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The Safety of Scientific Researchers

Data, trends and
a typology of threats



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Short Summary

Exploring threats to the safety of scientific researchers: Prevalence, types and consequences of threats

The erosion of democratic processes, the surge of misinformation and armed conflicts and other challenges have put pressure on the safety of scientific researchers. Survey-based evidence shows that more than one in five scientific researchers working on COVID-19 and about two in five of those in climate research have faced threats to their safety.

Such attacks silence the critical voices of researchers, undermining our societies' ability to produce relevant knowledge, to think critically and to distinguish truth from fallacy.

The Safety of Scientific Researchers explores available data and analyses of threats and challenges to the safety of scientific researchers. It develops a typology of such threats, including physical, economic and psychological as well as online and gender-based threats. The study also highlights the safety of scientific researchers in conflict and emergency situations.

The study underlines the urgency of action as well as the pressing need to increase data collection and analysis. Policymakers, researchers, their institutions and other stakeholders are invited to draw on the findings of this study to inform efforts to strengthen the protection of scientific researchers worldwide.



1 in 2
women researchers have
been victim of sexual
harassment during
their careers.



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"Since wars begin in the minds of men and women it is in the minds of men and women that the defences of peace must be constructed"

The Safety of Scientific Researchers

**Data, trends and
a typology of threats**

Foreword



Our world needs science now more than ever. Challenges such as climate change, the digital transformation, growing inequalities and shifting demographics require responses based on scientific evidence, tapping into the capacity of science to innovate. Scientific inquiry, however, can best flourish in an open and safe science ecosystem; where, in the spirit of the UNESCO Constitution, ideas flow freely, and scientific research is conducted without undue interference. When scientific researchers enjoy intellectual autonomy and safety, the diffusion of science is facilitated, international scientific cooperation enhanced, and ultimately scientific progress is accelerated for the benefit of all humanity. The freedom and safety of scientific researchers is thus as indispensable for scientific advancement and the prosperity of our societies. It compares well with other areas of defense under the mandate of UNESCO, such as press freedom for accountable and democratic institutions, and artistic freedom for cultural life.

Available data, notwithstanding their limitations, point to worrying trends impacting negatively scientific freedom. The polarization of our societies, the erosion of democratic processes, the surge of populism and misinformation, and armed conflicts have increased pressure on the safety of scientific researchers. In 2023, [Scholars at Risk](#) recorded a total of 409 attacks on higher education communities in 66 countries and territories – a figure higher than in 2021 and 2022. Surveys from [UniSAFE](#) and [IPSOS/L'Oréal](#) reveal a rising hostility towards female researchers in the real and digital worlds, while a study by [Global Witness](#) brings to the fore threats faced by researchers working on climate change.

In an environment where the critical voices of scientific researchers are under threat, our societies' ability to produce and share relevant and unbiased knowledge and information, to think critically

and to distinguish fake from real is undermined. It also undermines trust, the glue that brings us together, and trust in science. The effects are deep, as rebuilding science capital when it is devaluated, depreciated, or worse, destroyed is a long and demanding process.

If scientific researchers are to fulfil their role, we must make their freedom and safety a priority. This requires deliberate efforts at the national level but also strengthened international cooperation. UNESCO has the standards and the platform to support these efforts. [Its 2017 Recommendation on Science and Scientific Researchers](#) (hereafter “the 2017 Recommendation”) provides a comprehensive vision of science, anchored in human rights and notably the right to share in scientific advancement and its benefits. The [ten key areas](#) of the 2017 Recommendation set principles and norms that cover the entire science cycle. In particular, the Recommendation promotes the role of science in problem-solving towards more just and inclusive societies, the science-policy-society interface and notably the nexus between scientific evidence and decision-making, science as a common good and the creation of an enabling environment for scientific researchers to carry out their work safely, ethically and responsibly.

The new [UNESCO Programme on the Freedom and Safety of Scientists](#), approved by Member States at the General Conference in November 2023, offers a unique space for scaling up international cooperation towards effective action on the ground. It responds to [the call of Member States](#) for a more rigorous implementation of the 2017 Recommendation and builds on the findings of an inclusive dialogue process, involving policymakers and experts, co-organized by UNESCO and the Kingdom of the Netherlands. The Programme will identify challenges and propose solutions to address

them. For instance, the organization of Policy Dialogues will help document countries' needs and priorities and then develop concrete policy and operational guidance—for example on good practice for comprehensive policy frameworks that foster open and safe science ecosystems, organization of research funding, including through investment in independent scientific endeavours, to avoid biases, or the protection of scientists in instances of conflict and emergencies, etc. Data collection and analysis will put the spotlight on emerging trends (including the prevalence of gender-based threats or those targeting youth and early-career researchers) to better inform policymaking. Advocacy and awareness-raising will mobilize action to cope with growing challenges, such as online harassment, etc.

Through a careful assessment of available data and the identification of a typology of threats and interferences faced by scientific researchers, the current study provides an important analytical foundation for the Programme. We are deeply grateful to the authors, Prof. Janneke Gerards (Utrecht University) and Niels Schattevoet (UNESCO) for their sharp pen and dedication. We are convinced that the study's findings will trigger further dialogue and reflection but also prompt others, whether Member States, intergovernmental organizations and scientific institutions, to join our cause and make our actions more relevant and impactful.

Gabriela Ramos

Assistant Director-General
for Social and Human Sciences
UNESCO

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Executive Summary

In today's increasingly complex and interconnected world, science has become indispensable for sustaining and improving our ways and standards of living. It drives our economies and powers our lives. Scientific research develops models, hypotheses and concepts that deepen our understanding of ourselves, our relationships, and our societies. We rely on the fruits of science daily – from the latest cutting-edge healthcare innovation or clean transport infrastructure enabling us to travel in a safe and sustainable manner to the latest digital technologies allowing us to connect with friends and family worldwide and work together effectively. Moreover, science is of vital importance in facing existing and future crises related to climate change, natural disasters, growing inequalities, migration patterns and shifting demographics. Such challenges require innovative solutions, and these are often produced by scientific researchers.

As recognised in UNESCO's 2017 Recommendation on Science and Scientific Researchers, science can best flourish in an ecosystem that encourages the exchange and free flow of ideas and that is open and safe for the researchers working in it. In this respect, scientific freedom can be understood as a positive freedom, that is, 'the freedom to' engage in scientific inquiry, pursue knowledge, develop new insights and ideas and communicate openly about findings and ideas. The safety of scientific researchers is an indispensable precondition for exercising this freedom. It essentially means that researchers should be able to conduct their research in a safe and secure environment and should feel free to engage in exploration and dissemination, without fear for any form of repercussions resulting from their choice of topic, their research activities or the fruits of their work (in terms of publications, outreach, or teaching). In that sense, the safety of scientific researchers can be seen as a negative freedom, that is, a 'freedom from' threats to researchers' individual health and safety. The safety of scientific researchers thus forms a fundamental pillar of scientific freedom and a prerequisite for an enabling environment for innovative and impactful science.

Aims of this Study

Over the past years, many important studies have been conducted regarding the safety of scientific researchers. This study aims to bring the findings of these studies and reports together to identify what knowledge, data and analyses are currently available on threats to the safety of scientific researchers. The study thus offers a baseline on which future data collection efforts can build. In addition to this, it provides a first typology of the safety of scientific researchers, based on the types of risks they may face in their work. The study identifies several types or categories of threats and risks to the safety of scientists. Finally, it outlines the urgent need for action to strengthen the freedom and safety of scientific researchers, based on the collected data and the typology.

Trends on the Safety of Scientists and the Need for Systematic Data Collection

Available data are patchy but reports and studies consistently show that the safety of scientific researchers is under threat. The annual Scholars at Risk Network's *Free to Think* monitoring reports show an increasing number of different types of physical attacks on higher education communities as well as many more indirect interferences with researchers' work. A variety of worldwide surveys demonstrate that researchers working in (politically) controversial or sensitive fields, such as COVID-19, climate research and gender and sexual and reproductive rights, experience significant harassment or abuse. Such attacks have been shown to have considerable psychological consequences and 'chilling' effects, such as a decrease in researchers' willingness to share their views. The reports further show that female researchers face specific risks. Both a UniSAFE survey (2022) and an IPSOS/L'Oréal study show that female researchers often report having been victim of one or multiple forms of gender-based harassment or violence. Researchers from minority ethnic backgrounds or with disabilities are particularly vulnerable in this regard and a strong intersectional link is suggested between young and early career researchers and (fears of) sexual harassment.

