46 | 0.81 |
| Other medical science | 940 | 1.54 | 1.93 |
| Agricultural biotechnology | 152 | 0.25 | 0.39 |
| Agriculture, forestry, and fisheries | 575 | 0.94 | 0.86 |
| Animal and dairy science | 191 | 0.31 | 0.28 |
| Veterinary science | 384 | 0.63 | 0.70 |
| Other agricultural sciences | 308 | 0.50 | 0.51 |
| Economics and business | 5195 | 8.50 | 4.77 |

| In which field do you mainly work? | n | raw % | weighted % |
|---|---|---|---|
| Education | 2157 | 3.53 | 2.18 |
| Law | 876 | 1.43 | 0.61 |
| Media and communications | 778 | 1.27 | 0.62 |
| Political Science | 1435 | 2.35 | 1.09 |
| Psychology and cognitive sciences | 3071 | 5.02 | 4.80 |
| Social and economic geography | 581 | 0.95 | 0.61 |
| Sociology | 1868 | 3.06 | 1.75 |
| Other social sciences | 2113 | 3.46 | 2.87 |
| Arts (arts, history of arts, performing arts, music) | 947 | 1.55 | 0.70 |
| History and archaeology | 2638 | 4.32 | 1.49 |
| Languages and literature | 3145 | 5.15 | 1.60 |
| Politics, ethics and religion | 855 | 1.40 | 0.52 |
| Other humanities | 1496 | 2.45 | 1.04 |
| Total | 61123 | 100.00 | 100.00 |

| Please could you indicate your highest qualification? | n | raw % | weighted % |
|---|---|---|---|
| PhD / DPhil / Doctorate | 56001 | 87.40 | 86.76 |
| Masters Degree | 8073 | 12.60 | 13.24 |
| Total | 64074 | 100.00 | 100.00 |

| Current field of research matches field of doctoral training | n | raw % | weighted % |
|---|---|---|---|
| Yes | 49364 | 88.38 | 87.02 |
| No | 6492 | 11.62 | 12.98 |
| Total | 55856 | 100.00 | 100.00 |

| In which country is your employer currently based? | n | raw % | weighted % |
|---|---|---|---|
| Australia | 2228 | 3.48 | 3.82 |
| Austria | 1830 | 2.86 | 1.13 |
| Belgium | 1987 | 3.10 | 1.31 |
| Bulgaria | 755 | 1.18 | 0.33 |

| In which country is your employer currently based? | n | raw % | weighted % |
|---|---|---|---|
| Canada | 2800 | 4.37 | 4.80 |
| Croatia | 1526 | 2.38 | 0.54 |
| Cyprus | 321 | 0.50 | 0.12 |
| Czechia | 1867 | 2.91 | 1.22 |
| Denmark | 2224 | 3.47 | 1.13 |
| Estonia | 394 | 0.61 | 0.18 |
| Finland | 1951 | 3.04 | 1.05 |
| France | 2516 | 3.93 | 5.93 |
| Germany | 3085 | 4.81 | 8.71 |
| Greece | 2269 | 3.54 | 1.11 |
| Hungary | 1248 | 1.95 | 0.64 |
| Ireland | 1248 | 1.95 | 0.62 |
| Italy | 4303 | 6.72 | 6.11 |
| Latvia | 351 | 0.55 | 0.15 |
| Lithuania | 605 | 0.94 | 0.29 |
| Luxembourg | 183 | 0.29 | 0.10 |
| Malta | 141 | 0.22 | 0.04 |
| Netherlands | 2729 | 4.26 | 2.65 |
| Poland | 2206 | 3.44 | 3.10 |
| Portugal | 4397 | 6.86 | 1.47 |
| Romania | 2645 | 4.13 | 1.20 |
| Slovakia | 819 | 1.28 | 0.51 |
| Slovenia | 713 | 1.11 | 0.30 |
| Spain | 4053 | 6.33 | 5.58 |
| Sweden | 2773 | 4.33 | 1.75 |
| United Kingdom of Great Britain and Northern Ireland | 3701 | 5.78 | 8.30 |
| United States of America | 2909 | 4.54 | 34.02 |
| Iceland | 104 | 0.16 | 0.11 |
| Norway | 1342 | 2.09 | 0.57 |

| In which country is your employer currently based? | n | raw % | weighted % |
|---|---|---|---|
| Switzerland | 1851 | 2.89 | 1.11 |
| Total | 64074 | 100.00 | 100.00 |

| Researcher based in country of employment | n | raw % | weighted % |
|---|---|---|---|
| Yes | 62051 | 96.92 | 97.42 |
| No | 1974 | 3.08 | 2.58 |
| Total | 64025 | 100.00 | 100.00 |

| Doctoral training completed in the same country as current employment | n | raw % | weighted % |
|---|---|---|---|
| Yes | 43337 | 77.93 | 81.53 |
| No | 12270 | 22.07 | 18.47 |
| Total | 55607 | 100.00 | 100.00 |

| In which country did you spend most of your life until you were aged 18? | n | raw % | weighted % |
|---|---|---|---|
| Not selected | 407 | 0.64 | 0.81 |
| Australia | 1475 | 2.30 | 2.55 |
| Austria | 1269 | 1.98 | 1.02 |
| Belgium | 1526 | 2.38 | 1.15 |
| Bulgaria | 815 | 1.27 | 0.42 |
| Canada | 2025 | 3.16 | 3.67 |
| Croatia | 1518 | 2.37 | 0.60 |
| Cyprus | 268 | 0.42 | 0.14 |
| Czechia | 1556 | 2.43 | 1.06 |
| Denmark | 1622 | 2.53 | 0.88 |
| Estonia | 341 | 0.53 | 0.16 |
| Finland | 1618 | 2.53 | 0.97 |
| France | 2428 | 3.79 | 5.33 |
| Germany | 3952 | 6.17 | 8.47 |
| Greece | 2685 | 4.19 | 1.67 |

| In which country did you spend most of your life until you were aged 18? | n | raw % | weighted % |
|---|---|---|---|
| Hungary | 1252 | 1.96 | 0.82 |
| Ireland | 867 | 1.35 | 0.56 |
| Italy | 5354 | 8.36 | 7.47 |
| Latvia | 339 | 0.53 | 0.14 |
| Lithuania | 634 | 0.99 | 0.32 |
| Luxembourg | 47 | 0.07 | 0.03 |
| Malta | 131 | 0.20 | 0.05 |
| Netherlands | 2300 | 3.59 | 2.30 |
| Poland | 2325 | 3.63 | 3.35 |
| Portugal | 4067 | 6.35 | 1.50 |
| Romania | 2879 | 4.50 | 1.53 |
| Slovakia | 963 | 1.50 | 0.69 |
| Slovenia | 697 | 1.09 | 0.32 |
| Spain | 4031 | 6.29 | 5.53 |
| Sweden | 1938 | 3.03 | 1.28 |
| United Kingdom of Great Britain and Northern Ireland | 3213 | 5.02 | 6.65 |
| United States of America | 3052 | 4.77 | 25.75 |
| Afghanistan | 7 | 0.01 | 0.02 |
| Albania | 31 | 0.05 | 0.03 |
| Algeria | 31 | 0.05 | 0.10 |
| Andorra | 2 | 0.00 | 0.00 |
| Angola | 29 | 0.05 | 0.01 |
| Argentina | 143 | 0.22 | 0.35 |
| Armenia | 12 | 0.02 | 0.02 |
| Azerbaijan | 7 | 0.01 | 0.00 |
| Bahamas | 1 | 0.00 | 0.00 |
| Bahrain | 3 | 0.00 | 0.00 |
| Bangladesh | 45 | 0.07 | 0.07 |
| Barbados | 2 | 0.00 | 0.00 |

| In which country did you spend most of your life until you were aged 18? | n | raw % | weighted % |
|---|---|---|---|
| Belarus | 36 | 0.06 | 0.12 |
| Belize | 1 | 0.00 | 0.00 |
| Benin | 6 | 0.01 | 0.00 |
| Bolivia | 11 | 0.02 | 0.01 |
| Bosnia and Herzegovina | 74 | 0.12 | 0.05 |
| Botswana | 4 | 0.01 | 0.01 |
| Brazil | 307 | 0.48 | 0.44 |
| Brunei Darussalam | 5 | 0.01 | 0.01 |
| Burkina Faso | 8 | 0.01 | 0.01 |
| Burundi | 1 | 0.00 | 0.00 |
| Cambodia | 2 | 0.00 | 0.00 |
| Cameroon | 29 | 0.05 | 0.03 |
| Cape Verde | 2 | 0.00 | 0.00 |
| Central African Republic | 1 | 0.00 | 0.00 |
| Chad | 1 | 0.00 | 0.01 |
| Chile | 72 | 0.11 | 0.13 |
| China | 352 | 0.55 | 1.26 |
| Colombia | 132 | 0.21 | 0.35 |
| Costa Rica | 14 | 0.02 | 0.01 |
| Côte d'Ivoire | 6 | 0.01 | 0.01 |
| Cuba | 21 | 0.03 | 0.06 |
| Democratic Republic of the Congo | 1 | 0.00 | 0.00 |
| Djibouti | 1 | 0.00 | 0.00 |
| Dominican Republic | 3 | 0.00 | 0.01 |
| Ecuador | 14 | 0.02 | 0.03 |
| Egypt | 51 | 0.08 | 0.14 |
| El Salvador | 6 | 0.01 | 0.00 |
| Eritrea | 2 | 0.00 | 0.00 |
| Ethiopia | 19 | 0.03 | 0.02 |

| In which country did you spend most of your life until you were aged 18? | n | raw % | weighted % |
|---|---|---|---|
| Fiji | 6 | 0.01 | 0.01 |
| Gabon | 4 | 0.01 | 0.01 |
| Georgia | 12 | 0.02 | 0.01 |
| Ghana | 40 | 0.06 | 0.06 |
| Guatemala | 10 | 0.02 | 0.06 |
| Guinea-Bissau | 2 | 0.00 | 0.00 |
| Guyana | 4 | 0.01 | 0.01 |
| Haiti | 1 | 0.00 | 0.00 |
| Honduras | 2 | 0.00 | 0.01 |
| Hong Kong (S.A.R.) | 43 | 0.07 | 0.09 |
| Iceland | 97 | 0.15 | 0.05 |
| India | 474 | 0.74 | 2.33 |
| Indonesia | 40 | 0.06 | 0.06 |
| Iran, Islamic Republic of… | 224 | 0.35 | 0.45 |
| Iraq | 27 | 0.04 | 0.12 |
| Israel | 51 | 0.08 | 0.12 |
| Jamaica | 5 | 0.01 | 0.03 |
| Japan | 51 | 0.08 | 0.16 |
| Jordan | 25 | 0.04 | 0.08 |
| Kazakhstan | 11 | 0.02 | 0.02 |
| Kenya | 36 | 0.06 | 0.12 |
| Kuwait | 7 | 0.01 | 0.01 |
| Kyrgyzstan | 5 | 0.01 | 0.01 |
| Lebanon | 72 | 0.11 | 0.26 |
| Libyan Arab Jamahiriya | 11 | 0.02 | 0.02 |
| Liechtenstein | 1 | 0.00 | 0.00 |
| Madagascar | 5 | 0.01 | 0.02 |
| Malawi | 6 | 0.01 | 0.01 |
| Malaysia | 37 | 0.06 | 0.14 |

| In which country did you spend most of your life until you were aged 18? | n | raw % | weighted % |
|---|---|---|---|
| Mali | 4 | 0.01 | 0.01 |
| Mauritania | 2 | 0.00 | 0.00 |
| Mauritius | 15 | 0.02 | 0.02 |
| Mexico | 139 | 0.22 | 0.43 |
| Monaco | 1 | 0.00 | 0.00 |
| Mongolia | 2 | 0.00 | 0.00 |
| Montenegro | 3 | 0.00 | 0.01 |
| Morocco | 41 | 0.06 | 0.08 |
| Mozambique | 30 | 0.05 | 0.01 |
| Myanmar | 3 | 0.00 | 0.01 |
| Namibia | 1 | 0.00 | 0.00 |
| Nauru | 1 | 0.00 | 0.00 |
| Nepal | 24 | 0.04 | 0.10 |
| New Zealand | 133 | 0.21 | 0.21 |
| Nicaragua | 2 | 0.00 | 0.01 |
| Niger | 3 | 0.00 | 0.01 |
| Nigeria | 101 | 0.16 | 0.20 |
| Norway | 826 | 1.29 | 0.36 |
| Pakistan | 99 | 0.15 | 0.25 |
| Panama | 4 | 0.01 | 0.01 |
| Papua New Guinea | 5 | 0.01 | 0.01 |
| Paraguay | 4 | 0.01 | 0.00 |
| Peru | 37 | 0.06 | 0.05 |
| Philippines | 38 | 0.06 | 0.05 |
| Qatar | 3 | 0.00 | 0.01 |
| Republic of Korea | 16 | 0.02 | 0.09 |
| Republic of Moldova | 19 | 0.03 | 0.01 |
| Russian Federation | 306 | 0.48 | 0.54 |
| Rwanda | 4 | 0.01 | 0.00 |

| In which country did you spend most of your life until you were aged 18? | n | raw % | weighted % |
|---|---|---|---|
| Saint Lucia | 1 | 0.00 | 0.00 |
| San Marino | 1 | 0.00 | 0.00 |
| Saudi Arabia | 9 | 0.01 | 0.02 |
| Senegal | 8 | 0.01 | 0.02 |
| Serbia | 116 | 0.18 | 0.09 |
| Seychelles | 1 | 0.00 | 0.00 |
| Sierra Leone | 2 | 0.00 | 0.05 |
| Singapore | 40 | 0.06 | 0.14 |
| South Africa | 119 | 0.19 | 0.24 |
| South Korea | 30 | 0.05 | 0.05 |
| Sri Lanka | 28 | 0.04 | 0.10 |
| Sudan | 10 | 0.02 | 0.01 |
| Suriname | 2 | 0.00 | 0.00 |
| Swaziland | 4 | 0.01 | 0.00 |
| Switzerland | 761 | 1.19 | 0.63 |
| Syrian Arab Republic | 24 | 0.04 | 0.03 |
| Tajikistan | 1 | 0.00 | 0.00 |
| Thailand | 25 | 0.04 | 0.11 |
| The former Yugoslav Republic of Macedonia | 25 | 0.04 | 0.01 |
| Togo | 2 | 0.00 | 0.01 |
| Trinidad and Tobago | 6 | 0.01 | 0.03 |
| Tunisia | 44 | 0.07 | 0.10 |
| Turkey | 162 | 0.25 | 0.28 |
| Turkmenistan | 1 | 0.00 | 0.00 |
| Uganda | 15 | 0.02 | 0.07 |
| Ukraine | 148 | 0.23 | 0.29 |
| United Arab Emirates | 15 | 0.02 | 0.03 |
| United Republic of Tanzania | 6 | 0.01 | 0.04 |
| Uruguay | 14 | 0.02 | 0.02 |

| In which country did you spend most of your life until you were aged 18? | n | raw % | weighted % |
|---|---|---|---|
| Uzbekistan | 7 | 0.01 | 0.01 |
| Vanuatu | 2 | 0.00 | 0.00 |
| Venezuela, Bolivarian Republic of… | 65 | 0.10 | 0.19 |
| Viet Nam | 42 | 0.07 | 0.05 |
| Yemen | 5 | 0.01 | 0.01 |
| Zambia | 8 | 0.01 | 0.02 |
| Zimbabwe | 26 | 0.04 | 0.07 |
| Total | 64039 | 100.00 | 100.00 |