The gravity of these key figures and trends underlines the need to obtain a full overview of the phenomenon in all its different forms and levels of severity. Current data collection is non-comprehensive and often non-representative, for instance because the studies have a strong regional focus or target higher education communities rather than the broader scientific community. Furthermore, studies tend to focus on physical threats and attacks, leaving risks originating from within research institutions or universities (such as loss of career opportunities or pressure on the mental health and wellbeing of researchers) out of consideration. It is necessary to increase and improve data collection to fill these gaps. In this respect, efforts can be made under UNESCO's Programme for the Freedom and Safety of Scientists to enable the identification of a wide array of safety threats and risks. Preferably, efforts should allow for explanatory factors to be studied (such as personal or group characteristics, the field of research and the type of research(-related) activities), as well as for a study on impacts (e.g. physical, mental, employment-related or economic).

Typology of Threats to the Safety of Scientific Researchers

The available research into safety of scientific researchers shows that there are different types of threats, each with different dynamics, causes, impact and perpetrators. Next to (threats of) physical violence, the safety of scientific researchers refers to the need to remain free from (threats of) psychological, economic, social and sexual violence and harassment. Such attacks and the use of various forms of violence can be 'real', in the sense that the life or integrity of a scientific researcher may actually and concretely be under threat, but they may also exist mainly in the perception of scientific researchers. Such perceived threats to safety can be just as problematic from a perspective of academic freedom as actual threats or attacks since they may force a researcher into self-censorship. A further distinction can be made between 'external' threats to safety (threats by the outside world such as governmental actors or private individuals) and 'internal' threats (threats to safety that stem from the academic or institutional environment a scientific researcher is working in). Similarly, safety threats caused by non-State actors (for instance prosecution or withdrawal of research funding) can be distinguished from threats caused by non-State actors (for instance death threats on social media or attacks by fundamentalist groups).

Moreover, specific ways and contexts can be identified in which the safety of scientific researchers is particularly under threat. External threats to safety of scientists have changed in nature and may be exacerbated because of social media and other online platforms, for example. A researcher's particular identity, gender or belonging to minority groups, may increase the risk of threats. Field work and situations of emergency and armed conflict, finally, may also present scientific researchers with specific risks and threats that require specific attention.

An Urgent Need for Action

The various available reports show that threats to the safety of scientific researchers have many consequences, which are not limited to their individual well-being, but have much wider impact. Attacks, harassment, or violence (be it real or perceived threats) may affect the performance and productivity of scientific researchers and may even lead them to abandon their research activities. Researchers may be or feel forced to change their focus or adapt their research questions, approaches or methods, or they may not dare to publish and disseminate their results. Such *brain drag* can threaten the objectivity and quality of scientific research and seriously affects the freedom of science. Moreover, threats to scientific researchers' safety and freedom may hinder their ability to participate in conferences, workshops, or collaborative projects, limiting the crucial exchange of insights and critique within the scientific community and the potential for cross-disciplinary collaboration. In addition to this, it is likely that specific groups are more prone to falling victim to threats to their safety than others. This hampers the openness, diversity, and inclusivity of scientific endeavours, which, in turn, may have negative repercussions on its quality. Finally, when their safety, freedom or livelihood cannot be guaranteed in their work environments, scientific researchers may be inclined to settle in another country – leading to an exodus of scientific talent and resourcefulness, harming a country's developmental potential (*brain drain*). To ensure that science's indispensable functions in our societies can be fulfilled, it is therefore essential and urgent to take action to protect the safety of scientific researchers.



INTRODUCTION

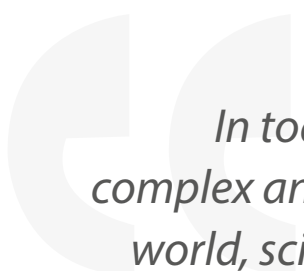
In today's increasingly complex and interconnected world, science has become indispensable for sustaining our ways and standards of living. It enriches our human cultures, drives our economies and powers our lives. Science shapes the quality of our daily lives – from the latest cutting-edge healthcare innovation, clean transport infrastructure enabling us to travel to work in a safe and sustainable way, to the latest digital technologies allowing us to connect with friends and family worldwide and work together effectively. Technological progress, driven by scientific exploration and discovery, for the more sustainable and efficient production of goods and services which, in the end, is what underpins our economies. **As estimated by the IMF in 2021, a ten-percent permanent increase in the stock of basic research of a country can increase its productivity by 0.3 percent.**

As recognized in UNESCO's 2017 Recommendation on Science and Scientific Researchers, science can best flourish in an ecosystem that encourages the exchange and free flow of ideas and that is open and safe for the researchers working in it. **The safety of scientific researchers is essential to scientific research and scientific progress.**

UNESCO's [Programme on the Freedom and Safety of Scientists](#) adopted during the 42nd General Conference in November 2023 in Paris, promotes scientific freedom and works to strengthen the freedom and safety of scientific researchers. To support the further development of this programme, it is important to have a clear picture of the scope and urgency of this problem.

This study unites the insights, input, data and analysis collected since June 2023 in the context of UNESCO's initiative to promote scientific freedom and strengthen the safety of scientists.

It investigates this issue on the basis of relevant reports, academic articles, various policy meetings and two scientific dialogues organized during this period. Next to bringing the available data and insights together, it provides a first typology of the safety of scientific researchers, based on the types of risks scientific researchers may face in their work. In doing so, this study aims to create a baseline, a point of departure from where gaps in our knowledge and understanding of the risks and threats scientific researchers face can be identified. Furthermore, this study intends to identify starting points for action. The data and analysis provided may further inform our collective thinking about possible policy recommendations that can contribute to the better protection of scientific researchers worldwide.



In today's increasingly complex and interconnected world, science has become indispensable for sustaining our ways and standards of living. The safety of scientific researchers is essential to scientific research and scientific progress.

Box: *UNESCO's work to protect journalists, artists and scientists*

The human right of freedom of opinion and expression (Article 19 of the Universal Declaration of Human Rights) together with the human right to science (Article 27 of the Universal Declaration) are the foundation of the protection and promotion of science and scientific researchers. These efforts also build on the Constitution of UNESCO which calls for the promotion of the free flow of ideas. Part of UNESCO's mandate is the protection of freedom of expression – of journalists, artists but also of scientific researchers – which is increasingly under attack. In 2021, as documented by UNESCO's [Creative Voices report](#), 1,200 attacks were perpetrated against artists worldwide, with 39 of them losing their lives. In 2023 alone, as recorded in UNESCO's Global [Observatory of Killed Journalists](#), 71 journalists have been killed simply for doing their work.

For over ten years, UNESCO has led the United Nations [Plan of Action](#) on the Safety of Journalists and the Issue of Impunity, by monitoring and denouncing journalist killings, by helping to develop national and international protection standards, by training the judicial actors responsible for enforcing them, and by providing operational support to journalists in the field.

UNESCO is currently in the process of further upscaling its efforts for the protection of artists and scientific researchers, which can be modelled after the Organization's successful work on press freedom and the safety of journalists. The Critical Voices project launched by Denmark calls for a comprehensive approach to the protection and strengthening of all voices critical for our societies, bringing together journalists, artists and scientific researchers.

1.1 SET-UP AND METHODOLOGY

This study references and analyzes various public and governmental reports as well as academic studies into the forms and types of (threats to) safety and specifically to the safety of scientific researchers. In addition, it makes use of the findings of two 'Science Dialogues' and one 'Policy Dialogue' that have been conducted in 2023, as part of a

process towards the establishment of a UNESCO programme on the promotion of scientific freedom and the safety of scientific researchers.

The first Chapter clarifies the global context in which the topic of safety of scientists has become so urgent. This topic is placed in the wider context of work already done in relation to the notions of academic freedom and scientific freedom. To the extent useful for the current study, these notions are further defined and the specific topic of safety of scientific researchers is conceptualized.

Chapter 2 offers an inventory of the current knowledge about threats to the safety of scientific researchers by summarizing 14 reports and studies related to the topic of the safety of scientists and researchers. These studies have been selected for this study based on an extensive internet research, combined with information available within UNESCO about existing initiatives and research conducted into the safety of scientists.¹ The nature of the data (quantitative or qualitative) varies per study reviewed. For each report or study the reader can expect information about: 1) the context, scope and methodology of the report, and 2) a summary of the results that are relevant for the scope of this study. The main findings of each report and study have been studied inductively to distinguish:

- the typology of threats reported
- the regions/countries in which these threats have been reported
- whether particular groups of researchers or particular types of scientific research were targeted
- any information about the frequency and prevalence of certain threats
- whether any other particularities concerning the safety of scientific researchers were mentioned.