| SOPs4RI grouped field variable | n | raw % | weighted % |
|---|---|---|---|
| Natural sciences (including technical science) | 24414 | 39.94 | 55.29 |
| Medical sciences (including biomedicine) | 9554 | 15.63 | 20.04 |
| Social sciences | 18074 | 29.57 | 19.32 |
| Humanities | 9081 | 14.86 | 5.35 |
| Total | 61123 | 100.00 | 100.00 |

| Which best describes the research discipline or sector you carried out your doctoral training? | n | raw % | weighted % |
|---|---|---|---|
| Biological sciences | 5153 | 9.60 | 14.43 |
| Chemical sciences | 1781 | 3.32 | 4.56 |
| Computer and information sciences | 1740 | 3.24 | 4.95 |
| Earth and related environmental sciences | 2016 | 3.76 | 5.16 |
| Mathematics | 1596 | 2.97 | 3.85 |
| Physical sciences | 2797 | 5.21 | 8.71 |
| Other natural sciences | 419 | 0.78 | 0.92 |
| Civil engineering | 681 | 1.27 | 1.56 |
| Chemical engineering | 346 | 0.64 | 0.59 |
| Electrical engineering, electronic engineering, information engineering | 1490 | 2.78 | 4.23 |
| Environmental engineering | 309 | 0.58 | 0.56 |

| Which best describes the research discipline or sector you carried out your doctoral training? | n | raw % | weighted % |
|---|---|---|---|
| Environmental biotechnology | 34 | 0.06 | 0.03 |
| Industrial biotechnology | 58 | 0.11 | 0.06 |
| Materials engineering | 516 | 0.96 | 1.26 |
| Mechanical engineering | 706 | 1.32 | 2.12 |
| Medical engineering | 175 | 0.33 | 0.44 |
| Nano-technology | 124 | 0.23 | 0.24 |
| Other engineering and technologies | 761 | 1.42 | 1.50 |
| Basic medicine | 752 | 1.40 | 1.52 |
| Clinical medicine | 2810 | 5.24 | 6.52 |
| Health sciences | 2632 | 4.90 | 6.44 |
| Medical biotechnology | 195 | 0.36 | 0.45 |
| Other medical science | 756 | 1.41 | 1.65 |
| Agricultural biotechnology | 108 | 0.20 | 0.24 |
| Agriculture, forestry, and fisheries | 467 | 0.87 | 0.73 |
| Animal and dairy science | 168 | 0.31 | 0.29 |
| Veterinary science | 338 | 0.63 | 0.68 |
| Other agricultural sciences | 267 | 0.50 | 0.47 |
| Economics and business | 4763 | 8.88 | 4.83 |
| Education | 1632 | 3.04 | 2.02 |
| Law | 758 | 1.41 | 0.64 |
| Media and communications | 579 | 1.08 | 0.56 |
| Political Science | 1315 | 2.45 | 1.23 |
| Psychology and cognitive sciences | 2809 | 5.23 | 5.34 |
| Social and economic geography | 493 | 0.92 | 0.62 |
| Sociology | 1660 | 3.09 | 1.91 |
| Other social sciences | 1856 | 3.46 | 2.97 |
| Arts (arts, history of arts, performing arts, music) | 819 | 1.53 | 0.67 |
| History and archaeology | 2401 | 4.47 | 1.59 |
| Languages and literature | 3091 | 5.76 | 1.79 |

| Which best describes the research discipline or sector you carried out your doctoral training? | n | raw % | weighted % |
|---|---|---|---|
| Politics, ethics and religion | 797 | 1.49 | 0.56 |
| Other humanities | 1493 | 2.78 | 1.10 |
| Total | 53661 | 100.00 | 100.00 |

| SOPs4RI doctoral training grouped field variable | n | raw % | weighted % |
|---|---|---|---|
| Natural sciences (including technical science) | 22050 | 41.09 | 57.59 |
| Medical sciences (including biomedicine) | 7145 | 13.32 | 16.57 |
| Social sciences | 15865 | 29.57 | 20.13 |
| Humanities | 8601 | 16.03 | 5.71 |
| Total | 53661 | 100.00 | 100.00 |

| In which country are you currently based? | n | raw % | weighted % |
|---|---|---|---|
| Not selected | 18 | 0.03 | 0.01 |
| Australia | 2213 | 3.46 | 3.80 |
| Austria | 1814 | 2.83 | 1.13 |
| Belgium | 1969 | 3.08 | 1.29 |
| Bulgaria | 754 | 1.18 | 0.33 |
| Canada | 2792 | 4.36 | 4.86 |
| Croatia | 1521 | 2.38 | 0.54 |
| Cyprus | 317 | 0.50 | 0.12 |
| Czechia | 1831 | 2.86 | 1.21 |
| Denmark | 2199 | 3.43 | 1.12 |
| Estonia | 382 | 0.60 | 0.18 |
| Finland | 1934 | 3.02 | 1.04 |
| France | 2529 | 3.95 | 5.88 |
| Germany | 3111 | 4.86 | 8.68 |
| Greece | 2286 | 3.57 | 1.12 |
| Hungary | 1247 | 1.95 | 0.64 |
| Ireland | 1214 | 1.90 | 0.62 |

| In which country are you currently based? | n | raw % | weighted % |
|---|---|---|---|
| Italy | 4343 | 6.78 | 6.13 |
| Latvia | 344 | 0.54 | 0.14 |
| Lithuania | 606 | 0.95 | 0.29 |
| Luxembourg | 168 | 0.26 | 0.09 |
| Malta | 143 | 0.22 | 0.04 |
| Netherlands | 2706 | 4.23 | 2.63 |
| Poland | 2180 | 3.41 | 3.08 |
| Portugal | 4375 | 6.83 | 1.53 |
| Romania | 2644 | 4.13 | 1.20 |
| Slovakia | 821 | 1.28 | 0.51 |
| Slovenia | 711 | 1.11 | 0.30 |
| Spain | 4063 | 6.35 | 5.62 |
| Sweden | 2755 | 4.30 | 1.74 |
| United Kingdom of Great Britain and Northern Ireland | 3709 | 5.79 | 8.29 |
| United States of America | 2897 | 4.53 | 33.75 |
| Angola | 1 | 0.00 | 0.00 |
| Argentina | 3 | 0.00 | 0.00 |
| Azerbaijan | 1 | 0.00 | 0.00 |
| Benin | 2 | 0.00 | 0.00 |
| Bhutan | 1 | 0.00 | 0.00 |
| Bolivia | 1 | 0.00 | 0.00 |
| Bosnia and Herzegovina | 5 | 0.01 | 0.00 |
| Brazil | 13 | 0.02 | 0.01 |
| Burkina Faso | 1 | 0.00 | 0.00 |
| Cambodia | 2 | 0.00 | 0.00 |
| Chile | 7 | 0.01 | 0.04 |
| China | 14 | 0.02 | 0.12 |
| Colombia | 5 | 0.01 | 0.02 |
| Costa Rica | 1 | 0.00 | 0.00 |

| In which country are you currently based? | n | raw % | weighted % |
|---|---|---|---|
| Egypt | 2 | 0.00 | 0.00 |
| Ethiopia | 4 | 0.01 | 0.00 |
| Georgia | 2 | 0.00 | 0.00 |
| Ghana | 2 | 0.00 | 0.00 |
| Hong Kong (S.A.R.) | 4 | 0.01 | 0.00 |
| Iceland | 100 | 0.16 | 0.05 |
| India | 7 | 0.01 | 0.01 |
| Indonesia | 1 | 0.00 | 0.00 |
| Iran, Islamic Republic of… | 5 | 0.01 | 0.00 |
| Iraq | 1 | 0.00 | 0.00 |
| Israel | 2 | 0.00 | 0.00 |
| Japan | 3 | 0.00 | 0.00 |
| Jordan | 2 | 0.00 | 0.00 |
| Kenya | 2 | 0.00 | 0.00 |
| Kyrgyzstan | 1 | 0.00 | 0.01 |
| Lao People's Democratic Republic | 1 | 0.00 | 0.00 |
| Lebanon | 1 | 0.00 | 0.00 |
| Malawi | 2 | 0.00 | 0.00 |
| Mauritius | 1 | 0.00 | 0.00 |
| Mexico | 1 | 0.00 | 0.01 |
| Morocco | 3 | 0.00 | 0.00 |
| Mozambique | 2 | 0.00 | 0.00 |
| Namibia | 1 | 0.00 | 0.00 |
| Nepal | 3 | 0.00 | 0.00 |
| New Zealand | 5 | 0.01 | 0.02 |
| Nigeria | 3 | 0.00 | 0.00 |
| Norway | 1317 | 2.06 | 0.56 |
| Pakistan | 3 | 0.00 | 0.01 |
| Peru | 1 | 0.00 | 0.00 |

| In which country are you currently based? | n | raw % | weighted % |
|---|---|---|---|
| Republic of Korea | 1 | 0.00 | 0.00 |
| Republic of Moldova | 1 | 0.00 | 0.00 |
| Russian Federation | 9 | 0.01 | 0.01 |
| Saudi Arabia | 1 | 0.00 | 0.00 |
| Serbia | 3 | 0.00 | 0.00 |
| Singapore | 5 | 0.01 | 0.01 |
| South Africa | 3 | 0.00 | 0.00 |
| Sri Lanka | 1 | 0.00 | 0.00 |
| Switzerland | 1829 | 2.86 | 1.12 |
| Thailand | 6 | 0.01 | 0.01 |
| The former Yugoslav Republic of Macedonia | 1 | 0.00 | 0.00 |
| Tunisia | 1 | 0.00 | 0.00 |
| Turkey | 10 | 0.02 | 0.01 |
| Uganda | 1 | 0.00 | 0.00 |
| Ukraine | 3 | 0.00 | 0.00 |
| United Arab Emirates | 3 | 0.00 | 0.00 |
| United Republic of Tanzania | 1 | 0.00 | 0.01 |
| Uruguay | 2 | 0.00 | 0.01 |
| Viet Nam | 2 | 0.00 | 0.00 |
| Zambia | 2 | 0.00 | 0.02 |
| Zimbabwe | 1 | 0.00 | 0.00 |
| Total | 64021 | 100.00 | 100.00 |

| In which country was your phd awarded? | n | raw % | weighted % |
|---|---|---|---|
| Not selected | 97 | 0.17 | 0.19 |
| Australia | 1684 | 3.03 | 3.33 |
| Austria | 1193 | 2.15 | 1.01 |
| Belgium | 1510 | 2.72 | 1.23 |
| Bulgaria | 664 | 1.19 | 0.35 |

| In which country was your phd awarded? | n | raw % | weighted % |
|---|---|---|---|
| Canada | 1864 | 3.35 | 3.81 |
| Croatia | 1191 | 2.14 | 0.48 |
| Cyprus | 91 | 0.16 | 0.04 |
| Czechia | 1432 | 2.58 | 1.11 |
| Denmark | 1576 | 2.83 | 1.03 |
| Estonia | 250 | 0.45 | 0.14 |
| Finland | 1478 | 2.66 | 0.95 |
| France | 2599 | 4.67 | 6.46 |
| Germany | 3117 | 5.61 | 7.79 |
| Greece | 1594 | 2.87 | 0.97 |
| Hungary | 1080 | 1.94 | 0.67 |
| Ireland | 761 | 1.37 | 0.50 |
| Italy | 3874 | 6.97 | 5.72 |
| Latvia | 239 | 0.43 | 0.11 |
| Lithuania | 484 | 0.87 | 0.27 |
| Luxembourg | 32 | 0.06 | 0.02 |
| Malta | 36 | 0.06 | 0.01 |
| Netherlands | 2337 | 4.20 | 2.54 |
| Poland | 1965 | 3.53 | 3.08 |
| Portugal | 2851 | 5.13 | 1.05 |
| Romania | 2311 | 4.16 | 1.23 |
| Slovakia | 739 | 1.33 | 0.59 |
| Slovenia | 601 | 1.08 | 0.29 |
| Spain | 3878 | 6.98 | 5.88 |
| Sweden | 2239 | 4.03 | 1.76 |
| United Kingdom of Great Britain and Northern Ireland | 5053 | 9.09 | 10.06 |
| United States of America | 3953 | 7.11 | 33.50 |
| Albania | 1 | 0.00 | 0.00 |
| Algeria | 3 | 0.01 | 0.00 |

| In which country was your phd awarded? | n | raw % | weighted % |
|---|---|---|---|
| Argentina | 24 | 0.04 | 0.12 |
| Armenia | 4 | 0.01 | 0.01 |
| Belarus | 6 | 0.01 | 0.02 |
| Bosnia and Herzegovina | 2 | 0.00 | 0.00 |
| Brazil | 76 | 0.14 | 0.11 |
| Central African Republic | 1 | 0.00 | 0.00 |
| Chile | 8 | 0.01 | 0.02 |
| China | 36 | 0.06 | 0.20 |
| Colombia | 6 | 0.01 | 0.01 |
| Congo, Republic of the… | 1 | 0.00 | 0.00 |
| Cuba | 1 | 0.00 | 0.00 |
| Egypt | 1 | 0.00 | 0.00 |
| Georgia | 3 | 0.01 | 0.00 |
| Hong Kong (S.A.R.) | 20 | 0.04 | 0.04 |
| Iceland | 24 | 0.04 | 0.01 |
| India | 88 | 0.16 | 0.45 |
| Iran, Islamic Republic of… | 19 | 0.03 | 0.03 |
| Iraq | 1 | 0.00 | 0.01 |
| Israel | 25 | 0.04 | 0.08 |
| Jamaica | 1 | 0.00 | 0.00 |
| Japan | 46 | 0.08 | 0.16 |
| Jordan | 1 | 0.00 | 0.00 |
| Kenya | 1 | 0.00 | 0.01 |
| Lebanon | 3 | 0.01 | 0.04 |
| Liechtenstein | 1 | 0.00 | 0.00 |
| Malaysia | 12 | 0.02 | 0.06 |
| Mexico | 14 | 0.03 | 0.02 |
| Morocco | 2 | 0.00 | 0.00 |
| Mozambique | 1 | 0.00 | 0.00 |

| In which country was your phd awarded? | n | raw % | weighted % |
|---|---|---|---|
| New Zealand | 84 | 0.15 | 0.19 |
| Nigeria | 2 | 0.00 | 0.00 |
| Norway | 864 | 1.55 | 0.43 |
| Pakistan | 4 | 0.01 | 0.04 |
| Panama | 1 | 0.00 | 0.00 |
| Peru | 1 | 0.00 | 0.00 |
| Philippines | 2 | 0.00 | 0.00 |
| Republic of Korea | 5 | 0.01 | 0.05 |
| Republic of Moldova | 5 | 0.01 | 0.00 |
| Russian Federation | 157 | 0.28 | 0.32 |
| San Marino | 1 | 0.00 | 0.00 |
| Saudi Arabia | 2 | 0.00 | 0.01 |
| Serbia | 18 | 0.03 | 0.02 |
| Singapore | 12 | 0.02 | 0.01 |
| South Africa | 52 | 0.09 | 0.11 |
| South Korea | 6 | 0.01 | 0.00 |
| Switzerland | 1090 | 1.96 | 1.07 |
| Tunisia | 4 | 0.01 | 0.00 |
| Turkey | 30 | 0.05 | 0.05 |
| Ukraine | 42 | 0.08 | 0.15 |
| Uruguay | 1 | 0.00 | 0.00 |
| Uzbekistan | 1 | 0.00 | 0.00 |
| Venezuela, Bolivarian Republic of… | 5 | 0.01 | 0.01 |
| Zimbabwe | 1 | 0.00 | 0.00 |
| Total | 55595 | 100.00 | 100.00 |

| Are country of employment and childhood country the same? | n | raw % | weighted % |
|---|---|---|---|
| Yes | 47861 | 74.70 | 72.50 |
| No | 16213 | 25.30 | 27.50 |

| Are country of employment and childhood country the same? | n | raw % | weighted % |
|---|---|---|---|
| Total | 64074 | 100.00 | 100.00 |

| Country of employment | n | raw % | weighted % |
|---|---|---|---|
| Australia | 2228 | 3.48 | 3.82 |
| Austria | 1830 | 2.86 | 1.13 |
| Belgium | 1987 | 3.10 | 1.31 |
| Bulgaria | 755 | 1.18 | 0.33 |
| Canada | 2800 | 4.37 | 4.80 |
| Croatia | 1526 | 2.38 | 0.54 |
| Cyprus | 321 | 0.50 | 0.12 |
| Czechia | 1867 | 2.91 | 1.22 |
| Denmark | 2224 | 3.47 | 1.13 |
| Estonia | 394 | 0.61 | 0.18 |
| Finland | 1951 | 3.04 | 1.05 |
| France | 2516 | 3.93 | 5.93 |
| Germany | 3085 | 4.81 | 8.71 |
| Greece | 2269 | 3.54 | 1.11 |
| Hungary | 1248 | 1.95 | 0.64 |
| Iceland | 104 | 0.16 | 0.11 |
| Ireland | 1248 | 1.95 | 0.62 |
| Italy | 4303 | 6.72 | 6.11 |
| Latvia | 351 | 0.55 | 0.15 |
| Lithuania | 605 | 0.94 | 0.29 |
| Luxembourg | 183 | 0.29 | 0.10 |
| Malta | 141 | 0.22 | 0.04 |
| Netherlands | 2729 | 4.26 | 2.65 |
| Norway | 1342 | 2.09 | 0.57 |
| Poland | 2206 | 3.44 | 3.10 |
| Portugal | 4397 | 6.86 | 1.47 |

| Country of employment | n | raw % | weighted % |
|---|---|---|---|
| Romania | 2645 | 4.13 | 1.20 |
| Slovakia | 819 | 1.28 | 0.51 |
| Slovenia | 713 | 1.11 | 0.30 |
| Spain | 4053 | 6.33 | 5.58 |
| Sweden | 2773 | 4.33 | 1.75 |
| Switzerland | 1851 | 2.89 | 1.11 |
| UK | 3701 | 5.78 | 8.30 |
| USA | 2909 | 4.54 | 34.02 |
| Total | 64074 | 100.00 | 100.00 |

| Country of employment - grouped | n | raw % | weighted % |
|---|---|---|---|
| EU | 49139 | 76.69 | 47.26 |
| EFTA | 3297 | 5.15 | 1.79 |
| Other | 11638 | 18.16 | 50.95 |
| Total | 64074 | 100.00 | 100.00 |

| Country of childhood - grouped | n | raw % | weighted % |
|---|---|---|---|
| EU | 47422 | 74.53 | 48.14 |
| EFTA | 1685 | 2.65 | 1.04 |
| Other | 9765 | 15.35 | 38.94 |
| Country not included in study | 4760 | 7.48 | 11.88 |
| Total | 63632 | 100.00 | 100.00 |

| Country where doctoral qualification obtained - grouped | n | raw % | weighted % |
|---|---|---|---|
| EU | 40122 | 72.29 | 45.33 |
| EFTA | 1979 | 3.57 | 1.51 |
| Other | 12554 | 22.62 | 50.80 |
| Country not included in study | 843 | 1.52 | 2.36 |
| Total | 55498 | 100.00 | 100.00 |

| Could we just check your level of English? | n | raw % | weighted % |
|---|---|---|---|
| Fluent | 52341 | 81.73 | 87.98 |
| Intermediate | 10665 | 16.65 | 10.97 |
| Basic | 1038 | 1.62 | 1.04 |
| Total | 64044 | 100.00 | 100.00 |

| What best describes your current career stage? | n | raw % | weighted % |
|---|---|---|---|
| Early-career (e.g. postdoc, assistant professor, junior researcher) | 22879 | 35.80 | 33.97 |
| Mid-career (e.g. associate professor, senior researcher) | 23054 | 36.07 | 31.82 |
| Later-career (e.g. full professor, dean, director of research) | 14270 | 22.33 | 26.45 |
| Retired | 3713 | 5.81 | 7.75 |
| Total | 63916 | 100.00 | 100.00 |

| In what year were you awarded your PhD (or equivalent doctoral qualification)? | n | raw % | weighted % |
|---|---|---|---|
| 2021 | 2044 | 3.67 | 3.88 |
| 2020 | 1951 | 3.50 | 3.09 |
| 2019 | 2065 | 3.71 | 3.54 |
| 2018 | 2155 | 3.87 | 3.83 |
| 2017 | 2186 | 3.92 | 3.77 |
| 2016 | 2320 | 4.16 | 3.58 |
| 2015 | 2360 | 4.23 | 3.94 |
| 2014 | 2178 | 3.91 | 3.49 |
| 2013 | 2104 | 3.78 | 3.23 |
| 2012 | 2150 | 3.86 | 3.18 |
| 2011 | 2024 | 3.63 | 3.05 |
| 2010 | 2082 | 3.74 | 2.88 |
| 2009 | 1922 | 3.45 | 2.57 |
| 2008 | 1863 | 3.34 | 2.67 |
| 2007 | 1766 | 3.17 | 2.55 |

| In what year were you awarded your PhD (or equivalent doctoral qualification)? | n | raw % | weighted % |
|---|---|---|---|
| 2006 | 1712 | 3.07 | 2.64 |
| 2005 | 1592 | 2.86 | 2.42 |
| 2004 | 1568 | 2.81 | 2.39 |
| 2003 | 1448 | 2.60 | 2.34 |
| 2002 | 1249 | 2.24 | 1.78 |
| 2001 | 1394 | 2.50 | 2.07 |
| 2000 | 1331 | 2.39 | 2.53 |
| 1999 | 1131 | 2.03 | 1.86 |
| 1998 | 1062 | 1.91 | 1.74 |
| 1997 | 1011 | 1.81 | 1.58 |
| 1996 | 1014 | 1.82 | 1.85 |
| 1995 | 847 | 1.52 | 1.47 |
| 1994 | 898 | 1.61 | 1.81 |
| 1993 | 755 | 1.35 | 1.58 |
| 1992 | 755 | 1.35 | 1.74 |
| 1991 | 652 | 1.17 | 1.72 |
| 1990 | 629 | 1.13 | 1.52 |
| 1989 | 539 | 0.97 | 1.18 |
| 1988 | 479 | 0.86 | 1.35 |
| 1987 | 449 | 0.81 | 1.18 |
| 1986 | 399 | 0.72 | 1.10 |
| 1985 | 354 | 0.64 | 1.31 |
| 1984 | 349 | 0.63 | 0.99 |
| 1983 | 332 | 0.60 | 0.90 |
| 1982 | 273 | 0.49 | 1.06 |
| 1981 | 267 | 0.48 | 0.97 |
| 1980 | 264 | 0.47 | 1.17 |
| 1979 | 215 | 0.39 | 0.61 |
| 1978 | 189 | 0.34 | 0.51 |

| In what year were you awarded your PhD (or equivalent doctoral qualification)? | n | raw % | weighted % |
|---|---|---|---|
| 1977 | 162 | 0.29 | 0.58 |
| 1976 | 166 | 0.30 | 0.59 |
| 1975 | 169 | 0.30 | 0.53 |
| 1974 | 156 | 0.28 | 0.65 |
| 1973 | 123 | 0.22 | 0.37 |
| 1972 | 118 | 0.21 | 0.50 |
| 1971 | 90 | 0.16 | 0.30 |
| 1970 | 83 | 0.15 | 0.32 |
| 1969 | 66 | 0.12 | 0.27 |
| 1968 | 63 | 0.11 | 0.16 |
| 1967 | 51 | 0.09 | 0.28 |
| 1966 | 33 | 0.06 | 0.33 |
| 1965 | 35 | 0.06 | 0.12 |
| 1964 | 19 | 0.03 | 0.11 |
| 1963 | 19 | 0.03 | 0.08 |
| 1962 | 10 | 0.02 | 0.01 |
| 1961 | 9 | 0.02 | 0.01 |
| 1960 | 8 | 0.01 | 0.04 |
| 1959 | 20 | 0.04 | 0.14 |
| Total | 55727 | 100.00 | 100.00 |

| Year of phd, grouped | n | raw % | weighted % |
|---|---|---|---|
| Less than 5 years | 10401 | 18.66 | 18.10 |
| 5-9 years | 11112 | 19.94 | 17.42 |
| 10-14 years | 9657 | 17.33 | 13.72 |
| 15-19 years | 7569 | 13.58 | 11.58 |
| 20 or more years | 16988 | 30.48 | 39.18 |
| Total | 55727 | 100.00 | 100.00 |

| What is your sex? | n | raw % | weighted % |
|---|---|---|---|
| Female | 27365 | 42.75 | 37.51 |
| Male | 35601 | 55.62 | 60.39 |
| Prefer not to say | 1045 | 1.63 | 2.10 |
| Total | 64011 | 100.00 | 100.00 |

| What type of employment contract do you currently hold? | n | raw % | weighted % |
|---|---|---|---|
| Permanent | 42233 | 66.10 | 66.75 |
| Temporary | 17199 | 26.92 | 25.01 |
| No employment contract (e.g. self-employed) | 4456 | 6.97 | 8.24 |
| Total | 63888 | 100.00 | 100.00 |

| In current role: responsibility supervising research staff/doctoral students? | n | raw % | weighted % |
|---|---|---|---|
| Yes | 32492 | 63.70 | 62.79 |
| No | 18514 | 36.30 | 37.21 |
| Total | 51006 | 100.00 | 100.00 |

| How much do you identify as: A researcher of my department or centre | n | raw % | weighted % |
|---|---|---|---|
| Not at all | 1926 | 3.14 | 3.06 |
| A little | 5069 | 8.26 | 8.98 |
| A moderate amount | 10719 | 17.46 | 16.89 |
| A lot | 15707 | 25.59 | 23.72 |
| A great deal | 26661 | 43.43 | 45.07 |
| Does not apply | 1308 | 2.13 | 2.29 |
| Total | 61390 | 100.00 | 100.00 |

| How much do you identify as: A researcher of my organisation | n | raw % | weighted % |
|---|---|---|---|
| Not at all | 2358 | 3.87 | 3.82 |
| A little | 6395 | 10.50 | 10.75 |

| How much do you identify as: A researcher of my organisation | n | raw % | weighted % |
|---|---|---|---|
| A moderate amount | 13599 | 22.34 | 21.62 |
| A lot | 17453 | 28.67 | 26.05 |
| A great deal | 19230 | 31.58 | 35.00 |
| Does not apply | 1851 | 3.04 | 2.75 |
| Total | 60886 | 100.00 | 100.00 |

| How much do you identify as: A researcher of the country where I work | n | raw % | weighted % |
|---|---|---|---|
| Not at all | 5193 | 8.53 | 10.05 |
| A little | 12029 | 19.75 | 21.37 |
| A moderate amount | 16917 | 27.78 | 25.98 |
| A lot | 14038 | 23.05 | 21.07 |
| A great deal | 11764 | 19.32 | 20.02 |
| Does not apply | 958 | 1.57 | 1.51 |
| Total | 60899 | 100.00 | 100.00 |

| How much do you identify as: A member of professional societies I am affiliated | n | raw % | weighted % |
|---|---|---|---|
| Not at all | 7835 | 12.87 | 13.09 |
| A little | 12124 | 19.91 | 20.15 |
| A moderate amount | 15599 | 25.62 | 25.02 |
| A lot | 12395 | 20.36 | 19.77 |
| A great deal | 9808 | 16.11 | 17.11 |
| Does not apply | 3124 | 5.13 | 4.87 |
| Total | 60885 | 100.00 | 100.00 |

| How much do you identify as: A researcher within a scholarly community | n | raw % | weighted % |
|---|---|---|---|
| Not at all | 4453 | 7.28 | 7.10 |
| A little | 9369 | 15.32 | 15.15 |

| How much do you identify as: A researcher within a scholarly community | n | raw % | weighted % |
|---|---|---|---|
| A moderate amount | 14040 | 22.96 | 22.57 |
| A lot | 15157 | 24.79 | 23.76 |
| A great deal | 16879 | 27.61 | 29.58 |
| Does not apply | 1241 | 2.03 | 1.85 |
| Total | 61139 | 100.00 | 100.00 |

| In your current job, how much of your working time do you spend on research? | n | raw % | weighted % |
|---|---|---|---|
| All of my time | 8601 | 13.99 | 16.70 |
| About two-thirds of my time | 15590 | 25.36 | 25.56 |
| About half of my time | 16533 | 26.90 | 24.12 |
| About one-third of my time | 18154 | 29.54 | 28.44 |
| None of the time | 2585 | 4.21 | 5.18 |
| Total | 61463 | 100.00 | 100.00 |

| Whose opinion about your research do you value the most? | n | raw % | weighted % |
|---|---|---|---|
| My department's or centre's | 7481 | 12.15 | 12.34 |
| My organisation's | 3712 | 6.03 | 6.32 |
| Researchers in the country I am currently working | 4941 | 8.02 | 7.06 |
| Professional societies I am affiliated with | 6524 | 10.59 | 8.75 |
| My scholarly community (e.g. Researchers publishing in the same journals as me) | 38921 | 63.20 | 65.53 |
| Total | 61579 | 100.00 | 100.00 |

| Knowledge gained from Organisations providing research guidelines in my country | n | raw % | weighted % |
|---|---|---|---|
| No information | 11141 | 18.99 | 19.22 |
| A little information | 18018 | 30.72 | 28.45 |
| Some information | 18672 | 31.83 | 31.75 |
| A lot of information | 9131 | 15.57 | 18.07 |

| Knowledge gained from Organisations providing research guidelines in my country | n | raw % | weighted % |
|---|---|---|---|
| Does not apply | 1693 | 2.89 | 2.52 |
| Total | 58655 | 100.00 | 100.00 |

| Knowledge gained from Funding organisations providing me with money | n | raw % | weighted % |
|---|---|---|---|
| No information | 12200 | 20.81 | 19.52 |
| A little information | 16387 | 27.95 | 26.92 |
| Some information | 17463 | 29.78 | 29.57 |
| A lot of information | 7706 | 13.14 | 15.17 |
| Does not apply | 4882 | 8.33 | 8.81 |
| Total | 58638 | 100.00 | 100.00 |

| Knowledge gained from My organisation | n | raw % | weighted % |
|---|---|---|---|
| No information | 6657 | 11.36 | 11.28 |
| A little information | 16301 | 27.81 | 27.15 |
| Some information | 22088 | 37.69 | 36.61 |
| A lot of information | 12055 | 20.57 | 22.15 |
| Does not apply | 1506 | 2.57 | 2.81 |
| Total | 58607 | 100.00 | 100.00 |