Chapter 3 provides a cross-cutting analysis of the studies addressed in Chapter 2 and offers a framework that can be used to distinguish different types of threats. The first part of this chapter is dedicated to defining the concepts of 'safety', 'violence' and 'threats'. Next, threats are distinguished according to their type, the context in which they occur, the characteristics of the threatened victim and the nature of the perpetrator.

¹ It should be noted, however, that certain studies, initiatives and reports might have been unavailable to the authors or could not be traced due to language restrictions.



Finally, Chapter 4 brings the findings of Chapters 2 and 3 together. Based on the collected data, the typology of threats and the identified threats, it highlights the urgent need for action to strengthen the freedom and safety of scientific researchers. In addition, this chapter outlines some initial policy recommendations.

1.2 EXISTING WORK ON PRESSURE ON ACADEMIC AND SCIENTIFIC FREEDOM

1.2.1 Understanding scientific and academic freedom

To allow for a proper analysis of data related to the safety of scientific researchers, it is important to place the safety of scientific researchers in its wider context, that of academic and scientific freedom. The terms *freedom of science* and *academic freedom* are often used as synonyms, and they are strongly overlapping notions. Both notions encompass a range of liberties, such as, in the words of the UN Committee on Economic, Social and Cultural Rights, the freedom to “pursue, develop and transmit knowledge and ideas” (E/C.12/1999/10: para. 3).

Nevertheless, the two freedoms are different in their scope.

Of origin, **academic freedom** is a 19th century German concept that relates to the teaching freedom of university professors (*‘Lehrfreiheit’*, which was closely related to their freedom of expression) as well as to the learning freedom of students (*‘Lernfreiheit’*, which entailed, for example, their freedom to choose certain subjects) (Metzger 1978: 95). Academic freedom was – and still is – specifically connected to the institutional contexts of universities and similar institutions of higher education and their activities. Consequently, it applies to all those affiliated to a university, including the faculty members who do not engage in research activities themselves and students (Kaye 2020: para. 8). Because of the interrelation of academic freedom and higher education institutions, it can be understood that this freedom also includes institutional protections such as autonomy and self-governance (Kaye 2020, para. 9).

Most often, **scientific freedom** or **freedom of science** is defined as the right to engage in scientific enquiry, to pursue and communicate knowledge, and to associate freely in such activities (e.g. the definitions by the [International Science Council](#)

and in the 2020 [Bonn Declaration on Freedom of Scientific Research](#)). Unlike academic freedom, scientific freedom does not concentrate on an institution or the activities of teaching or learning but focuses on the activity of conducting scientific research (Metzger 1978: 107). Consequently, it also covers scientific work done outside the context of universities, for example in research institutes or the business sector (see also the [Recommendation on Science and Scientific Researchers](#): para. 2(a)). Scientific freedom does not encompass the rights and freedoms of students (Groen 2017: 56).

1.2.2 Pressure on the freedom of science and academic freedom

Existing research and analyses show that both academic and scientific research are under pressure worldwide. As noted in the report on the right to participate in science by Alexandra Xanthaki, the Special Rapporteur in the field of cultural rights, “attacks against scientific and academic freedoms are numerous across the world, with a chilling effect on the broad academic and scientific community” (A/HRC/55/44, para 71). With [global freedom declining for the seventeenth consecutive year](#), conflicts and inequities, political tension, [contentious climate politics](#) and global illiberalism have been shown “to threaten scientific freedom, both on an individual level and for the wider scientific community” (ISC Discussion Study). The number of cases in which political actors – whether private actors, interest groups or governments – interfere with “academic leadership and with national scientific governance [is] growing” (ibid.). Such external interference “can undermine the autonomy of scientific organizations to establish independent leadership, and significantly curtail the freedom of scientists to determine rigorous research agendas” (ibid.). The Academic Freedom Index of 2020 identified the following threats as the most alarming:

- Increased opportunities for the surveillance of research, teaching and discourse
- Increasing pressure for scientific enquiry and teaching to align with political agendas
- Sanctions, restrictions and online harassment

The Index identifies a strong divergence between *de jure* and *de facto* protection of academic freedom. Whereas 94 percent of the global population live in countries with legal pledges to respect academic freedom, only 20 percent of countries appear to respect academic freedom in practice ([Academic](#)

[Freedom Index](#) of 2022). A comparative analysis of the dataset on constitutional guarantees of academic freedom by the Comparative Constitutions Project (CCP) and the Index, shows that “close to one-third of the countries with the worst recent performances on academic freedom have constitutional protections for academic freedom in place” ([EPRS Report](#): 9; Spannagel 2020: 215). Having been “bastions of academic freedom and scientific excellence” for decades, “the decline in academic freedom also appears to have accelerated in Western Europe and North America” (ibid.).

Notably, some have argued that this lack of practical recognition and protection of academic and scientific freedom has resulted in an escalating “anti-science movement” (Hotez, in the [Scientific American](#)). According to vaccine scientist Hotez, anti-science can be understood as “the rejection of mainstream scientific views and methods or their replacement with unproven or deliberately misleading theories, often for nefarious and political gains. It targets prominent scientists and attempts to discredit them.” (ibid.).

The developments in the wider context in which scientific researchers do their work have also been shown to negatively affect the safety of scientific researchers (A/HRC/55/44, para 71). As Hotez has stated, anti-science often “targets prominent scientists and attempts to discredit them” (ibid.). Moreover, although the public maintains high levels of trust in science, “scientists continue to be confronted by critical, distrustful or sometimes openly hostile movements that question their methods, modes of reasoning and even integrity” (ISC Discussion Study: 14). Particularly scientific researchers who engage in the public debate, are increasingly targeted by both individuals and organised groups (ibid.). Rapid technological developments, such as artificial intelligence, big data, robotics and the ever-growing use of social media, “help to expose and confront such threats by making science more accessible, but also raise new challenges of their own” (ISC Discussion Study: 3-4). Whilst the Internet and social media enable researchers to engage directly with questions and concerns about their research and to refute misinformation with scientific evidence, these mediums can also be used to spread mis- and disinformation and make it easier to threaten members of the global scientific community (ibid.: 12). **Scientific researchers must often deal with the consequences of existing anti-science sentiments and suffer from a lack of protection of scientific freedom.**

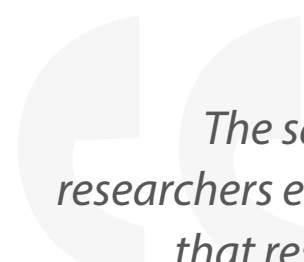
1.3 CONCEPTUALIZING THE SAFETY OF SCIENTISTS AS A FUNDAMENTAL PILLAR OF SCIENTIFIC FREEDOM

For the purposes of the present study, ‘scientific researchers’ are defined as “those persons responsible for and engaged in [scientific] research and development.” This is consistent with Article 1 of the 2017 Recommendation on Science and Scientific Researchers. Scientific research – comprising basic as well as applied research and social as well as natural sciences – is understood in a broad sense. In line with the Recommendation, it comprises “the enterprise whereby humankind, acting individually or in small or large groups, makes an organized attempt, by means of the objective study of observed phenomena and its validation through sharing of findings and data and through peer review, to discover and master the chain of causalities, relations or interactions.” This enterprise is not limited to academics and scholars in universities and other academic institutions. The definition also includes scientific researchers in government research agencies as well as researchers affiliated to medical institutes, healthcare, energy or pharmaceutical companies, firms in the private sector and non-profit organizations. Likewise, independent and self-employed researchers or researchers working on a freelance basis are covered by this definition. Consequently, it is not the type of work relationship or function that defines someone as a ‘scientific researcher’, but the activities persons engage in, as defined in the Recommendation.

Conceptually as well as in practice, the safety of scientific researchers is closely connected to the notion of scientific freedom. As recognised in the Recommendation, **science can best flourish in an ecosystem that encourages the exchange and free flow of ideas and that is open and safe for the researchers working in it.** In this respect, scientific freedom can be understood as a positive freedom, that is ‘the freedom to’ “engage in scientific inquiry, pursue and apply knowledge, and communicate openly” (as defined by the American Association for the Advancement of Science (AAAS) in [Science](#); see also Section 1.2.1). The safety of scientific researchers, on the other hand, concerns the working conditions, health, and security of individual scientific researchers to engage in the enterprise as defined earlier.

In that sense, **the safety of scientific researchers can be seen as a negative freedom, that is a ‘freedom from’ threats to their individual health and safety.**

Hence, the safety of scientific researchers essentially means that researchers should be able to conduct their research in a safe and secure environment for exploration and dissemination, without fear for any form of repercussions resulting from their choice of topic, their research activities, or the fruits of their work (in terms of publications, outreach or teaching).