| Knowledge gained from Senior colleague, supervisor or mentor | n | raw % | weighted % |
|---|---|---|---|
| No information | 4819 | 8.20 | 8.41 |
| A little information | 9808 | 16.70 | 16.56 |
| Some information | 17844 | 30.38 | 29.21 |
| A lot of information | 23506 | 40.01 | 41.32 |
| Does not apply | 2768 | 4.71 | 4.49 |
| Total | 58745 | 100.00 | 100.00 |

| Knowledge gained from My department or centre | n | raw % | weighted % |
|---|---|---|---|
| No information | 7729 | 13.17 | 14.27 |
| A little information | 16245 | 27.68 | 27.01 |
| Some information | 21584 | 36.78 | 36.36 |
| A lot of information | 12062 | 20.55 | 20.37 |
| Does not apply | 1070 | 1.82 | 1.98 |
| Total | 58690 | 100.00 | 100.00 |

| Knowledge gained from Organisations providing guide-lines internationally | n | raw % | weighted % |
|---|---|---|---|
| No information | 8197 | 13.97 | 16.72 |
| A little information | 15545 | 26.49 | 28.60 |
| Some information | 20192 | 34.41 | 32.96 |
| A lot of information | 13234 | 22.55 | 19.08 |
| Does not apply | 1520 | 2.59 | 2.64 |
| Total | 58688 | 100.00 | 100.00 |

| Knowledge gained from Professional bodies I am affiliated with | n | raw % | weighted % |
|---|---|---|---|
| No information | 7909 | 13.49 | 13.66 |
| A little information | 15142 | 25.83 | 25.11 |
| Some information | 20675 | 35.26 | 35.77 |
| A lot of information | 11263 | 19.21 | 19.60 |
| Does not apply | 3639 | 6.21 | 5.86 |
| Total | 58628 | 100.00 | 100.00 |

| Knowledge gained from My scholarly community | n | raw % | weighted % |
|---|---|---|---|
| No information | 3228 | 5.47 | 5.65 |
| A little information | 9221 | 15.64 | 16.28 |
| Some information | 20668 | 35.05 | 34.94 |
| A lot of information | 24910 | 42.25 | 41.55 |

| Knowledge gained from My scholarly community | n | raw % | weighted % |
|---|---|---|---|
| Does not apply | 932 | 1.58 | 1.58 |
| Total | 58959 | 100.00 | 100.00 |

| Knowledge gained from Research collaborators | n | raw % | weighted % |
|---|---|---|---|
| No information | 2161 | 3.68 | 3.71 |
| A little information | 7429 | 12.64 | 12.87 |
| Some information | 20948 | 35.63 | 35.46 |
| A lot of information | 27105 | 46.11 | 46.12 |
| Does not apply | 1142 | 1.94 | 1.84 |
| Total | 58785 | 100.00 | 100.00 |

| Knowledge gained from Other researchers on social media | n | raw % | weighted % |
|---|---|---|---|
| No information | 14753 | 25.23 | 32.37 |
| A little information | 17562 | 30.03 | 29.09 |
| Some information | 16249 | 27.79 | 23.33 |
| A lot of information | 6909 | 11.82 | 9.60 |
| Does not apply | 3002 | 5.13 | 5.60 |
| Total | 58475 | 100.00 | 100.00 |

| Knowledge gained from Published editorials or articles in my discipline | n | raw % | weighted % |
|---|---|---|---|
| No information | 4511 | 7.67 | 9.20 |
| A little information | 11686 | 19.86 | 22.21 |
| Some information | 20210 | 34.35 | 35.21 |
| A lot of information | 21578 | 36.67 | 32.06 |
| Does not apply | 857 | 1.46 | 1.31 |
| Total | 58842 | 100.00 | 100.00 |

| Which of these best describes your current workplace? | n | raw % | weighted % |
|---|---|---|---|
| Academia / University | 46210 | 77.49 | 71.33 |

| Which of these best describes your current workplace? | n | raw % | weighted % |
|---|---|---|---|
| Industry | 1685 | 2.83 | 5.31 |
| Not-for-profit research institute | 2816 | 4.72 | 5.11 |
| Government research centre | 3693 | 6.19 | 8.66 |
| Healthcare setting | 3198 | 5.36 | 6.02 |
| Other | 2032 | 3.41 | 3.58 |
| Total | 59634 | 100.00 | 100.00 |

| Science values: always publish findings that are scientifically sound | n | raw % | weighted % |
|---|---|---|---|
| Yes, always should | 40455 | 68.13 | 71.59 |
| Usually should | 14843 | 25.00 | 23.50 |
| Sometimes should | 2753 | 4.64 | 3.45 |
| Rarely should | 688 | 1.16 | 0.73 |
| No, never should | 639 | 1.08 | 0.73 |
| Total | 59378 | 100.00 | 100.00 |

| Science values: share new findings with colleagues | n | raw % | weighted % |
|---|---|---|---|
| Yes, always should | 32939 | 55.43 | 55.22 |
| Usually should | 22748 | 38.28 | 39.00 |
| Sometimes should | 3401 | 5.72 | 5.39 |
| Rarely should | 274 | 0.46 | 0.32 |
| No, never should | 63 | 0.11 | 0.07 |
| Total | 59425 | 100.00 | 100.00 |

| Science values: intellectual work influenced by personal beliefs and values | n | raw % | weighted % |
|---|---|---|---|
| Yes, always should | 3605 | 6.11 | 5.10 |
| Usually should | 7708 | 13.06 | 10.58 |
| Sometimes should | 16224 | 27.48 | 26.85 |
| Rarely should | 15133 | 25.64 | 27.29 |
| No, never should | 16362 | 27.72 | 30.17 |

| Science values: intellectual work influenced by personal beliefs and values | n | raw % | weighted % |
|---|---|---|---|
| Total | 59032 | 100.00 | 100.00 |

| Science values: change research interests to access funding | n | raw % | weighted % |
|---|---|---|---|
| Yes, always should | 702 | 1.19 | 1.26 |
| Usually should | 4525 | 7.64 | 9.20 |
| Sometimes should | 30920 | 52.22 | 57.59 |
| Rarely should | 15126 | 25.55 | 21.57 |
| No, never should | 7940 | 13.41 | 10.38 |
| Total | 59213 | 100.00 | 100.00 |

| Science values: consider all new evidence | n | raw % | weighted % |
|---|---|---|---|
| Yes, always should | 44486 | 75.08 | 79.23 |
| Usually should | 11583 | 19.55 | 17.21 |
| Sometimes should | 2585 | 4.36 | 2.94 |
| Rarely should | 424 | 0.72 | 0.41 |
| No, never should | 172 | 0.29 | 0.22 |
| Total | 59250 | 100.00 | 100.00 |

| Where should responsibility lie for ensuring highest standards of research? | n | raw % | weighted % |
|---|---|---|---|
| It is up to me to carry out research to the highest standard without any oversight from my organisation | 18445 | 33.50 | 30.82 |
| It is up to me to carry out research to the highest standard with some oversight from my organisation | 32734 | 59.46 | 61.58 |
| It is up to me to carry out research to the highest standard with a lot of oversight from my organisation | 3877 | 7.04 | 7.60 |
| Total | 55056 | 100.00 | 100.00 |

| Do you think research integrity policies are just box-ticking exercises? | n | raw % | weighted % |
|---|---|---|---|
| Always box-ticking exercises | 2658 | 4.57 | 4.93 |

| Do you think research integrity policies are just box-ticking exercises? | n | raw % | weighted % |
|---|---|---|---|
| Mostly box-ticking exercises | 18580 | 31.94 | 31.67 |
| Sometimes box-ticking exercises | 24867 | 42.75 | 43.03 |
| Rarely box-ticking exercises | 7438 | 12.79 | 12.45 |
| Never box-ticking exercises | 4625 | 7.95 | 7.92 |
| Total | 58168 | 100.00 | 100.00 |

| Do research integrity policies help improve the quality of your research? | n | raw % | weighted % |
|---|---|---|---|
| Always improve the quality of my research | 6915 | 11.89 | 11.27 |
| Mostly improve the quality of my research | 16146 | 27.76 | 27.28 |
| Sometimes improve the quality of my research | 18528 | 31.85 | 30.52 |
| Rarely improve the quality of my research | 12497 | 21.48 | 23.44 |
| Never improve the quality of my research | 4081 | 7.02 | 7.49 |
| Total | 58167 | 100.00 | 100.00 |

| Willingness to attend research integrity training | n | raw % | weighted % |
|---|---|---|---|
| Very positive | 20806 | 35.56 | 31.71 |
| Slightly positive | 19232 | 32.87 | 33.10 |
| Neither positive or negative | 12036 | 20.57 | 21.67 |
| Slightly negative | 4489 | 7.67 | 9.52 |
| Very negative | 1941 | 3.32 | 4.00 |
| Total | 58504 | 100.00 | 100.00 |

| Masterclass vs training session | n | raw % | weighted % |
|---|---|---|---|
| masterclass | 29661 | 50.46 | 51.05 |
| training | 29119 | 49.54 | 48.95 |
| Total | 58780 | 100.00 | 100.00 |

| Required vs invited to attend | n | raw % | weighted % |
|---|---|---|---|
| mandatory | 29427 | 50.06 | 49.79 |
| voluntary | 29353 | 49.94 | 50.21 |
| Total | 58780 | 100.00 | 100.00 |

| Experimental group for training question | n | raw % | weighted % |
|---|---|---|---|
| Voluntary masterclass | 14784 | 25.15 | 25.07 |
| Voluntary training | 14569 | 24.79 | 25.14 |
| Mandatory masterclass | 14877 | 25.31 | 25.98 |
| Mandatory training | 14550 | 24.75 | 23.81 |
| Total | 58780 | 100.00 | 100.00 |

| Does your research institution have a written statement on research integrity? | n | raw % | weighted % |
|---|---|---|---|
| Yes | 27931 | 47.84 | 53.03 |
| No | 7604 | 13.02 | 9.64 |
| I don't know | 22852 | 39.14 | 37.33 |
| Total | 58387 | 100.00 | 100.00 |

| Research integrity policy communicated via Formal event | n | raw % | weighted % |
|---|---|---|---|
| No | 24484 | 87.85 | 87.36 |
| Yes | 3387 | 12.15 | 12.64 |
| Total | 27871 | 100.00 | 100.00 |

| Research integrity policy communicated via Formal communication | n | raw % | weighted % |
|---|---|---|---|
| No | 11056 | 39.67 | 36.73 |
| Yes | 16815 | 60.33 | 63.27 |
| Total | 27871 | 100.00 | 100.00 |

| Research integrity policy communicated via Informal communication | n | raw % | weighted % |
|---|---|---|---|
| No | 23944 | 85.91 | 85.91 |
| Yes | 3927 | 14.09 | 14.09 |
| Total | 27871 | 100.00 | 100.00 |

| Research integrity policy communicated via I looked for it myself | n | raw % | weighted % |
|---|---|---|---|
| No | 21778 | 78.14 | 80.48 |
| Yes | 6093 | 21.86 | 19.52 |
| Total | 27871 | 100.00 | 100.00 |

| Research integrity policy communicated via I can't remember | n | raw % | weighted % |
|---|---|---|---|
| No | 23845 | 85.55 | 84.35 |
| Yes | 4026 | 14.45 | 15.65 |
| Total | 27871 | 100.00 | 100.00 |

| Research integrity policy communicated via Other | n | raw % | weighted % |
|---|---|---|---|
| No | 27112 | 97.28 | 97.58 |
| Yes | 759 | 2.72 | 2.42 |
| Total | 27871 | 100.00 | 100.00 |

| Confidence management in org effective in ensuring high level of research integrity | n | raw % | weighted % |
|---|---|---|---|
| Complete confidence | 3912 | 6.76 | 7.60 |
| A great deal of confidence | 17194 | 29.70 | 30.36 |
| Some confidence | 21149 | 36.53 | 36.53 |
| Not much confidence | 12148 | 20.98 | 19.69 |
| No confidence | 3494 | 6.03 | 5.83 |
| Total | 57897 | 100.00 | 100.00 |

| How closely does this resemble your working environment: Working Environment | n | raw % | weighted % |
|---|---|---|---|
| Resembles my environment very closely | 12316 | 22.38 | 25.08 |
| Resembles my environment closely | 17040 | 30.97 | 31.68 |
| Resembles my environment somewhat closely | 14006 | 25.45 | 23.99 |
| Resembles my environment not very closely | 8367 | 15.20 | 14.06 |
| Resembles my environment not at all closely | 3299 | 6.00 | 5.20 |
| Total | 55028 | 100.00 | 100.00 |

| How closely does this resemble your working environment: Supervision & Mentoring | n | raw % | weighted % |
|---|---|---|---|
| Resembles my environment very closely | 7710 | 14.07 | 15.75 |
| Resembles my environment closely | 15201 | 27.74 | 27.11 |
| Resembles my environment somewhat closely | 15110 | 27.58 | 27.41 |
| Resembles my environment not very closely | 11387 | 20.78 | 20.79 |
| Resembles my environment not at all closely | 5386 | 9.83 | 8.95 |
| Total | 54794 | 100.00 | 100.00 |

| How closely does this resemble your working environment: Integrity Training | n | raw % | weighted % |
|---|---|---|---|
| Resembles my environment very closely | 3837 | 7.01 | 10.13 |
| Resembles my environment closely | 8088 | 14.78 | 17.34 |
| Resembles my environment somewhat closely | 12843 | 23.47 | 22.99 |
| Resembles my environment not very closely | 16066 | 29.36 | 27.54 |
| Resembles my environment not at all closely | 13883 | 25.37 | 22.00 |
| Total | 54717 | 100.00 | 100.00 |

| How closely does this resemble your working environment: Ethics Structures | n | raw % | weighted % |
|---|---|---|---|
| Resembles my environment very closely | 10617 | 19.45 | 22.76 |
| Resembles my environment closely | 13000 | 23.82 | 24.01 |
| Resembles my environment somewhat closely | 12928 | 23.69 | 22.56 |

| How closely does this resemble your working environment: Ethics Structures | n | raw % | weighted % |
|---|---|---|---|
| Resembles my environment not very closely | 10733 | 19.67 | 17.63 |
| Resembles my environment not at all closely | 7296 | 13.37 | 13.03 |
| Total | 54574 | 100.00 | 100.00 |

| How closely does this resemble your working environment: Integrity Breaches | n | raw % | weighted % |
|---|---|---|---|
| Resembles my environment very closely | 5774 | 10.70 | 14.25 |
| Resembles my environment closely | 11698 | 21.69 | 23.77 |
| Resembles my environment somewhat closely | 14295 | 26.50 | 25.86 |
| Resembles my environment not very closely | 12551 | 23.27 | 20.86 |
| Resembles my environment not at all closely | 9626 | 17.84 | 15.27 |
| Total | 53944 | 100.00 | 100.00 |

| How closely does this resemble your working environment: Data Management | n | raw % | weighted % |
|---|---|---|---|
| Resembles my environment very closely | 13296 | 24.46 | 29.69 |
| Resembles my environment closely | 15160 | 27.89 | 27.88 |
| Resembles my environment somewhat closely | 12408 | 22.83 | 20.59 |
| Resembles my environment not very closely | 8403 | 15.46 | 14.05 |
| Resembles my environment not at all closely | 5082 | 9.35 | 7.79 |
| Total | 54349 | 100.00 | 100.00 |