The safety of scientific researchers essentially means that researchers should be able to conduct their research in a safe and secure environment for exploration and dissemination, without fear for any form of repercussions resulting from their choice of topic, their research activities, or the fruits of their work (in terms of publications, outreach or teaching).



The State of Play
of Research on the
**Safety of
Scientific
Researchers
Worldwide**



The safety of scientific researchers is under pressure. Scientific researchers are increasingly facing threats or feel direct repercussions to their work.

2.1 INTRODUCTION

It is very clear that the safety of scientific researchers is under pressure. Scientific researchers are increasingly facing threats or feel direct repercussions to their work. Although much work has been done to collect data in this field, a systematic overview of the outcomes of the various studies conducted is missing thus far. This chapter presents an inventory of the current knowledge about threats to safety of scientific researchers. It brings together the quantitative and qualitative data that have been collected over the past few years. The aim is to provide a basis for identifying the need for and shape of further policy measures in the field.

Due to the interconnected nature of scientific freedom, academic freedom and safety of scientific researchers, this study includes an inventory of studies regarding scientific and academic freedom to the extent they relate to the safety of scientific researchers.

Although threats to students have the potential to harm the entire knowledge community, this report focuses on threats to researchers only. However, this study also includes studies that **concern the safety of students at universities or research institutes** where they are deemed relevant to the safety of scientific researchers.

The various (potentially) relevant studies, initiatives and reports are discussed, while noting their particular focus and limitations.² Wherever available, recent findings related to the safety of scientific researchers are presented. Section 2.2 presents data on the safety of scientific researchers in monitoring reports on academic and scientific freedom. Subsequently, Section 2.3 discusses several international and regional reports and studies on the safety of scientific researchers specifically, whereas Section 2.4 mentions a few examples of reports containing data on the national level. Section 2.5 concludes by identifying blind spots in existing studies that need to be filled to allow for a comprehensive approach to safeguard the safety of scientific researchers.

² For a brief sketch of the methods used for this inventory, see Section 1.1.

2.2 THE SAFETY OF SCIENTIFIC RESEARCHERS IN REPORTS ON SCIENTIFIC AND ACADEMIC FREEDOM

2.2.1 Academic freedom index

The Academic Freedom Index (hereafter: AFI or Index) offers indicators of the state of academic freedom worldwide. It provides data for the period from 1900 to 2022. The Academic Freedom Index is based on over two thousand assessments by country experts, which are aggregated through a statistical model that is part of the larger *V-Dem Democracy* dataset. AFI provides comparable data for each country over time and on a global scale (Spannagel and Kinzelbach 2022).

The [Index](#) is composed of the following five indicators:

1. Freedom to research and teach
"To what extent are scholars free to develop and pursue their own research and teaching agendas without interference?"
2. Freedom of academic exchange and dissemination
"To what extent are scholars free to exchange and communicate research ideas and findings?"
3. Institutional autonomy
"To what extent do universities exercise institutional autonomy in practice?"
4. Campus integrity
"To what extent are campuses free from politically motivated surveillance or security infringements?"
5. Freedom of academic and cultural expression
"Is there academic freedom and freedom of cultural expression related to political issues?"

The Index thus does not include an indicator that specifically covers the working conditions or freedom and safety of scientific researchers. Arguably, however, individual researchers' safety is covered indirectly or implicitly by multiple indicators. After all, for researchers to be able to freely develop and pursue their own research and teaching agendas (*Indicator 1*) and to exchange and

communicate their ideas and findings (*Indicator 2*), their freedom and safety need to be safeguarded. The same goes for the last indicator (*Indicator 5*), which addresses academic freedom and freedom of cultural expression related to political issues and thus relates to the freedom of researchers (and students) to be critical of the state of affairs in a country. However, despite this indirect coverage of individual researchers' working conditions by the Index's indicators, the value of the Index in furthering an understanding of issues of freedom and safety has limitations, since the Index cannot provide specific statistics or data. For that reason, it is not possible to report any specific data or findings that are of direct relevance to the present study.

2.2.2 European Parliament report 'State of play of academic freedom in the EU Member States'

The European Parliament's 2023 [State of Play of Academic Freedom in the EU Member States](#) (hereafter: EPRS Report) aims to "contribute to a discussion on the interpretation of the existing data on the EU Member States, and to the development of an adequate methodology for the EP STOA Panel [the European Parliament's Panel for the Future of Science and Technology] Academic Freedom Monitor" (EPRS Report: 15).

Context, scope and methodology

The EPRS Report is qualitative in nature. The report addresses both internal and external threats to the safety of scientific researchers. The EPRS Report addresses the 'academic labour conditions' of each EU Member State. This is defined as:

"The extent to which the labour conditions of academic staff provide the conditions under which all members of the academic community can exercise their academic freedom without fear of losing their job (tenured staff), of their contract not being renewed, or of access to a tenured position being jeopardised (non-tenured staff)" (EPRS Report: 14).

This indicator is relevant to the safety of scientific researchers, insofar as protection from threats and

bullying can be seen as a basic labour condition that should be adhered to. However, it is important to note that the definition of academic working conditions that is used in the report is limited to what can be termed ‘internal’ threats to the safety of scientific researchers (that is, risks that come from inside an organization such as a university or research institute) and does not cover ‘external’ threats (that is, threats that come from private parties, organizations, groups or government bodies outside the organization where the researchers are employed).

Relevant findings and conclusions

The report contains several relevant qualitative findings concerning academic labour conditions. It states that there are worries in several EU Member States concerning “amongst other things, the extent to which temporary staff at universities can criticise their leadership without having to fear for their chances of getting a tenured position, or for their academic career” (EPRS Report: 174). Another internal type of threat mentioned is the **risk of “idea and research results theft”**, which is “argued to consist of older researchers (incl. supervisors) taking credit for work carried out by younger colleagues including PhD students” (EPRS Report: 60). For example, a researcher was dismissed possibly because of criticism on management (ibid.). This threat is widespread. Another threat to the freedom and safety of researchers mentioned is **academic bullying**. For example, an employee’s contract was unduly terminated after they characterised “the work environment by bullying” (ibid.: 119).

The report also mentions some external threats scientific researchers in the EU Member States have faced. In Sweden, **a COVID-19 researcher was bullied into silence** (EPRS Report: 168). This case is seen “as part of a more general trend in which the scientific work of academics in some fields and their participation in public debates comes at the cost of threats, intimidation and harassment especially through social media” (ibid.). As a good practice, but one that is indicative of the existence of external threats, the EPRS Report points at a guide for academics concerning how to deal with threats and harassment that has been published by the association of Dutch universities (*Universiteiten van Nederland*) in 2021 (EPRS Report: 129) and the launch, also in the Netherlands, of a national SafeScience [platform](#) launched in November 2022. This platform is accessible 24 hours a day and is “supporting Dutch academics who are threatened,

intimidated, or harassed in relation to their academic work, to find the right support. In addition, the SafeScience platform provides relevant information about what staff, university leaders and managers, and the institutions can do to prevent or respond to threats and intimidation.” (EPRS Report: 129, 130). As was also mentioned in the report, these initiatives mainly resulted from “threats and harassment from societal actors especially through social media on scientists involved in the development and implementation of Covid-19 measures” (EPRS Report: 130, 132).

2.2.3 UNESCO publication ‘African perspectives on scientific freedom’

In Spring 2024, UNESCO releases a report entitled *African Perspectives on Scientific Freedom* as part of the project *Strengthening STI Systems for Sustainable Development in Africa* piloted in six countries: the Republic of Congo, Ghana, Namibia, Sierra Leone, Tanzania, and Zimbabwe.

Context, scope and methodology

The study finds, inter alia, that national constitutions in these countries protect a range of general human rights and freedoms, such as the freedom of expression and information, but are often silent or implicit on scientific freedom. Perceived challenges to scientific freedom more generally include inequitable access to and allocation of resources, cultural norms, limited opportunities for meaningful collaborations, regulatory or bureaucratic procedures, or even political pressure which in some cases leads to self-censorship.

Relevant findings and conclusions

Although issues of safety are less central in this publication, the study does point to issues that are highly relevant in the context of the safety of scientific researchers, such as self-censorship and protection from discrimination. The study recognises the importance of ensuring a context-sensitive approach to issues surrounding threats to the safety of scientific researchers. It is also found that future data collection and monitoring mechanisms need to be adapted to the different features of science and research ecosystems all around the world.

2.3 REPORTS AND DATA ON THE GLOBAL SITUATION OF THE SAFETY OF SCIENTIFIC RESEARCHERS TODAY

This section offers an overview of relevant reports that illuminate the state of play of the freedom, safety and working conditions of scientific researchers in the world of today.