| How closely does this resemble your working environment: Research Collaboration | n | raw % | weighted % |
|---|---|---|---|
| Resembles my environment very closely | 7718 | 14.24 | 17.85 |
| Resembles my environment closely | 15659 | 28.90 | 29.89 |
| Resembles my environment somewhat closely | 15571 | 28.74 | 27.91 |
| Resembles my environment not very closely | 10321 | 19.05 | 16.66 |
| Resembles my environment not at all closely | 4919 | 9.08 | 7.70 |
| Total | 54188 | 100.00 | 100.00 |

| How closely does this resemble your working environment: Declaration of Interest | n | raw % | weighted % |
|---|---|---|---|
| Resembles my environment very closely | 10486 | 19.30 | 25.81 |
| Resembles my environment closely | 15527 | 28.59 | 29.68 |
| Resembles my environment somewhat closely | 14332 | 26.39 | 23.51 |
| Resembles my environment not very closely | 9256 | 17.04 | 13.93 |
| Resembles my environment not at all closely | 4717 | 8.68 | 7.08 |
| Total | 54318 | 100.00 | 100.00 |

| How closely does this resemble your working environment: Publication and Comms | n | raw % | weighted % |
|---|---|---|---|
| Resembles my environment very closely | 11021 | 20.20 | 21.29 |
| Resembles my environment closely | 16653 | 30.52 | 30.39 |
| Resembles my environment somewhat closely | 13775 | 25.24 | 25.04 |
| Resembles my environment not very closely | 8559 | 15.68 | 16.03 |
| Resembles my environment not at all closely | 4563 | 8.36 | 7.26 |
| Total | 54571 | 100.00 | 100.00 |

| Are you aware of organisational policies: Working Environment | n | raw % | weighted % |
|---|---|---|---|
| No | 31154 | 55.91 | 54.13 |
| Yes | 24568 | 44.09 | 45.87 |
| Total | 55722 | 100.00 | 100.00 |

| Are you aware of organisational policies: Supervision & Mentoring | n | raw % | weighted % |
|---|---|---|---|
| No | 33084 | 59.37 | 57.39 |
| Yes | 22638 | 40.63 | 42.61 |
| Total | 55722 | 100.00 | 100.00 |

| Are you aware of organisational policies: Integrity Training | n | raw % | weighted % |
|---|---|---|---|
| No | 41863 | 75.13 | 66.25 |

| Are you aware of organisational policies: Integrity Training | n | raw % | weighted % |
|---|---|---|---|
| Yes | 13859 | 24.87 | 33.75 |
| Total | 55722 | 100.00 | 100.00 |

| Are you aware of organisational policies: Ethics Structures | n | raw % | weighted % |
|---|---|---|---|
| No | 26466 | 47.50 | 44.39 |
| Yes | 29256 | 52.50 | 55.61 |
| Total | 55722 | 100.00 | 100.00 |

| Are you aware of organisational policies: Integrity Breaches | n | raw % | weighted % |
|---|---|---|---|
| No | 42599 | 76.45 | 69.94 |
| Yes | 13123 | 23.55 | 30.06 |
| Total | 55722 | 100.00 | 100.00 |

| Are you aware of organisational policies: Data Management | n | raw % | weighted % |
|---|---|---|---|
| No | 24869 | 44.63 | 40.21 |
| Yes | 30853 | 55.37 | 59.79 |
| Total | 55722 | 100.00 | 100.00 |

| Are you aware of organisational policies: Research Collaboration | n | raw % | weighted % |
|---|---|---|---|
| No | 39943 | 71.68 | 70.51 |
| Yes | 15779 | 28.32 | 29.49 |
| Total | 55722 | 100.00 | 100.00 |

| Are you aware of organisational policies: Declaration of Interests | n | raw % | weighted % |
|---|---|---|---|
| No | 33559 | 60.23 | 51.47 |
| Yes | 22163 | 39.77 | 48.53 |
| Total | 55722 | 100.00 | 100.00 |

| Are you aware of organisational policies: Publication and Communicaton | n | raw % | weighted % |
|---|---|---|---|
| No | 25931 | 46.54 | 50.12 |
| Yes | 29791 | 53.46 | 49.88 |
| Total | 55722 | 100.00 | 100.00 |

| Are your organisation's policies effective: Working Environment | n | raw % | weighted % |
|---|---|---|---|
| Yes | 16227 | 66.80 | 68.43 |
| No | 3769 | 15.52 | 14.30 |
| Don't know | 4296 | 17.68 | 17.27 |
| Total | 24292 | 100.00 | 100.00 |

| Are your organisation's policies effective: Supervision & Mentoring | n | raw % | weighted % |
|---|---|---|---|
| Yes | 15055 | 67.31 | 67.21 |
| No | 3541 | 15.83 | 16.06 |
| Don't know | 3772 | 16.86 | 16.74 |
| Total | 22368 | 100.00 | 100.00 |

| Are your organisation's policies effective: Integrity Training | n | raw % | weighted % |
|---|---|---|---|
| Yes | 8227 | 60.06 | 63.22 |
| No | 2034 | 14.85 | 14.22 |
| Don't know | 3436 | 25.09 | 22.55 |
| Total | 13697 | 100.00 | 100.00 |

| Are your organisation's policies effective: Ethics Structures | n | raw % | weighted % |
|---|---|---|---|
| Yes | 20354 | 70.22 | 71.58 |
| No | 3248 | 11.20 | 10.05 |
| Don't know | 5386 | 18.58 | 18.37 |
| Total | 28988 | 100.00 | 100.00 |

| Are your organisation's policies effective: Integrity Breaches | n | raw % | weighted % |
|---|---|---|---|
| Yes | 7413 | 57.28 | 61.71 |
| No | 1601 | 12.37 | 10.11 |
| Don't know | 3927 | 30.35 | 28.18 |
| Total | 12941 | 100.00 | 100.00 |

| Are your organisation's policies effective: Data Management | n | raw % | weighted % |
|---|---|---|---|
| Yes | 21418 | 70.02 | 72.56 |
| No | 3702 | 12.10 | 11.78 |
| Don't know | 5470 | 17.88 | 15.67 |
| Total | 30590 | 100.00 | 100.00 |

| Are your organisation's policies effective: Research Collaboration | n | raw % | weighted % |
|---|---|---|---|
| Yes | 11172 | 71.73 | 73.28 |
| No | 1822 | 11.70 | 10.57 |
| Don't know | 2580 | 16.57 | 16.15 |
| Total | 15574 | 100.00 | 100.00 |

| Are your organisation's policies effective: Declaration of Interests | n | raw % | weighted % |
|---|---|---|---|
| Yes | 15483 | 70.75 | 73.56 |
| No | 1667 | 7.62 | 7.05 |
| Don't know | 4733 | 21.63 | 19.39 |
| Total | 21883 | 100.00 | 100.00 |

| Are your organisation's policies effective: Publication and Communication | n | raw % | weighted % |
|---|---|---|---|
| Yes | 21152 | 71.72 | 73.11 |
| No | 3253 | 11.03 | 10.29 |
| Don't know | 5089 | 17.25 | 16.60 |

| Are your organisation's policies effective: Publication and Communication | n | raw % | weighted % |
|---|---|---|---|
| Total | 29494 | 100.00 | 100.00 |

| How important for research integrity: Working Environment | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 1032 | 1.98 | 1.85 |
| Somewhat important | 1884 | 3.62 | 3.48 |
| Fairly important | 5391 | 10.36 | 9.78 |
| Very important | 18947 | 36.43 | 35.79 |
| Extremely important | 24758 | 47.60 | 49.11 |
| Total | 52012 | 100.00 | 100.00 |

| How important for research integrity: Supervision & Mentoring | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 1141 | 2.20 | 2.09 |
| Somewhat important | 3343 | 6.43 | 6.78 |
| Fairly important | 8491 | 16.34 | 16.02 |
| Very important | 20710 | 39.86 | 37.93 |
| Extremely important | 18275 | 35.17 | 37.17 |
| Total | 51960 | 100.00 | 100.00 |

| How important for research integrity: Integrity Training | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 1787 | 3.44 | 3.38 |
| Somewhat important | 6844 | 13.19 | 12.87 |
| Fairly important | 13202 | 25.45 | 23.68 |
| Very important | 18250 | 35.17 | 35.09 |
| Extremely important | 11801 | 22.74 | 24.97 |
| Total | 51884 | 100.00 | 100.00 |

| How important for research integrity: Ethics Structures | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 1986 | 3.83 | 4.14 |

| How important for research integrity: Ethics Structures | n | raw % | weighted % |
|---|---|---|---|
| Somewhat important | 5632 | 10.86 | 10.47 |
| Fairly important | 10510 | 20.26 | 20.29 |
| Very important | 18430 | 35.52 | 33.80 |
| Extremely important | 15323 | 29.53 | 31.30 |
| Total | 51881 | 100.00 | 100.00 |

| How important for research integrity: Integrity Breaches | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 1182 | 2.29 | 2.33 |
| Somewhat important | 4730 | 9.15 | 7.73 |
| Fairly important | 12091 | 23.38 | 20.40 |
| Very important | 20043 | 38.76 | 38.17 |
| Extremely important | 13659 | 26.42 | 31.36 |
| Total | 51705 | 100.00 | 100.00 |

| How important for research integrity: Data Management | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 1431 | 2.76 | 2.99 |
| Somewhat important | 4230 | 8.15 | 7.11 |
| Fairly important | 10246 | 19.73 | 18.42 |
| Very important | 20579 | 39.63 | 38.64 |
| Extremely important | 15437 | 29.73 | 32.85 |
| Total | 51923 | 100.00 | 100.00 |

| How important for research integrity: Research Collaboration | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 1534 | 2.96 | 3.49 |
| Somewhat important | 5606 | 10.81 | 10.62 |
| Fairly important | 12796 | 24.68 | 24.62 |
| Very important | 20685 | 39.89 | 38.81 |
| Extremely important | 11233 | 21.66 | 22.46 |
| Total | 51854 | 100.00 | 100.00 |

| How important for research integrity: Declaration of Interests | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 1354 | 2.61 | 2.86 |
| Somewhat important | 5147 | 9.91 | 9.06 |
| Fairly important | 11412 | 21.98 | 21.17 |
| Very important | 20002 | 38.53 | 36.41 |
| Extremely important | 13998 | 26.96 | 30.50 |
| Total | 51913 | 100.00 | 100.00 |

| How important for research integrity: Publication and Communication | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 1155 | 2.22 | 2.15 |
| Somewhat important | 3458 | 6.64 | 7.31 |
| Fairly important | 9745 | 18.72 | 20.19 |
| Very important | 22070 | 42.40 | 40.99 |
| Extremely important | 15619 | 30.01 | 29.35 |
| Total | 52047 | 100.00 | 100.00 |

| Confident your research is meeting high research integrity standards | n | raw % | weighted % |
|---|---|---|---|
| Very confident | 29285 | 55.07 | 60.99 |
| Somewhat confident | 21725 | 40.85 | 35.54 |
| Not very confident | 1946 | 3.66 | 3.07 |
| Not at all confident | 225 | 0.42 | 0.41 |
| Total | 53181 | 100.00 | 100.00 |

| Would you value additional support: Working Environment | n | raw % | weighted % |
|---|---|---|---|
| No | 35767 | 66.49 | 69.34 |
| Yes | 18030 | 33.51 | 30.66 |
| Total | 53797 | 100.00 | 100.00 |

| Would you value additional support: Supervision & Mentoring | n | raw % | weighted % |
|---|---|---|---|
| No | 35485 | 65.96 | 67.25 |
| Yes | 18312 | 34.04 | 32.75 |
| Total | 53797 | 100.00 | 100.00 |

| Would you value additional support: Integrity Training | n | raw % | weighted % |
|---|---|---|---|
| No | 39633 | 73.67 | 77.68 |
| Yes | 14164 | 26.33 | 22.32 |
| Total | 53797 | 100.00 | 100.00 |

| Would you value additional support: Ethics Structures | n | raw % | weighted % |
|---|---|---|---|
| No | 44137 | 82.04 | 84.95 |
| Yes | 9660 | 17.96 | 15.05 |
| Total | 53797 | 100.00 | 100.00 |

| Would you value additional support: Integrity Breaches | n | raw % | weighted % |
|---|---|---|---|
| No | 43216 | 80.33 | 82.34 |
| Yes | 10581 | 19.67 | 17.66 |
| Total | 53797 | 100.00 | 100.00 |

| Would you value additional support: Data Management | n | raw % | weighted % |
|---|---|---|---|
| No | 36740 | 68.29 | 70.47 |
| Yes | 17057 | 31.71 | 29.53 |
| Total | 53797 | 100.00 | 100.00 |

| Would you value additional support: Research Collaboration | n | raw % | weighted % |
|---|---|---|---|
| No | 32771 | 60.92 | 65.38 |
| Yes | 21026 | 39.08 | 34.62 |
| Total | 53797 | 100.00 | 100.00 |

| Would you value additional support: Declaration of Interests | n | raw % | weighted % |
|---|---|---|---|
| No | 47263 | 87.85 | 89.96 |
| Yes | 6534 | 12.15 | 10.04 |
| Total | 53797 | 100.00 | 100.00 |

| Would you value additional support: Publication and Communication | n | raw % | weighted % |
|---|---|---|---|
| No | 33925 | 63.06 | 66.29 |
| Yes | 19872 | 36.94 | 33.71 |
| Total | 53797 | 100.00 | 100.00 |

| Motivation for following procedures: More reliable scientific knowledge | n | raw % | weighted % |
|---|---|---|---|
| Not at all motivating | 1951 | 3.87 | 4.04 |
| Somewhat motivating | 2647 | 5.24 | 5.09 |
| Fairly motivating | 7392 | 14.64 | 13.86 |
| Very motivating | 19381 | 38.39 | 36.11 |
| Extremely motivating | 19107 | 37.85 | 40.89 |
| Total | 50478 | 100.00 | 100.00 |

| Motivation for following procedures: Increased funding opportunities | n | raw % | weighted % |
|---|---|---|---|
| Not at all motivating | 3478 | 6.88 | 7.98 |
| Somewhat motivating | 4647 | 9.19 | 10.43 |
| Fairly motivating | 9815 | 19.40 | 18.97 |
| Very motivating | 18048 | 35.68 | 32.81 |
| Extremely motivating | 14593 | 28.85 | 29.81 |
| Total | 50581 | 100.00 | 100.00 |

| Motivation for following procedures: Collaboration with other researchers | n | raw % | weighted % |
|---|---|---|---|
| Not at all motivating | 2095 | 4.15 | 4.49 |

| Motivation for following procedures: Collaboration with other researchers | n | raw % | weighted % |
|---|---|---|---|
| Somewhat motivating | 3953 | 7.83 | 7.81 |
| Fairly motivating | 10677 | 21.14 | 22.79 |
| Very motivating | 21571 | 42.71 | 40.11 |
| Extremely motivating | 12209 | 24.17 | 24.81 |
| Total | 50505 | 100.00 | 100.00 |

| Motivation for following procedures: Publish in higher status outlets | n | raw % | weighted % |
|---|---|---|---|
| Not at all motivating | 3392 | 6.71 | 8.15 |
| Somewhat motivating | 4415 | 8.74 | 10.96 |
| Fairly motivating | 9450 | 18.70 | 18.72 |
| Very motivating | 18650 | 36.91 | 35.10 |
| Extremely motivating | 14620 | 28.94 | 27.07 |
| Total | 50527 | 100.00 | 100.00 |