2.3.1 *Scholars at Risk 2023 Free to Think* report

The yearly *Free to Think* reports produced by the Scholars at Risk (SAR) network identify how academic freedom is threatened by attacks on and threats to the safety of academics, students, and their institutions. The SAR network consists of a large number of universities worldwide and is involved in supporting threatened scholars and practitioners, in investigating and speaking out against attacks on higher education communities, and in empowering scholars and students to think and speak freely.

Context scope and methodology

SAR publishes its *Free to Think* reports each year as part of its Academic Freedom Monitoring Project, which is based on reports received by SAR from individual victims, connected institutions and organizations, and other stakeholders. Importantly, as SAR notes in its yearly reports, the method of self-reporting means that several challenges exist. It is not always possible for SAR to verify all reports, the reported attacks vary in scope, nature, and complexity, and there may be severe underreporting due to fear among scientific researchers. This makes it impossible for the *Free to Think* reports to offer a comprehensive account. Instead, SAR's objective is to identify trends, recurring themes and common factors (SAR 2023).

The “attacks” identified by SAR have been given a specific definition: “threats or deliberate use of violent or coercive force or restrictions against higher education institutions and their members, including leadership, administrators, academic and other staff, and students” (SAR 2023). The definition is not limited to external attacks, “limitations on academic travel [or] loss of professional or academic standing” are also regarded as attacks, as well as “threats of harm that undermine [...] academic freedom” (ibid.). To qualify as an “attack”, “violent, coercive, or restrictive dimensions” have to be

present (ibid.). The various attacks are distinguished in six categories:

- killings, violence, and disappearances;
- wrongful imprisonment;
- wrongful prosecution;
- loss of position and expulsion from study;
- improper travel restrictions;
- other severe or systemic issues.

The 2023 edition of *Free to Think* also includes a new section on “executive, legislative, and other policy-related changes intended to restrict access to higher education, free expression on campus, or the autonomy of higher education institutions.”

For the purposes of the present report, it is important to note that SAR does not only include reports concerning attacks on scientific researchers (which is the focus of the present study, as explained in Section 1.2), but also attacks on students and other members of academic communities (such as administrators or managers) as well as on institutions of higher education as such.

Relevant findings and conclusions

Keeping this in mind, it can be noted that between January 2011 (the year of inception of the Monitoring Project) and June 2021 **Scholars at Risk identified 2,150 attacks on higher education communities.** In 2023, 409 reports of attacks on scholars, students and their institutions have been recorded, spread over 66 countries and territories.³ This represented a steady increase compared to 2022 (391 attacks) and 2021 (332 attacks). To give some insight in the trends identified by SAR in the *Free to Think* reports, the main findings of the 2023 report have been summarized in the following section.

Killings, violence and disappearances

Between 2011 and 2021, a total of 956 violent attacks have been recorded – one third of all attacks documented by SAR: “Violent attacks on scholars, students, staff and their institutions are one of the most serious threats to the higher education sector” (SAR 2023). In the past three editions of *Free to Think*, killings, violence and disappearances were among the most prominent categories of attacks in terms

³ This time period represents a shift from previous reporting periods. As a result, this edition overlaps with *Free to Think* 2022, which covered September 1, 2021, to August 31, 2022. No reflection is offered by SAR if and if so, in what way this shift in reporting period might affect the report's outcomes.

of both frequency and impact. In the monitoring period covered by the 2023 report, 161 attacks of this nature have been identified. They “result in loss of lives and injuries to many, compromise the safety of entire campuses, and incite fear” and, as such, “threaten the functioning of the higher education space” (SAR 2023).



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According to the 2023 SAR Report, (threats of) killings, violence and disappearance can be motivated by the desire for “retaliation for particular academic content or conduct, or the targeting of higher education communities” for political or ideological reasons. To give some examples, this category includes terrorist attacks and attacks that occur in the context of war and armed conflict, where institutions may be “targeted as proxies for a particular State or Non-State authority” (SAR 2023). The attacks under this category may also be “opportunistic acts aimed at taking advantage of university and college campuses and facilities as places where groups of people gather” (ibid.). They include attacks with less apparent connections to the safety of individual researchers, such as more indiscriminate terrorist attacks and bombings. Hence, the 161 violent attacks mentioned in the SAR 2023 report cannot be interpreted as 161 attacks on individual scientific researchers.

However, in 2023, there were also various reported instances of “threatened and actual targeted killings, including those apparently aiming to silence particular individuals because of the content of their research, teaching, writing, or public expression, or simply for their identity as scholars or students.” Similarly, several cases of armed abductions have been recorded of both researchers – while performing field research (on politically sensitive issues, such as human rights and power abuse) for instance – and students alike. SAR notes that such attacks and threats often appear to be politically or ideologically driven, for instance because attackers acted upon conspiracy theories, aimed to eliminate

actors that fight corruption within universities or other institutions or were frustrated with teaching and research of specific subjects (e.g. gender issues or religious subcultures).

Wrongful imprisonment and prosecution

The 2023 *Freedom to Think* report states that State authorities and armed groups may attempt to silence scholars and students who bring attention to important and often sensitive issues. Such attempts often entail coercive legal measures, which can include criminal investigations, imprisonment, prosecutions, and arrests. However, as SAR notes, “a significant number of incidents involving wrongful imprisonment and persecution relate to student expression and are described separately.”⁴ Between 2011 and 2021, a total of 868 instances of wrongful imprisonment or prosecution have been recorded. In the monitoring period covered by the 2023 report, 86 incidents of this kind have been identified.

Imprisonment and prosecutions are regarded as wrongful in the SAR reports when they are intended to punish, deter or impede academic activities or the exercise of other fundamental human rights such as the freedoms of expression, association or assembly. Often, **expressing dissenting views, for instance in the form of public criticism of a government or political leader, triggers unlawful prosecution** (SAR 2023). Such prosecutions may be enabled by legislation that is aimed at restricting the free expression of critical voices – whether that of journalists, artists or scientific researchers.

Loss of position

Another way for higher education and State authorities to punish, deter and restrict academic freedom is by taking administrative actions to limit employment of those with critical voices. This can be seen as an internal threat as defined in this report. According to SAR, such measures include, the “loss of position by dismissal, suspension, demotion, and denial of promotions or other benefits to scholars,” or threats of such actions. SAR notes that expulsions, dismissal, suspension, silencing, and other types of professional retaliation of academics (or threat thereof) can have a crippling impact on academic freedom. **Such threats or actual incidents of repressive dismissals further contribute to phenomena like brain drain**, as “scholars and students seek fairer and more

⁴ Threats to student expression, in the form of wrongful imprisonment and prosecution or otherwise, are not covered in the overview this study offers, since they fall outside its scope.

transparent environments in which to conduct their research, teaching, and studying.” Furthermore, they can create the breeding ground for ‘external’ attacks as they isolate individuals and separate them from their work environment and, often by extension, their social networks.

Between 2011 and 2021, a total of 304 instances of permanent or temporary loss of position (or threats thereof) have been recorded. In the monitoring period covered by the 2023 report, 46 such incidents have been identified.

Travel restrictions

In its 2023 *Free to Think* report, SAR emphasizes that, under international law, States have the right to control who enters their territory and to restrict travel in protection of national security and public health. However, restrictions on travel that are intended to curtail academic content or conduct may be in breach of States’ international obligations. Article 19 of the International Covenant on Civil and Political Rights (ICCPR) declares that the right to freedom of expression applies “regardless of frontiers”.

Nevertheless, various States restrict the international mobility of scholars and students to limit the flow of ideas and knowledge into their country. By extension, this limits the global flow of ideas. SAR has recorded a total of 95 instances of travel restrictions between 2011 and 2021. For the monitoring period covered by the 2023 report, no specific data has been provided regarding restrictions of freedom of movement “in ways that threaten [researchers and students’] academic freedom”. The lower number of reports since 2020 can be explained by the public health measures that were implemented over the course of the COVID-19 pandemic and that limited travel for everyone, regardless of purpose. However, as SAR notes, the data still suggest that **travel-related threats to the safety and freedom of academics “are not widely reported and often difficult to verify”**.

Other incidents

The previous categories address the most severe incidents identified by SAR. These threats are difficult to identify and register, but likely affect a much larger number of scholars and students than documented. The types of threats captured in the “other incidents” category fall outside these categories and are difficult to identify and register but might nevertheless strongly hamper academic freedom and the rights of higher education

communities. Such attacks include the targeting, occupation, or use of facilities of higher education by military, paramilitary or organized criminal groups – often during armed conflict (SAR 2023). Other incidents included in this category are attempts by armed groups (both State and non-State) “to silence dissent by simply entering or maintaining a physical or coercive presence on campuses” and forced closures of institutions “to punish, deter or impede academic speech, content, or conduct, or otherwise to sanction members of the higher education community for their exercise of protected rights”. Cyberattacks are also grouped under this category. These attacks are source of concern as they can be used to exert political pressure.

Between 2011 and 2021, the starting year of SAR’s monitoring project, a total of 396 ‘other’ incidents have been recorded. In the monitoring period covered by the 2023 report, 88 of such incidents have been identified.

2.3.2 IPSOS/L’Oréal Foundation report on sexual harassment and sexism in the scientific world

The discussion of the safety of scientific researchers, or more broadly, in the terminology of UNESCO’s 2017 Recommendation on Science and Scientific Researchers, “the working conditions of scientific researchers,” also concerns the right to a non-discriminatory and inclusive work environment. In this light, international market research company IPSOS conducted an extensive international study on behalf of the L’Oréal Foundation, which has the aim to “empower more women scientists to overcome barriers to progress” (IPSOS/L’Oréal 2023). The study was commissioned to “better identify the difficulties faced by women in science on a daily basis”.

Context, scope and methodology

This survey questioned 5,184 researchers located in 117 different countries, of which 3,318 located in Europe (2,269 in France), 636 in Latin America (342 in Brazil), 346 in Asia, 162 in Africa, 155 in North America (which comprises the United States of America and Canada), 102 in the MENA Region and 63 in Oceania. The online survey was distributed to more than fifty research institutions (of which 12 percent private and 77 percent public institutions). 76 percent of the researchers questioned were women and 22 percent were men. 23 percent of the surveyed researchers placed themselves in the biological sciences, 9 percent in physics, 8 percent

in the health sciences, and 9 percent of researchers located themselves within the social sciences, arts and humanities or economics. Consequently, it can be said that **the study is not fully representative of the entire field of research and scholarship**. In addition, the IPSOS/L'Oréal Report does not focus on academic freedom *per se*, but concentrates on matters such as sexism and sexual harassment as seen or experienced by researchers. Since such **serious manifestations of sexism or harassment could amount to threats to the safety of scientific researchers** as presented in the introduction to this study, the most relevant results of the study are summarized here.

Relevant findings and conclusions

One of the objectives of the survey was to assess the prevalence of sexism and sexual harassment in the work environments of women researchers. The most important problems with which women researchers are confronted within the world of scientific research were seen to be sexist remarks (noted by 32 percent of the respondents) and sexual harassment (noted by 20 percent).⁵ Researchers in Latin America and North America are more concerned about such threats (36 and 32 percent, respectively) than their colleagues in Asia, Oceania and the Middle East and North Africa (25, 23 and 19 percent, respectively). 29 percent of female respondents in Latin America and 31 percent in North America and Africa are expressing concerns about sexism in their work environments.

When breaking down the answers according to age groups, a **strong intersectional link between young and early-career researchers and (fears of) sexual harassment** can be seen. Overall, 20 percent of female respondents report sexist remarks as the biggest problem with which women in research are confronted. However, when examining the answers of the respondents aged between 18 and 24 years old, 64 percent of female respondents reported sexist remarks to be the biggest concern. This percentage gradually drops as female respondents increase in age: 46 percent of the 25-34 age group reports this as an important problem, 30 percent of

the 35-44 age group, 25 percent of the 45-59 age group and 17 percent for the 60-69 age group. The same trend, albeit with lower percentages, is seen on the issue of sexual harassment.



84 percent of women researchers have been victim of sexism during their careers
—IPSOS/L'Oréal (2023).

In another part of the study, respondents were questioned about their direct experiences with sexism – either as a victim or witness of this phenomenon.⁶ **84 percent of women researchers reported to have been victims of sexism at least once during their careers** and almost 25 percent experienced sexism frequently. In this regard, North America stood out negatively (with 91 percent reporting to have fallen victim to sexism 'at least once' and 39 percent 'frequently') while Asia reported lower numbers (with 68 percent 'at least once' and 14 percent 'frequently'). For 54 percent of the victims, the instances of sexism occurred in the beginning of their careers, while just 6 percent of victims experienced sexism when they were at the peak of their careers. In almost one third of the situations, the perpetrator of the sexist act was a member of the teaching staff, whereas in one of four situations, the perpetrator was another staff member. These findings substantiate the common claim that harassment and threats to (particularly women) researchers are the **consequence of the systemically unequal and hierarchical power relations in academia and research**.

5 The exact (closed) question in the survey is as follows (translated from French): "According to you, what are the most important problems with which women in the world of universities and research are confronted?" The following answer possibilities were given (in order of percentual size): work-life balance, impact of motherhood on their careers, low number of women in management positions, lack of self-confidence, gender stereotyping, gender bias in promotion and funding decisions, unequal opportunities for visibility, sexist remarks, lack of respect in general, access to employment and sexist prejudice in recruitment, bullying, pay inequality, sexual harassment, other, and no problems.

6 The following answer possibilities were given for the question relating to sexism ("Have you personally experienced any of the following situations during your career in academia and/or research?") (from most to least common): "Someone has put me down or behaved condescendingly towards me because of my gender"; "I have experienced gender bias in hiring, promotion and funding decisions"; "I have been the victim of sexist stories or jokes that have offended me, or someone has spread rumours about me"; "I've been treated with disrespect or prejudice by colleagues because of my gender (I've been humiliated, given a disrespectful nickname, etc.)"; "I have experienced difficulties in obtaining opportunities for visibility in my career (e.g. jury member, editorial board of a journal, contributions to major events)"; "I have encountered problems concerning intellectual property or copyright in projects/publications in which I have participated, someone has made my work disappear or forced me to do part of their work"; "I have suffered insults or offensive language related to my gender."

Almost 75 percent of women researchers who have been victim of sexism at least once, experienced a negative impact as a result. Almost half of them evaded certain staff members, 20 percent felt “at risk” in their work environment (where they are supposed to create much-valued innovation and knowledge) and **11 percent quit or made a switch to a different institution**. The feeling of being at risk was stronger in Latin America and North America (32 percent) and North Africa (28 percent) and much less in Europe (16 percent). In North America, moreover, almost 25 percent reported having quit or changed their jobs in research. Of all women researchers who said they had been victims of sexism, 28 percent reported that they felt vulnerable in the workplace and 22 percent experienced feelings of anxiety. Such feelings of anxiety and vulnerability were strongest in Latin America (44 percent) and North America (38 percent).

Furthermore, a total of 76 percent of men reported that they had witnessed at least one situation of sexism, while this was the case for 90 percent of the women. Around 50 percent of male respondents, as opposed to around 75 percent female respondents, had witnessed at least three instances of sexism. The study further found that **the main barrier keeping bystanders and witnesses from intervening in situations of sexism was the fear of reprisals**.

Almost one in two women researchers had experienced various kinds of sexual harassment, ranging from being addressed inappropriately or insultingly to unwanted touching and sexual blackmailing
—IPSOS/L’Oréal (2023).

Most experiences of sexual harassment (64 percent) occur in the early stages of a woman researcher’s career
—IPSOS/L’Oréal (2023).

Questions were not only asked about sexism in general, but also about sexual harassment – again, both about being a direct victim and being a witness of such phenomena. To the statement “I have personally been the victim of sexual harassment (both verbal and physical)”, 40 percent of the female respondents answered in the positive. While Europe and Oceania scored below average for this question and Asia and the Middle East and North Africa region around it, North America (64 percent), Africa (53 percent) and Latin America (50 percent) were significantly above the average. When asked in some more detail about their experiences with sexual harassment, prevalence turned out to be higher, **almost one in two women researchers had experienced various kinds of sexual harassment, ranging from being addressed inappropriately or insultingly to unwanted touching, being sent emails or text messages with sexual connotations, and sexual blackmailing**.

The IPSOS/L’Oréal study shows that **most experiences of sexual harassment (64 percent) occur in the early stages of a woman researcher’s career**. Due to the sexual harassment situation(s) they faced, one in two victims avoided certain staff members and one in four victims felt in danger at their workplace. This latter number was particularly strong in North America (53 percent) and Latin America (31 percent). Because of their experience with sexual harassment, 57 percent felt uncomfortable at work, 30 percent felt vulnerable at work and 22 percent felt anxious. Sexual harassment caused 9 percent of respondents to quit or change employment.

2.3.3 UniSAFE's survey on gender-based violence and its consequences in European academia

In 2022, UniSAFE published the survey [Gender-based violence and its consequences in European Academia](#).