| Motivation for following procedures: Better reputation in my field | n | raw % | weighted % |
|---|---|---|---|
| Not at all motivating | 2934 | 5.80 | 6.55 |
| Somewhat motivating | 4581 | 9.06 | 9.01 |
| Fairly motivating | 10262 | 20.30 | 20.07 |
| Very motivating | 19249 | 38.08 | 36.37 |
| Extremely motivating | 13527 | 26.76 | 28.00 |
| Total | 50553 | 100.00 | 100.00 |

| Motivation for following procedures: Increased chance of promotion | n | raw % | weighted % |
|---|---|---|---|
| Not at all motivating | 8042 | 15.96 | 18.02 |
| Somewhat motivating | 7697 | 15.27 | 15.45 |
| Fairly motivating | 12616 | 25.03 | 23.91 |
| Very motivating | 13690 | 27.16 | 25.15 |

| Motivation for following procedures: Increased chance of promotion | n | raw % | weighted % |
|---|---|---|---|
| Extremely motivating | 8355 | 16.58 | 17.47 |
| Total | 50400 | 100.00 | 100.00 |

| Motivation for following procedures: Higher salary | n | raw % | weighted % |
|---|---|---|---|
| Not at all motivating | 8996 | 17.83 | 18.35 |
| Somewhat motivating | 8145 | 16.14 | 16.61 |
| Fairly motivating | 12286 | 24.35 | 24.37 |
| Very motivating | 12339 | 24.46 | 22.46 |
| Extremely motivating | 8686 | 17.22 | 18.22 |
| Total | 50452 | 100.00 | 100.00 |

| Motivation for following procedures: More trust in my research by general public | n | raw % | weighted % |
|---|---|---|---|
| Not at all motivating | 3119 | 6.17 | 7.07 |
| Somewhat motivating | 5212 | 10.32 | 9.70 |
| Fairly motivating | 10964 | 21.70 | 19.67 |
| Very motivating | 18161 | 35.95 | 35.07 |
| Extremely motivating | 13061 | 25.85 | 28.49 |
| Total | 50517 | 100.00 | 100.00 |

| Motivation for following procedures: More trust in my research by my colleagues | n | raw % | weighted % |
|---|---|---|---|
| Not at all motivating | 2505 | 4.95 | 4.83 |
| Somewhat motivating | 4123 | 8.15 | 7.53 |
| Fairly motivating | 10019 | 19.81 | 18.55 |
| Very motivating | 20113 | 39.78 | 38.98 |
| Extremely motivating | 13806 | 27.30 | 30.10 |
| Total | 50566 | 100.00 | 100.00 |

| Motivation for following procedures: Increased self-confidence in my research | n | raw % | weighted % |
|---|---|---|---|
| Not at all motivating | 3973 | 7.87 | 8.84 |
| Somewhat motivating | 5063 | 10.03 | 10.36 |
| Fairly motivating | 10430 | 20.66 | 20.95 |
| Very motivating | 17766 | 35.20 | 33.26 |
| Extremely motivating | 13244 | 26.24 | 26.59 |
| Total | 50476 | 100.00 | 100.00 |

| Language used for questionable research practice questions | n | raw % | weighted % |
|---|---|---|---|
| English | 49506 | 77.26 | 81.91 |
| Austrian | 608 | 0.95 | 0.48 |
| Croatian | 749 | 1.17 | 0.31 |
| Czech | 767 | 1.20 | 0.54 |
| French | 1209 | 1.89 | 2.75 |
| German | 2030 | 3.17 | 4.17 |
| Greek | 1304 | 2.04 | 0.86 |
| Italian | 2709 | 4.23 | 3.84 |
| Polish | 1168 | 1.82 | 1.65 |
| Portuguese | 1991 | 3.11 | 0.72 |
| Spanish | 2033 | 3.17 | 2.76 |
| Total | 64074 | 100.00 | 100.00 |

| QRP: failing to cite publications that contradict your beliefs | n | raw % | weighted % |
|---|---|---|---|
| Does not apply in my case | 2367 | 4.58 | 4.26 |
| Never | 38667 | 74.89 | 78.05 |
| Rarely | 8247 | 15.97 | 14.14 |
| Sometimes | 1895 | 3.67 | 2.80 |
| Often | 454 | 0.88 | 0.75 |
| Total | 51630 | 100.00 | 100.00 |

| QRP: not conducting a thorough review | n | raw % | weighted % |
|---|---|---|---|
| Does not apply in my case | 2716 | 5.26 | 4.78 |
| Never | 23618 | 45.74 | 45.50 |
| Rarely | 17354 | 33.61 | 34.56 |
| Sometimes | 7041 | 13.63 | 13.56 |
| Often | 911 | 1.76 | 1.59 |
| Total | 51640 | 100.00 | 100.00 |

| QRP: choosing not to report your own findings if they contradict your theories | n | raw % | weighted % |
|---|---|---|---|
| Does not apply in my case | 4413 | 8.55 | 7.40 |
| Never | 35880 | 69.48 | 70.92 |
| Rarely | 8684 | 16.82 | 16.48 |
| Sometimes | 2331 | 4.51 | 4.70 |
| Often | 334 | 0.65 | 0.49 |
| Total | 51642 | 100.00 | 100.00 |

| QRP: using a researcher's idea without giving credit | n | raw % | weighted % |
|---|---|---|---|
| Does not apply in my case | 2214 | 4.28 | 3.82 |
| Never | 46105 | 89.20 | 89.77 |
| Rarely | 2347 | 4.54 | 4.22 |
| Sometimes | 835 | 1.62 | 1.87 |
| Often | 189 | 0.37 | 0.32 |
| Total | 51690 | 100.00 | 100.00 |

| QRP: failing to disclose conflict of interest | n | raw % | weighted % |
|---|---|---|---|
| Does not apply in my case | 6432 | 12.47 | 11.08 |
| Never | 40806 | 79.08 | 81.92 |
| Rarely | 3082 | 5.97 | 5.17 |
| Sometimes | 983 | 1.91 | 1.37 |
| Often | 296 | 0.57 | 0.46 |

| QRP: failing to disclose conflict of interest | n | raw % | weighted % |
|---|---|---|---|
| Total | 51599 | 100.00 | 100.00 |

| QRP: including authors who had not contributed sufficiently | n | raw % | weighted % |
|---|---|---|---|
| Does not apply in my case | 2869 | 5.56 | 3.93 |
| Never | 18197 | 35.25 | 34.91 |
| Rarely | 14341 | 27.78 | 29.19 |
| Sometimes | 11752 | 22.77 | 23.40 |
| Often | 4464 | 8.65 | 8.57 |
| Total | 51623 | 100.00 | 100.00 |

| QRP: inadequately supervising junior co-worker | n | raw % | weighted % |
|---|---|---|---|
| Does not apply in my case | 8210 | 15.89 | 15.12 |
| Never | 23082 | 44.68 | 40.81 |
| Rarely | 13455 | 26.04 | 29.52 |
| Sometimes | 5675 | 10.98 | 12.37 |
| Often | 1242 | 2.40 | 2.18 |
| Total | 51664 | 100.00 | 100.00 |

| QRP: carrying out research without ethical approval | n | raw % | weighted % |
|---|---|---|---|
| Does not apply in my case | 12613 | 24.42 | 24.04 |
| Never | 31083 | 60.17 | 64.51 |
| Rarely | 4948 | 9.58 | 7.42 |
| Sometimes | 2218 | 4.29 | 2.85 |
| Often | 797 | 1.54 | 1.18 |
| Total | 51659 | 100.00 | 100.00 |

| How important for training: Intellectually stimulating | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 2146 | 4.30 | 4.31 |
| Somewhat important | 4471 | 8.96 | 8.37 |

| How important for training: Intellectually stimulating | n | raw % | weighted % |
|---|---|---|---|
| Fairly important | 10580 | 21.20 | 20.71 |
| Very important | 21241 | 42.56 | 42.18 |
| Extremely important | 11476 | 22.99 | 24.43 |
| Total | 49914 | 100.00 | 100.00 |

| How important for training: Applicable across multiple fields | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 5554 | 11.20 | 12.78 |
| Somewhat important | 8544 | 17.23 | 17.85 |
| Fairly important | 13574 | 27.38 | 26.50 |
| Very important | 15669 | 31.61 | 30.35 |
| Extremely important | 6234 | 12.57 | 12.51 |
| Total | 49575 | 100.00 | 100.00 |

| How important for training: Takes a short amount of time | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 2210 | 4.44 | 4.28 |
| Somewhat important | 6023 | 12.09 | 11.00 |
| Fairly important | 15132 | 30.38 | 28.59 |
| Very important | 16865 | 33.86 | 34.30 |
| Extremely important | 9571 | 19.22 | 21.84 |
| Total | 49801 | 100.00 | 100.00 |

| How important for training: Available online in your own time | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 4298 | 8.63 | 8.62 |
| Somewhat important | 6817 | 13.69 | 12.86 |
| Fairly important | 11848 | 23.80 | 23.09 |
| Very important | 16417 | 32.98 | 33.57 |
| Extremely important | 10403 | 20.90 | 21.86 |
| Total | 49783 | 100.00 | 100.00 |

| How important for training: Of practical use to me in my research | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 1387 | 2.78 | 2.98 |
| Somewhat important | 2477 | 4.97 | 4.59 |
| Fairly important | 7203 | 14.46 | 13.34 |
| Very important | 20745 | 41.64 | 41.40 |
| Extremely important | 18005 | 36.14 | 37.70 |
| Total | 49817 | 100.00 | 100.00 |

| How important for training: Would help me supervising staff / students | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 3182 | 6.41 | 7.55 |
| Somewhat important | 5216 | 10.50 | 10.07 |
| Fairly important | 11216 | 22.58 | 21.33 |
| Very important | 19433 | 39.12 | 38.78 |
| Extremely important | 10625 | 21.39 | 22.27 |
| Total | 49672 | 100.00 | 100.00 |

| How important for training: Enjoyable | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 3187 | 6.42 | 6.18 |
| Somewhat important | 6917 | 13.93 | 13.51 |
| Fairly important | 14745 | 29.69 | 28.06 |
| Very important | 16436 | 33.09 | 33.79 |
| Extremely important | 8381 | 16.87 | 18.46 |
| Total | 49666 | 100.00 | 100.00 |

| How important for training: Delivered face to face with the trainer | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 12888 | 26.01 | 32.60 |
| Somewhat important | 12419 | 25.06 | 24.73 |
| Fairly important | 12705 | 25.64 | 22.71 |
| Very important | 8299 | 16.75 | 13.72 |

| How important for training: Delivered face to face with the trainer | n | raw % | weighted % |
|---|---|---|---|
| Extremely important | 3248 | 6.55 | 6.26 |
| Total | 49559 | 100.00 | 100.00 |

| How important for training: Would help me making grant applications | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 5890 | 11.85 | 15.83 |
| Somewhat important | 8144 | 16.38 | 18.02 |
| Fairly important | 12363 | 24.87 | 23.14 |
| Very important | 14617 | 29.40 | 26.23 |
| Extremely important | 8701 | 17.50 | 16.79 |
| Total | 49715 | 100.00 | 100.00 |

| Importance of trainer features: Specialist knowledge of research integrity | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 948 | 1.90 | 2.47 |
| Somewhat important | 2475 | 4.97 | 5.97 |
| Fairly important | 7314 | 14.70 | 15.05 |
| Very important | 20163 | 40.51 | 38.84 |
| Extremely important | 18872 | 37.92 | 37.67 |
| Total | 49772 | 100.00 | 100.00 |

| Importance of trainer features: Being an active researcher | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 1962 | 3.93 | 4.97 |
| Somewhat important | 4227 | 8.48 | 10.99 |
| Fairly important | 10145 | 20.34 | 22.50 |
| Very important | 19686 | 39.48 | 35.60 |
| Extremely important | 13848 | 27.77 | 25.94 |
| Total | 49868 | 100.00 | 100.00 |

| Importance of trainer features: Respected in their field | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 2241 | 4.51 | 5.43 |
| Somewhat important | 4883 | 9.82 | 11.36 |
| Fairly important | 11125 | 22.37 | 22.86 |
| Very important | 19721 | 39.66 | 37.07 |
| Extremely important | 11761 | 23.65 | 23.27 |
| Total | 49731 | 100.00 | 100.00 |

| Importance of trainer features: Member of my own department | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 35249 | 71.09 | 73.97 |
| Somewhat important | 6460 | 13.03 | 12.52 |
| Fairly important | 4833 | 9.75 | 8.39 |
| Very important | 2266 | 4.57 | 3.57 |
| Extremely important | 778 | 1.57 | 1.55 |
| Total | 49586 | 100.00 | 100.00 |

| Importance of trainer features: In: depth knowledge of my own field | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 4922 | 9.89 | 12.62 |
| Somewhat important | 9438 | 18.95 | 21.03 |
| Fairly important | 13189 | 26.49 | 26.13 |
| Very important | 13647 | 27.41 | 24.86 |
| Extremely important | 8596 | 17.26 | 15.35 |
| Total | 49792 | 100.00 | 100.00 |

| Importance of trainer features: External to my organisation | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 18276 | 36.82 | 42.01 |
| Somewhat important | 7060 | 14.22 | 13.93 |
| Fairly important | 10285 | 20.72 | 19.11 |
| Very important | 9045 | 18.22 | 15.66 |

| Importance of trainer features: External to my organisation | n | raw % | weighted % |
|---|---|---|---|
| Extremely important | 4975 | 10.02 | 9.29 |
| Total | 49641 | 100.00 | 100.00 |

| Importance for good supervision: Tangible rewards for good supervision | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 5030 | 10.21 | 9.83 |
| Somewhat important | 9331 | 18.94 | 18.92 |
| Fairly important | 15302 | 31.06 | 29.65 |
| Very important | 14746 | 29.93 | 30.41 |
| Extremely important | 4862 | 9.87 | 11.19 |
| Total | 49271 | 100.00 | 100.00 |

| Importance for good supervision: Well-being/mental health support for supervisee | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 1481 | 3.01 | 3.08 |
| Somewhat important | 5224 | 10.63 | 10.22 |
| Fairly important | 12503 | 25.43 | 24.18 |
| Very important | 19148 | 38.95 | 38.04 |
| Extremely important | 10808 | 21.98 | 24.48 |
| Total | 49164 | 100.00 | 100.00 |

| Importance for good supervision: Procedure to change supervisor if necessary | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 832 | 1.69 | 1.75 |
| Somewhat important | 4167 | 8.47 | 7.58 |
| Fairly important | 12933 | 26.28 | 24.74 |
| Very important | 20577 | 41.81 | 40.83 |
| Extremely important | 10711 | 21.76 | 25.10 |
| Total | 49220 | 100.00 | 100.00 |

| Importance for good supervision: Evaluation structures for supervision | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 1363 | 2.77 | 2.75 |
| Somewhat important | 5126 | 10.43 | 9.53 |
| Fairly important | 13722 | 27.91 | 26.00 |
| Very important | 19964 | 40.60 | 40.74 |
| Extremely important | 8993 | 18.29 | 20.97 |
| Total | 49168 | 100.00 | 100.00 |

| How positive do you feel about having supervisory responsibilities? | n | raw % | weighted % |
|---|---|---|---|
| Very positive | 16106 | 49.63 | 48.56 |
| Positive | 13595 | 41.89 | 43.27 |
| Neither positive nor negative | 2418 | 7.45 | 6.80 |
| Negative | 299 | 0.92 | 1.26 |
| Very negative | 34 | 0.10 | 0.11 |
| Total | 32452 | 100.00 | 100.00 |