Context, scope and methodology

UniSAFE is funded by the European Union and aims to produce better knowledge of gender-based violence and sexual harassment in research performing organizations (RPOs). UniSAFE intends to translate this knowledge into operational tools for higher education, research organizations and policymakers. Again, this report addresses the specific threat against the safety of scientific researchers, notably gendered violence and harassment. Whereas the IPSOS/L'Oréal survey was limited to sexism, harassment, and violence against women researchers specifically, **the UniSAFE survey extends into a broader gender spectrum by including non-binary genders and other gender categories.**

The survey performed in this project is **“the largest cross-cultural survey in Europe on gender-based violence in the context of universities and other research organizations”** (UniSAFE 2022). The data has been collected from 46 participating universities and research organizations across 15 countries in Europe.⁷ All staff and students of these institutions received the survey through internal communication channels. The sample included data from a total of 42,186 respondents, of which 67 percent (28,214) identified as women, 30 percent (12,762) as men and the remaining 3 percent (1,154) as non-binary (or a gender identity that was not listed). UniSAFE's objective was to “capture how gendered experiences can intersect with different factors such as sexual orientation, age, ethnic minority status and international mobility, which may exacerbate exposure to gender-based violence”. For that reason, it also identified respondents within certain categories. In response to this, 18 percent of the respondents reported to identify as LGBTQ+, 6 percent as international staff or students, 11 percent as having a disability and 6 percent of the respondents as belonging to an ethnic minority.

UniSAFE defines gender-based violence as: “Violence directed towards a person because of their gender, or violence that affects persons of a specific gender disproportionately.” Beyond violence, UniSAFE's typology of gender-based violence includes sexual harassment and forms of violence “that may emerge in an increasingly digitalized world and can be carried out online.”

The survey categorized the roles in gender-based violence as a survivor, bystander, or perpetrator. The survey addressed both the instances of gender-based violence as well as the consequences of such violence on personal well-being, health, work and studies. In total, six forms of gender-based violence were used in the UniSAFE survey and project:

- *Physical violence*: “any act which causes physical harm as a result of unlawful physical force, e.g. somebody threatened to hurt you physically or pushed you”.
- *Psychological violence*: “any act which causes psychological harm to an individual, e.g. somebody directed abusive comments towards you, interrupted you or spoke over you”.
- *Economic violence*: “any act or behaviour which causes economic harm to an individual, e.g. harmed your work/studies through restricting access to financial resources”.
- *Sexual violence*: “any sexual act performed on an individual without their consent”.
- *Sexual harassment*: “unwanted verbal, nonverbal or physical conduct of a sexual nature, such as comments on looks or body, sending of images with sexual content, making sexist jokes or [unwanted] touching”.
- *Online violence*: many possible forms, such as internet-based sexual abuse, non-consensual distribution of sexual images and cyberbullying.

The findings of the report are relevant to the present study because they give an insight into the specific gender-based and intersectional factors that can explain the prevalence of risks to individual safety of researchers. It should be noted, however, that the report contains data derived from only 15 countries in Europe and therefore cannot be regarded as representative of the global situation.

⁷ These fifteen countries include the following: Belgium, Czech Republic, Finland, France, Germany, Iceland, Ireland, Italy, Lithuania, Poland, Serbia, Spain, Sweden, Turkey, and United Kingdom.

Relevant findings and conclusions

UniSAFE found that **62 percent of the respondents to the survey indicated that they had experienced at least one out of six forms of gender-based violence**, since starting their work or studies at their institution, which UniSAFE labels as “the prevalence of gender-based violence”. Whereas this is the case for 56 percent of men, two in three women working in universities and other research organizations experienced gender-based violence. Women and non-binary people were more likely than men to experience all forms of gender-based violence, except for physical violence, which men encountered more than women. **Non-binary people face the most risks.** Moreover, those respondents identifying as LGBTQ+, reporting a disability or chronic illness and belonging to an ethnic minority group were more likely to have experienced at least one incident of gender-based violence as compared to those who did not identify with these characteristics.

Two in three women working in universities and other research organizations experienced gender-based violence
—UniSAFE (2022).

Of the six forms of gender-based violence, **psychological violence was the most prevalent (57 percent), followed by sexual harassment (31 percent) and economic violence (10 percent)**. Less than 10 percent reported to have been victim of online violence (8 percent) or physical violence (6 percent). Sexual violence was the least reported form of gender-based violence (3 percent). Only 13 percent of those who had experienced gender-based violence actually reported it. Two prominent reasons for non-reporting surfaced from the survey: the respondent was either unsure whether the behaviour was serious enough to be reported (47 percent) or did not recognize the behaviour as violence at the time (31 percent).

40 percent of researchers who experienced gender-based violence considered leaving academia
—UniSAFE (2022).

Regarding the consequences, experiences of gender-based violence led to **reduced work productivity for 54 percent** and **dissatisfaction with their work for 67 percent**. 33 percent of the respondents changed or tried to change teams or units after they had experienced such violence, 24 percent changed or tried to change institutions, and **40 percent considered leaving academia altogether**.

2.3.4 Nature study ‘Scientists under Attack’

The increased gravity and prevalence of attacks in the context of the pandemic prompted *Nature* – one of the world’s most read and prestigious scientific journals – to publish the study ‘[Scientists under attack](#)’ in 2021.

Context, scope and methodology

The COVID-19 pandemic has put the spotlight on harassment of, and threats to scientific researchers, particularly scientific researchers who are engaged in policy advice to governments and national authorities. Such threats not only put individual researchers’ freedom, safety, and well-being at risk, but also make it difficult for them to speak out and to share their findings with society. Hence, **such threats and harassment undermine the critical nexus between science and society as well as trust in science**.

Events during the COVID-19 pandemic have offered significant anecdotal evidence of the risks and safety threats individual researchers may face. For instance, after he and his family had received several death threats, Anthony Fauci, the head of the US National Institute of Allergy and Infectious Diseases, was assigned personal security guards. The Belgian virologist Marc van Ranst spent some time in a safehouse after having received intimidating messages and serious death threats. Another researcher who was severely threatened

because of his scientific insights and advice to the government was German virologist Christian Drosten, who “received a parcel with a vial of liquid labelled ‘positive’ and a note telling him to drink it” (Nogrody 2021).

Nature surveyed around 300 researchers who had given media interviews about COVID-19 and related issues. This survey covered mostly university researchers, but also researchers working in hospitals and medical research institutes. 38 percent of researchers were based in the United Kingdom, 19 percent in Germany and 17 percent in the United States of America. More than 6 out of 10 respondents were male.

Relevant findings and conclusions

The *Nature* survey found that more than two-thirds of researchers reported negative experiences resulting from their appearances in the media or comments and contributions online when speaking on the subject of COVID-19. The most common negative impacts researchers experienced were **attacks on their credibility (59 percent)** and **reputational damage (30 percent)**. **More than one in five researchers (22 percent) had received threats of physical or sexual violence and 15 percent received death threats.** 15 percent of respondents reported to have endured other types of attacks or harassment after media appearances, examples of which include complaints to employers about them, online reveals of researchers’ home addresses (so-called *doxing*) and aggressive emails.

Only 13 percent of those who had experience gender-based violence actually reported it —UniSAFE (2022).

Six researchers reported to have been physically attacked because of their media appearances. Attacks were prevalent on X (formerly Twitter), with 63 percent of respondents indicating that they were subjected to *trolls* or personal attacks on social media after speaking about COVID-19.

Despite these figures, 85 percent of respondents indicated that “their experiences of engaging with the media were always or mostly positive, even if they were harassed afterwards.” Some respondents suggested that “scientists need training for how to engage with the media and also about what to expect from trolls — it’s just a part of digital communication.” However, despite researchers’ attempts to “shrug off abuse”, attacks were reported to have considerable negative impact. More than 40 percent of the respondents reported that the **threats or attacks led to emotional or psychological distress**. Moreover, for almost one in three respondents, their experiences with *trolls* and personal attacks negatively affected their willingness to speak to the media about their research findings and important subjects in the future. The findings of *Nature’s* survey thus show how **attacks on individual researchers may silence their (critical) voices**.

2.3.5 Science study ‘In the Line of Fire’

A second study that zoomed in on harassment of, and threats to scientific researchers working on matters related to the COVID-19 pandemic is *Science’s* report *In the Line of Fire* (2022).

Context, scope and methodology

Science is a peer-reviewed scientific journal, published by the *American Association for the Advancement of Science* (AAAS) and, like *Nature*, it belongs to the world’s top journals. The survey questioned respondents about their research field, their exposure, their experiences with harassment, the institutional support they have sought and received, and coping strategies employed to deal with harassment. This study is based on the answers provided by 510 respondents.⁸ More than one-third (170) of respondents lived in the United States, followed by Germany (40) and Italy (26). The non-European/North American country with most

⁸ To survey researchers who had published on COVID-19, a list of corresponding author email addresses from Web of Science, drawing from all research articles, editorials, and review studies that mentioned COVID as a keyword, was extracted. The pool of available email addresses was then limited to 35,830 addresses that appeared more than once (which would indicate multiple publications). The researchers then emailed a random selection of 9,955 researchers, out of which 510 responded.

participants was Brazil, with just 14 respondents. 200 respondents (39 percent) located their COVID-19 publications in the social and behavioural sciences and 162 respondents (32 percent) in the field of epidemiology.