| How confident are you that you are meeting the needs of your supervisees? | n | raw % | weighted % |
|---|---|---|---|
| Very confident | 11976 | 37.01 | 36.04 |
| Somewhat confident | 18936 | 58.52 | 59.33 |
| Not very confident | 1392 | 4.30 | 4.47 |
| Not at all confident | 56 | 0.17 | 0.16 |
| Total | 32360 | 100.00 | 100.00 |

| Importance, supervisor: Knowledge of institutional support structures | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 416 | 0.84 | 0.89 |
| Somewhat important | 3606 | 7.27 | 6.78 |
| Fairly important | 14016 | 28.27 | 26.96 |
| Very important | 22217 | 44.82 | 44.33 |

| Importance, supervisor: Knowledge of institutional support structures | n | raw % | weighted % |
|---|---|---|---|
| Extremely important | 9316 | 18.79 | 21.04 |
| Total | 49571 | 100.00 | 100.00 |

| Importance, supervisor: Familiarity with PhD or relevant procedures | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 427 | 0.86 | 1.88 |
| Somewhat important | 2297 | 4.63 | 5.79 |
| Fairly important | 9264 | 18.69 | 18.87 |
| Very important | 21938 | 44.26 | 42.50 |
| Extremely important | 15636 | 31.55 | 30.96 |
| Total | 49562 | 100.00 | 100.00 |

| Importance, supervisor: Ability to act as exemplar | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 294 | 0.59 | 0.50 |
| Somewhat important | 1632 | 3.29 | 2.88 |
| Fairly important | 7585 | 15.30 | 13.02 |
| Very important | 21778 | 43.93 | 43.33 |
| Extremely important | 18286 | 36.89 | 40.27 |
| Total | 49575 | 100.00 | 100.00 |

| Importance, supervisor: Ability to communicate effectively | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 522 | 1.05 | 0.90 |
| Somewhat important | 2493 | 5.02 | 4.62 |
| Fairly important | 8753 | 17.64 | 15.12 |
| Very important | 21921 | 44.18 | 43.90 |
| Extremely important | 15923 | 32.10 | 35.46 |
| Total | 49612 | 100.00 | 100.00 |

| Importance, supervisor: Engage supervisee in decision: making process | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 204 | 0.41 | 0.28 |
| Somewhat important | 1354 | 2.73 | 2.01 |
| Fairly important | 7389 | 14.92 | 13.66 |
| Very important | 24862 | 50.19 | 49.18 |
| Extremely important | 15728 | 31.75 | 34.87 |
| Total | 49537 | 100.00 | 100.00 |

| Importance, supervisor: Create balance between support and independence | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 107 | 0.22 | 0.26 |
| Somewhat important | 633 | 1.28 | 0.84 |
| Fairly important | 4284 | 8.63 | 8.25 |
| Very important | 21390 | 43.10 | 42.81 |
| Extremely important | 23212 | 46.77 | 47.83 |
| Total | 49626 | 100.00 | 100.00 |

| Importance, supervisor: Ability to provide personal guidance | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 290 | 0.58 | 0.83 |
| Somewhat important | 2225 | 4.48 | 4.89 |
| Fairly important | 8314 | 16.75 | 18.53 |
| Very important | 23049 | 46.44 | 44.98 |
| Extremely important | 15752 | 31.74 | 30.76 |
| Total | 49630 | 100.00 | 100.00 |

| Importance evaluating performance: Societal impact of research | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 4265 | 8.76 | 10.32 |
| Somewhat important | 10956 | 22.50 | 26.77 |
| Fairly important | 15016 | 30.84 | 29.14 |

| Importance evaluating performance: Societal impact of research | n | raw % | weighted % |
|---|---|---|---|
| Very important | 13922 | 28.59 | 24.99 |
| Extremely important | 4530 | 9.30 | 8.78 |
| Total | 48689 | 100.00 | 100.00 |

| Importance evaluating performance: Teaching | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 1797 | 3.70 | 5.04 |
| Somewhat important | 6782 | 13.95 | 16.82 |
| Fairly important | 15189 | 31.23 | 30.84 |
| Very important | 19053 | 39.18 | 35.95 |
| Extremely important | 5811 | 11.95 | 11.34 |
| Total | 48632 | 100.00 | 100.00 |

| Importance evaluating performance: Peer review | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 732 | 1.51 | 1.62 |
| Somewhat important | 5120 | 10.54 | 11.48 |
| Fairly important | 15710 | 32.33 | 31.93 |
| Very important | 21106 | 43.44 | 42.07 |
| Extremely important | 5923 | 12.19 | 12.90 |
| Total | 48591 | 100.00 | 100.00 |

| Importance evaluating performance: Editorship of journals and other publications | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 3605 | 7.42 | 10.30 |
| Somewhat important | 12291 | 25.30 | 30.86 |
| Fairly important | 17461 | 35.94 | 33.30 |
| Very important | 12271 | 25.26 | 20.92 |
| Extremely important | 2954 | 6.08 | 4.61 |
| Total | 48582 | 100.00 | 100.00 |

| Importance evaluating performance: Supervisory responsibilities | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 699 | 1.44 | 2.50 |
| Somewhat important | 4226 | 8.70 | 10.26 |
| Fairly important | 14075 | 28.97 | 29.78 |
| Very important | 22611 | 46.54 | 44.39 |
| Extremely important | 6968 | 14.34 | 13.07 |
| Total | 48579 | 100.00 | 100.00 |

| Importance evaluating performance: Outreach and communication of research | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 1645 | 3.39 | 3.99 |
| Somewhat important | 8311 | 17.10 | 20.37 |
| Fairly important | 16468 | 33.89 | 34.02 |
| Very important | 17156 | 35.30 | 32.12 |
| Extremely important | 5016 | 10.32 | 9.51 |
| Total | 48596 | 100.00 | 100.00 |

| Importance evaluating performance: Leadership | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 1873 | 3.86 | 3.31 |
| Somewhat important | 6429 | 13.24 | 12.87 |
| Fairly important | 14503 | 29.88 | 27.71 |
| Very important | 18294 | 37.69 | 38.98 |
| Extremely important | 7445 | 15.34 | 17.14 |
| Total | 48544 | 100.00 | 100.00 |

| Importance evaluating performance: Publication metrics | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 5267 | 10.83 | 11.63 |
| Somewhat important | 11311 | 23.26 | 25.29 |
| Fairly important | 15531 | 31.94 | 32.70 |
| Very important | 12409 | 25.52 | 23.55 |

| Importance evaluating performance: Publication metrics | n | raw % | weighted % |
|---|---|---|---|
| Extremely important | 4113 | 8.46 | 6.82 |
| Total | 48631 | 100.00 | 100.00 |

| Importance evaluating performance: Collegiality | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 1118 | 2.31 | 2.75 |
| Somewhat important | 4377 | 9.03 | 9.69 |
| Fairly important | 12214 | 25.19 | 24.41 |
| Very important | 19696 | 40.62 | 39.22 |
| Extremely important | 11078 | 22.85 | 23.93 |
| Total | 48483 | 100.00 | 100.00 |

| Importance evaluating performance: Participation/delivery research integrity training | n | raw % | weighted % |
|---|---|---|---|
| Not important at all | 5994 | 12.36 | 13.91 |
| Somewhat important | 12287 | 25.34 | 27.13 |
| Fairly important | 15553 | 32.07 | 31.14 |
| Very important | 11408 | 23.52 | 21.39 |
| Extremely important | 3255 | 6.71 | 6.42 |
| Total | 48497 | 100.00 | 100.00 |

| Mandatory research integrity training should be integrated in the curriculum for Bachelor, Master, and PhD students | n | raw % | weighted % |
|---|---|---|---|
| Yes | 1543 | 32.78 | 32.48 |
| No | 2008 | 42.66 | 39.06 |
| Don't know | 1156 | 24.56 | 28.46 |
| Total | 4707 | 100.00 | 100.00 |

| Mandatory research integrity training should be integrated in the curriculum for Bachelor, Master, and PhD students | n | raw % | weighted % |
|---|---|---|---|
| Extremely good idea | 1410 | 29.99 | 32.35 |
| Very good idea | 1487 | 31.63 | 32.57 |

| Mandatory research integrity training should be integrated in the curriculum for Bachelor, Master, and PhD students | n | raw % | weighted % |
|---|---|---|---|
| Good idea | 1244 | 26.46 | 23.39 |
| Neither good nor bad idea | 432 | 9.19 | 9.71 |
| Bad idea | 77 | 1.64 | 1.23 |
| Very bad idea | 16 | 0.34 | 0.15 |
| Extremely bad idea | 35 | 0.74 | 0.59 |
| Total | 4701 | 100.00 | 100.00 |

| All researchers should be required to complete research integrity training every 2-3 years to update their knowledge | n | raw % | weighted % |
|---|---|---|---|
| Yes | 526 | 11.05 | 19.62 |
| No | 3291 | 69.11 | 60.30 |
| Don't know | 945 | 19.84 | 20.08 |
| Total | 4762 | 100.00 | 100.00 |

| All researchers should be required to complete research integrity training every 2-3 years to update their knowledge | n | raw % | weighted % |
|---|---|---|---|
| Extremely good idea | 479 | 10.08 | 14.02 |
| Very good idea | 887 | 18.67 | 16.65 |
| Good idea | 1591 | 33.49 | 34.18 |
| Neither good nor bad idea | 1155 | 24.32 | 20.90 |
| Bad idea | 427 | 8.99 | 8.44 |
| Very bad idea | 98 | 2.06 | 3.34 |
| Extremely bad idea | 113 | 2.38 | 2.48 |
| Total | 4750 | 100.00 | 100.00 |

| All researchers starting a new position should be required to complete research integrity training | n | raw % | weighted % |
|---|---|---|---|
| Yes | 967 | 20.20 | 28.81 |
| No | 2801 | 58.50 | 49.11 |

| All researchers starting a new position should be required to complete research integrity training | n | raw % | weighted % |
|---|---|---|---|
| Don't know | 1020 | 21.30 | 22.08 |
| Total | 4788 | 100.00 | 100.00 |

| All researchers starting a new position should be required to complete research integrity training | n | raw % | weighted % |
|---|---|---|---|
| Extremely good idea | 1035 | 21.65 | 25.76 |
| Very good idea | 1429 | 29.90 | 28.83 |
| Good idea | 1441 | 30.15 | 30.99 |
| Neither good nor bad idea | 688 | 14.39 | 11.82 |
| Bad idea | 106 | 2.22 | 1.40 |
| Very bad idea | 38 | 0.79 | 0.44 |
| Extremely bad idea | 43 | 0.90 | 0.77 |
| Total | 4780 | 100.00 | 100.00 |

| Training should be provided for non-research skills such as conflict management, listening, and other “soft” skills | n | raw % | weighted % |
|---|---|---|---|
| Yes | 1700 | 35.21 | 38.03 |
| No | 2030 | 42.05 | 38.83 |
| Don't know | 1098 | 22.74 | 23.14 |
| Total | 4828 | 100.00 | 100.00 |

| Training should be provided for non-research skills such as conflict management, listening, and other “soft” skills | n | raw % | weighted % |
|---|---|---|---|
| Extremely good idea | 1223 | 25.43 | 28.24 |
| Very good idea | 1402 | 29.15 | 27.06 |
| Good idea | 1386 | 28.82 | 30.14 |
| Neither good nor bad idea | 645 | 13.41 | 11.74 |
| Bad idea | 99 | 2.06 | 1.39 |
| Very bad idea | 33 | 0.69 | 1.15 |
| Extremely bad idea | 21 | 0.44 | 0.28 |

| Training should be provided for non-research skills such as conflict management, listening, and other “soft” skills | n | raw % | weighted % |
|---|---|---|---|
| Total | 4809 | 100.00 | 100.00 |

| Established researchers should be required to follow training to build new skills and to update their methods | n | raw % | weighted % |
|---|---|---|---|
| Yes | 1306 | 27.30 | 31.10 |
| No | 2360 | 49.33 | 44.08 |
| Don't know | 1118 | 23.37 | 24.81 |
| Total | 4784 | 100.00 | 100.00 |

| Established researchers should be required to follow training to build new skills and to update their methods | n | raw % | weighted % |
|---|---|---|---|
| Extremely good idea | 1054 | 22.09 | 22.87 |
| Very good idea | 1468 | 30.76 | 28.32 |
| Good idea | 1311 | 27.47 | 28.82 |
| Neither good nor bad idea | 634 | 13.29 | 13.17 |
| Bad idea | 193 | 4.04 | 4.65 |
| Very bad idea | 51 | 1.07 | 1.08 |
| Extremely bad idea | 61 | 1.28 | 1.09 |
| Total | 4772 | 100.00 | 100.00 |

| Supervisors and supervisees should be required to sign agreements laying out the expectations and obligations of supervision at the outset | n | raw % | weighted % |
|---|---|---|---|
| Yes | 1352 | 28.08 | 27.01 |
| No | 2473 | 51.36 | 52.72 |
| Don't know | 990 | 20.56 | 20.27 |
| Total | 4815 | 100.00 | 100.00 |

| Supervisors and supervisees should be required to sign agreements laying out the expectations and obligations of supervision at the outset | n | raw % | weighted % |
|---|---|---|---|
| Extremely good idea | 756 | 15.79 | 15.70 |

| Supervisors and supervisees should be required to sign agreements laying out the expectations and obligations of supervision at the outset | n | raw % | weighted % |
|---|---|---|---|
| Very good idea | 1215 | 25.38 | 24.96 |
| Good idea | 1449 | 30.26 | 35.49 |
| Neither good nor bad idea | 984 | 20.55 | 16.01 |
| Bad idea | 278 | 5.81 | 6.08 |
| Very bad idea | 46 | 0.96 | 1.00 |
| Extremely bad idea | 60 | 1.25 | 0.76 |
| Total | 4788 | 100.00 | 100.00 |

| An independent body should be in place for supervisees and supervisors to turn to in the event of problems | n | raw % | weighted % |
|---|---|---|---|
| Yes | 1492 | 31.93 | 37.64 |
| No | 1751 | 37.48 | 32.88 |
| Don't know | 1429 | 30.59 | 29.48 |
| Total | 4672 | 100.00 | 100.00 |

| An independent body should be in place for supervisees and supervisors to turn to in the event of problems | n | raw % | weighted % |
|---|---|---|---|
| Extremely good idea | 1218 | 26.11 | 33.08 |
| Very good idea | 1459 | 31.28 | 30.90 |
| Good idea | 1305 | 27.97 | 24.40 |
| Neither good nor bad idea | 565 | 12.11 | 9.16 |
| Bad idea | 78 | 1.67 | 1.45 |
| Very bad idea | 20 | 0.43 | 0.19 |
| Extremely bad idea | 20 | 0.43 | 0.82 |
| Total | 4665 | 100.00 | 100.00 |

| Mandatory training on supervision should be provided to all supervisors. | n | raw % | weighted % |
|---|---|---|---|
| Yes | 1115 | 23.37 | 26.91 |
| No | 2758 | 57.80 | 52.11 |

| Mandatory training on supervision should be provided to all supervisors. | n | raw % | weighted % |
|---|---|---|---|
| Don't know | 899 | 18.84 | 20.98 |
| Total | 4772 | 100.00 | 100.00 |

| Mandatory training on supervision should be provided to all supervisors. | n | raw % | weighted % |
|---|---|---|---|
| Extremely good idea | 1342 | 28.20 | 32.25 |
| Very good idea | 1408 | 29.59 | 25.47 |
| Good idea | 1273 | 26.75 | 26.63 |
| Neither good nor bad idea | 539 | 11.33 | 11.69 |
| Bad idea | 140 | 2.94 | 2.30 |
| Very bad idea | 23 | 0.48 | 0.74 |
| Extremely bad idea | 34 | 0.71 | 0.91 |
| Total | 4759 | 100.00 | 100.00 |

| Organisations should not assess researchers using metrics that emphasise quantity or journal-level impact, such as publication counts, Hindex and Journal Impact Factor | n | raw % | weighted % |
|---|---|---|---|
| Yes | 1441 | 30.68 | 26.57 |
| No | 2300 | 48.97 | 48.36 |
| Don't know | 956 | 20.35 | 25.06 |
| Total | 4697 | 100.00 | 100.00 |

| Organisations should not assess researchers using metrics that emphasise quantity or journal-level impact, such as publication counts, Hindex and Journal Impact Factor | n | raw % | weighted % |
|---|---|---|---|
| Extremely good idea | 721 | 15.39 | 18.46 |
| Very good idea | 843 | 17.99 | 18.87 |
| Good idea | 1001 | 21.37 | 20.80 |
| Neither good nor bad idea | 1180 | 25.19 | 22.73 |
| Bad idea | 671 | 14.32 | 14.24 |
| Very bad idea | 151 | 3.22 | 3.04 |

| Organisations should not assess researchers using metrics that emphasise quantity or journal-level impact, such as publication counts, Hindex and Journal Impact Factor | n | raw % | weighted % |
|---|---|---|---|
| Extremely bad idea | 118 | 2.52 | 1.86 |
| Total | 4685 | 100.00 | 100.00 |

| Good researchers who are not suitable research leaders should be allowed to progress in their career without the need to take on research leader tasks | n | raw % | weighted % |
|---|---|---|---|
| Yes | 1883 | 40.06 | 39.75 |
| No | 1314 | 27.95 | 29.25 |
| Don't know | 1504 | 31.99 | 31.00 |
| Total | 4701 | 100.00 | 100.00 |

| Good researchers who are not suitable research leaders should be allowed to progress in their career without the need to take on research leader tasks | n | raw % | weighted % |
|---|---|---|---|
| Extremely good idea | 818 | 17.49 | 19.81 |
| Very good idea | 1165 | 24.91 | 21.43 |
| Good idea | 1360 | 29.08 | 29.23 |
| Neither good nor bad idea | 868 | 18.56 | 18.18 |
| Bad idea | 340 | 7.27 | 9.10 |
| Very bad idea | 75 | 1.60 | 1.12 |
| Extremely bad idea | 50 | 1.07 | 1.12 |
| Total | 4676 | 100.00 | 100.00 |

| Team leaders (e.g. principal investigators) should be periodically assessed by asking colleagues about their leadership skills | n | raw % | weighted % |
|---|---|---|---|
| Yes | 916 | 19.23 | 20.78 |
| No | 2738 | 57.48 | 57.02 |
| Don't know | 1109 | 23.28 | 22.20 |
| Total | 4763 | 100.00 | 100.00 |

| Team leaders (e.g. principal investigators) should be periodically assessed by asking colleagues about their leadership skills | n | raw % | weighted % |
|---|---|---|---|
| Extremely good idea | 708 | 14.92 | 15.84 |
| Very good idea | 1259 | 26.53 | 25.50 |
| Good idea | 1487 | 31.33 | 32.57 |
| Neither good nor bad idea | 926 | 19.51 | 19.89 |
| Bad idea | 268 | 5.65 | 4.98 |
| Very bad idea | 45 | 0.95 | 0.52 |
| Extremely bad idea | 53 | 1.12 | 0.69 |
| Total | 4746 | 100.00 | 100.00 |

| Organisations should provide researchers with an independent research integrity counselling service that can provide advice on research integrity dilemmas or queries | n | raw % | weighted % |
|---|---|---|---|
| Yes | 897 | 18.83 | 17.26 |
| No | 2090 | 43.88 | 44.23 |
| Don't know | 1776 | 37.29 | 38.51 |
| Total | 4763 | 100.00 | 100.00 |

| Organisations should provide researchers with an independent research integrity counselling service that can provide advice on research integrity dilemmas or queries | n | raw % | weighted % |
|---|---|---|---|
| Extremely good idea | 906 | 19.12 | 21.81 |
| Very good idea | 1488 | 31.40 | 28.73 |
| Good idea | 1636 | 34.52 | 32.14 |
| Neither good nor bad idea | 609 | 12.85 | 14.92 |
| Bad idea | 74 | 1.56 | 1.96 |
| Very bad idea | 9 | 0.19 | 0.09 |
| Extremely bad idea | 17 | 0.36 | 0.34 |
| Total | 4739 | 100.00 | 100.00 |

| Organisations should appoint research integrity ‘champions’ (colleagues who can provide informal advice about day-to-day research integrity questions) within every department or unit of their institution | n | raw % | weighted % |
|---|---|---|---|
| Yes | 514 | 11.00 | 10.84 |
| No | 2980 | 63.77 | 62.42 |
| Don't know | 1179 | 25.23 | 26.74 |
| Total | 4673 | 100.00 | 100.00 |

| Organisations should appoint research integrity ‘champions’ (colleagues who can provide informal advice about day-to-day research integrity questions) within every department or unit of their institution | n | raw % | weighted % |
|---|---|---|---|
| Extremely good idea | 468 | 10.05 | 12.34 |
| Very good idea | 954 | 20.49 | 18.66 |
| Good idea | 1628 | 34.96 | 36.52 |
| Neither good nor bad idea | 1164 | 24.99 | 25.42 |
| Bad idea | 315 | 6.76 | 5.44 |
| Very bad idea | 64 | 1.37 | 0.68 |
| Extremely bad idea | 64 | 1.37 | 0.94 |
| Total | 4657 | 100.00 | 100.00 |

| Organisations should adopt policies on diversity and inclusion for scientific seminars and speaker panels | n | raw % | weighted % |
|---|---|---|---|
| Yes | 1653 | 35.74 | 39.75 |
| No | 1413 | 30.55 | 29.30 |
| Don't know | 1559 | 33.71 | 30.95 |
| Total | 4625 | 100.00 | 100.00 |

| Organisations should adopt policies on diversity and inclusion for scientific seminars and speaker panels | n | raw % | weighted % |
|---|---|---|---|
| Extremely good idea | 1009 | 21.95 | 24.80 |
| Very good idea | 1154 | 25.11 | 21.77 |
| Good idea | 1236 | 26.89 | 25.85 |

| Organisations should adopt policies on diversity and inclusion for scientific seminars and speaker panels | n | raw % | weighted % |
|---|---|---|---|
| Neither good nor bad idea | 777 | 16.91 | 16.49 |
| Bad idea | 237 | 5.16 | 6.85 |
| Very bad idea | 65 | 1.41 | 1.46 |
| Extremely bad idea | 118 | 2.57 | 2.78 |
| Total | 4596 | 100.00 | 100.00 |

| Organisations should monitor and publicly report their commitment, achievements and setbacks in ensuring diversity and inclusion | n | raw % | weighted % |
|---|---|---|---|
| Yes | 1797 | 36.91 | 43.66 |
| No | 1408 | 28.92 | 27.07 |
| Don't know | 1664 | 34.18 | 29.27 |
| Total | 4869 | 100.00 | 100.00 |

| Organisations should monitor and publicly report their commitment, achievements and setbacks in ensuring diversity and inclusion | n | raw % | weighted % |
|---|---|---|---|
| Extremely good idea | 960 | 19.83 | 23.12 |
| Very good idea | 1301 | 26.87 | 24.44 |
| Good idea | 1442 | 29.79 | 29.49 |
| Neither good nor bad idea | 822 | 16.98 | 16.80 |
| Bad idea | 163 | 3.37 | 3.61 |
| Very bad idea | 46 | 0.95 | 0.62 |
| Extremely bad idea | 107 | 2.21 | 1.93 |
| Total | 4841 | 100.00 | 100.00 |

| Researchers should have access to mental health professionals as part of their conditions of employment | n | raw % | weighted % |
|---|---|---|---|
| Yes | 1710 | 36.18 | 41.21 |
| No | 1831 | 38.74 | 32.32 |
| Don't know | 1185 | 25.07 | 26.48 |

| Researchers should have access to mental health professionals as part of their conditions of employment | n | raw % | weighted % |
|---|---|---|---|
| Total | 4726 | 100.00 | 100.00 |

| Researchers should have access to mental health professionals as part of their conditions of employment | n | raw % | weighted % |
|---|---|---|---|
| Extremely good idea | 1348 | 28.61 | 34.92 |
| Very good idea | 1201 | 25.49 | 24.39 |
| Good idea | 1218 | 25.85 | 25.62 |
| Neither good nor bad idea | 774 | 16.43 | 12.52 |
| Bad idea | 108 | 2.29 | 1.94 |
| Very bad idea | 25 | 0.53 | 0.21 |
| Extremely bad idea | 38 | 0.81 | 0.40 |
| Total | 4712 | 100.00 | 100.00 |

| Where an organisation provides a research counselling service, research counsellors should be able to guarantee confidentiality and secrecy to researchers even in cases in which misconduct is being discussed | n | raw % | weighted % |
|---|---|---|---|
| Yes | 973 | 20.60 | 21.69 |
| No | 1047 | 22.16 | 21.97 |
| Don't know | 2704 | 57.24 | 56.34 |
| Total | 4724 | 100.00 | 100.00 |

| Where an organisation provides a research counselling service, research counsellors should be able to guarantee confidentiality and secrecy to researchers even in cases in which misconduct is being discussed | n | raw % | weighted % |
|---|---|---|---|
| Extremely good idea | 1014 | 21.71 | 25.98 |
| Very good idea | 1363 | 29.19 | 27.48 |
| Good idea | 1293 | 27.69 | 28.12 |
| Neither good nor bad idea | 681 | 14.58 | 11.63 |
| Bad idea | 240 | 5.14 | 4.45 |
| Very bad idea | 53 | 1.13 | 1.95 |

| Where an organisation provides a research counselling service, research counsellors should be able to guarantee confidentiality and secrecy to researchers even in cases in which misconduct is being discussed | n | raw % | weighted % |
|---|---|---|---|
| Extremely bad idea | 26 | 0.56 | 0.38 |
| Total | 4670 | 100.00 | 100.00 |

| Organisations should set a maximum number of students a researcher can supervise at once | n | raw % | weighted % |
|---|---|---|---|
| Yes | 1400 | 29.94 | 22.91 |
| No | 2194 | 46.92 | 52.03 |
| Don't know | 1082 | 23.14 | 25.05 |
| Total | 4676 | 100.00 | 100.00 |

| Organisations should set a maximum number of students a researcher can supervise at once | n | raw % | weighted % |
|---|---|---|---|
| Extremely good idea | 1173 | 25.13 | 22.70 |
| Very good idea | 1476 | 31.63 | 27.92 |
| Good idea | 1146 | 24.56 | 24.28 |
| Neither good nor bad idea | 620 | 13.28 | 16.46 |
| Bad idea | 189 | 4.05 | 6.49 |
| Very bad idea | 31 | 0.66 | 0.42 |
| Extremely bad idea | 32 | 0.69 | 1.73 |
| Total | 4667 | 100.00 | 100.00 |

| Organisations should adopt policies on diversity and inclusion for executive boards and university management | n | raw % | weighted % |
|---|---|---|---|
| Yes | 1816 | 38.65 | 47.49 |
| No | 1126 | 23.97 | 18.69 |
| Don't know | 1756 | 37.38 | 33.81 |
| Total | 4698 | 100.00 | 100.00 |

| Organisations should adopt policies on diversity and inclusion for executive boards and university management | n | raw % | weighted % |
|---|---|---|---|
| Extremely good idea | 1124 | 24.08 | 32.11 |
| Very good idea | 1271 | 27.23 | 26.33 |
| Good idea | 1217 | 26.08 | 22.89 |
| Neither good nor bad idea | 736 | 15.77 | 11.71 |
| Bad idea | 176 | 3.77 | 4.65 |
| Very bad idea | 54 | 1.16 | 0.68 |
| Extremely bad idea | 89 | 1.91 | 1.63 |
| Total | 4667 | 100.00 | 100.00 |

| Organisations should ensure that assessment procedures include evaluation from direct colleagues and supervisees as well as from those in a senior position to the member of staff being assessed | n | raw % | weighted % |
|---|---|---|---|
| Yes | 1502 | 32.20 | 35.70 |
| No | 1839 | 39.42 | 37.51 |
| Don't know | 1324 | 28.38 | 26.79 |
| Total | 4665 | 100.00 | 100.00 |

| Organisations should ensure that assessment procedures include evaluation from direct colleagues and supervisees as well as from those in a senior position to the member of staff being assessed | n | raw % | weighted % |
|---|---|---|---|
| Extremely good idea | 514 | 11.10 | 13.95 |
| Very good idea | 1231 | 26.58 | 26.65 |
| Good idea | 1619 | 34.95 | 37.21 |
| Neither good nor bad idea | 926 | 19.99 | 15.74 |
| Bad idea | 231 | 4.99 | 4.29 |
| Very bad idea | 49 | 1.06 | 1.47 |
| Extremely bad idea | 62 | 1.34 | 0.69 |
| Total | 4632 | 100.00 | 100.00 |

| Organisations should actively facilitate peer support groups for researchers at different stages of their career | n | raw % | weighted % |
|---|---|---|---|
| Yes | 1555 | 32.57 | 36.93 |
| No | 2152 | 45.08 | 41.44 |
| Don't know | 1067 | 22.35 | 21.63 |
| Total | 4774 | 100.00 | 100.00 |

| Organisations should actively facilitate peer support groups for researchers at different stages of their career | n | raw % | weighted % |
|---|---|---|---|
| Extremely good idea | 1127 | 23.71 | 24.50 |
| Very good idea | 1758 | 36.98 | 34.63 |
| Good idea | 1392 | 29.28 | 32.15 |
| Neither good nor bad idea | 431 | 9.07 | 7.84 |
| Bad idea | 27 | 0.57 | 0.55 |
| Very bad idea | 7 | 0.15 | 0.04 |
| Extremely bad idea | 12 | 0.25 | 0.28 |
| Total | 4754 | 100.00 | 100.00 |

| Do you think the survey was too short, about right, or too long? | n | raw % | weighted % |
|---|---|---|---|
| Too short | 161 | 0.33 | 0.33 |
| About right | 26648 | 54.00 | 56.19 |
| Too long | 22543 | 45.68 | 43.48 |
| Total | 49352 | 100.00 | 100.00 |

| Did you find it easy or hard to complete the questionnaire? | n | raw % | weighted % |
|---|---|---|---|
| Easy | 20694 | 41.93 | 43.15 |
| Neither easy nor hard | 25041 | 50.74 | 50.34 |
| Hard | 3617 | 7.33 | 6.51 |
| Total | 49352 | 100.00 | 100.00 |

| And, taken as a whole, did you find the survey very interesting, interesting or | n | raw % | weighted % |
|---|---|---|---|
| Very interesting | 7547 | 15.30 | 12.53 |
| Interesting | 36675 | 74.37 | 74.45 |
| Not at all interesting | 5091 | 10.32 | 13.02 |
| Total | 49313 | 100.00 | 100.00 |

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