Relevant findings and conclusions

Out of the 510 respondents, 62 percent (315 respondents) reported no harassment at all, but 38 percent reported at least one type of harassment. The most common forms of harassment were **personal insults** (118 respondents), **attacks on professional capabilities** (95 respondents), **allegations of dishonesty or corruption** (74 respondents) and **excessive contact from many people or from individuals** (72 and 63 respondents respectively). 32 respondents received wishes of harm or death threats because of their work on COVID-19, mostly delivered to them via email (15 respondents) and X (formerly Twitter) (14 respondents). Threats of physical harm, such as sexual assault, were relatively uncommon. 15 respondents received death threats because of their work on COVID-19, delivered to them mostly via email. 23 percent of respondents reported that, because of their work on COVID-19, they had experienced personal insults on social media (mostly X (formerly Twitter) (60 respondents) and Facebook (42 respondents)), email (56 respondents) or in person (30 respondents).

Most respondents had spoken out about subjects relating to the social and behavioural sciences (135 respondents), public health measures such as lockdowns and vaccines (133 respondents) and epidemiology (126 respondents). The survey suggests that **researchers advocating for positions on COVID-19 which are perceived as more controversial by certain groups in society received more threats**, such as when they spoke on topics such as ‘not treating with ivermectin’, ‘natural origin of the virus being most likely’, ‘vaccine passports or mandates’, ‘wearing masks’ and ‘vaccination’. In addition, the survey found an **interconnection between exposure level and harassment rate**.⁹

The *Science* study found a significantly lower rate of harassment than the *Nature* study discussed in Section 2.3.5. This can be explained with reference to the composition of the samples of both studies. Whereas *Nature* “surveyed researchers on the COVID-19 media contact lists at science media centres in a range of countries, as well as researchers who had been prominent in media coverage” (2021), *Science* focused on “researchers who had published on COVID-19, regardless of media coverage” (2022). After a request by *Nature*, *Science* further compared the samples by sub-setting the data “to include only those participants who reported at least one media interview (TV, radio, print, online, or other)” (ibid.). It was then found that slightly more than half of the 310 respondents who had given at least one interview since the beginning of the pandemic, reported at least one instance of harassment. Again, this statistic is lower than in the *Nature* study, which can be explained by the fact that “[r]esearchers speaking frequently to science media centers likely have a higher profile than the researchers even in this subset of our sample, who may have given just one interview since the start of the pandemic” (ibid.).

2.3.6 Global Witness Report ‘Global Hating – How online abuse of climate scientists harms climate action’

In a similar way as the survey by *Nature* discussed above, the [Global Hating report](#) by *Global Witness* recognizes the **connection between the safety of individual scientific researchers and trust in science**.

Context, scope and methodology

Global Witness is a non-governmental organization working in the field of environmental protection and has “investigated and exposed environmental and human rights abuses in the oil, gas, mining, and timber sectors, and tracked ill-gotten money and influence through the global financial and political system.” (*Global Witness* 2023). Its 2023 report concerns research communication and its consequences for climate researchers.

⁹ “There was a positive association between the variables, $r = 0.56$, 95% CI [0.50, 0.62]. This is classified as a “large” effect size, but it is crucial to note that there could be different explanations for this relationship: For instance, publicity may lead directly to more harassment, but scientists with greater prominence may receive both more harassment and more interview invitations.” (*Science* 2022).



39 percent of climate researchers have experienced online harassment or threats.

In 2022, *Global Witness* sent a survey invitation by email to approximately 24,000 scientific researchers and experts around the world working on climate topics using public academic contact lists. The total sample size of respondents who completed the survey was 468 climate researchers and experts. As *Global Witness* acknowledged, these 468 respondents “may not represent the experiences of all climate scientists as the responses were based on natural fallout, and no controls or sampling quotas were in place” (*Global Witness* 2023).

Relevant findings and conclusions

Of the 468 respondents, **39 percent indicated that they had experienced online harassment or abuse**. The findings of the study suggest a **relationship between online abuse, media exposure and academic output** (the number of academic studies published by a researcher). Almost 75 percent of the researchers who appear(ed) in the media at least once a month (which was the case for 13 percent of respondents) had some experience with abuse, and almost 30 percent reported ‘a great deal’ or ‘a fair amount’ of abuse. Of the researchers who had never made a media appearance before (which was the case for around 20 percent of the respondents), 12 percent still reported to have experienced online harassment.

Most researchers who experienced online abuse reported that their credibility or work was attacked (80 and 90 percent, respectively). **For female researchers, personal characteristics were also common targets of abuse and harassment**. Their sex or gender was “targeted a great deal or a fair amount for 34 percent of affected women and only 3 percent of affected men” (*Global Witness* 2023). Additionally, female respondents were three times as likely as men to receive abuse or harassment based on age (17 as opposed to 5 percent). Around 15 percent of women researchers who were victim of online harassment were threatened with sexual violence. 20 percent of female respondents and 16 percent of men who had endured harassment had received threats of physical violence.

Regarding the impact of harassment and attacks on individual researchers, **more than half of respondents reported feelings of anxiety and a loss in productivity, while one in five respondents experienced depression**. The fear of damage to professional and academic reputation was prominent among climate researchers who were victims of online threats and harassment: more than 50 percent of the respondents reported this as a problem. One in five respondents feared for their personal safety. Again, a significant gender gap was revealed. While 60 percent of women researchers experienced anxiety, only 45 percent of their male counterparts said they had to deal with similar consequences. Almost 60 percent of female respondents reported a loss of productivity vis-à-vis 40 percent of male respondents. Lastly, **around 30 percent of female respondents reported sleep problems because of online harassment**.

Almost 25 percent of affected respondents stated that their experience with online harassment made it less likely for them to engage in the public debate about climate change. According to the report, this could harm “the global ability to act on climate change.” The report also concluded that if researchers lose productivity or “are unable to do their work because of stress and fear caused by harassment”, the required strong evidence base for climate action is at risk (*Global Witness* 2023).

2.4 DATA FROM NATIONAL SURVEYS AND REPORTS

Finally, beyond the international and EU reports discussed above, there are various national monitoring mechanisms or reporting points through which threats against the safety of scientific researchers are documented. Such reports tend to be highly context-specific, but they can still provide some insights into the nature of the problem in a particular country. The following overview offers examples of reports that are currently available and is by no means exhaustive.

2.4.1 Sweden

One example of a national monitoring initiative that covers the safety of scientific researchers is a 2022 report on Sweden, titled [Threats and hatred against researchers and teachers at Swedish universities and colleges](#), and published by the Association of Swedish Higher Education Institutions and the Swedish Secretariat for Gender Research at the

University of Gothenburg. This study addresses the prevalence and consequences of threats and harassment against researchers and university teachers in Sweden. In total, 2,995 university teachers and researchers responded to the survey, which was sent to a total of 17,459 active teachers and researchers. The report found that the most common forms of harassment were threats in emails (18 percent), face-to-face statements (11 percent) as well as online and social media messages and communication (9 percent). The main consequences identified by the study were **avoidance of certain research areas (26 percent)** or **hesitance to comment on certain thorny issues (around 20 percent)**. Almost 20 percent of the respondents that were affected by online harassment considered leaving academia altogether (or had already left it). A notable result of the study is the finding that **“threats and harassment in academia usually come from a student”**; this was reported by almost one in two academics who had been exposed to harassment. In addition, the perpetrator of harassment was usually known to the exposed person. Women, finally, more often reported to have fallen victim to harassment in academia than men. According to David Brax, one of the authors of the report, this suggests that “the threat comes primarily from within the academic environment, which requires a different type of handling than threats coming from outside, from people who do not belong to the workplace at all.”



[Threats coming] from within the academic environment ... require a different type of handling than threats coming from outside, from people who do not belong to the work-place at all—Dr David Brax, Swedish Secretariat for Gender Research (2022).

2.4.2 Norway

The Norwegian Ministry of Education and Research has also produced a report, titled [Academic Freedom of Expression](#), that examines the state of academic freedom of expression, partly in light of international developments. It includes specific sections on harassment and threats to scientific researchers. The report refers to stalking, hate speech, incitement to a criminal act, harassment and generally unpleasant comments (NOU 2022: 92). In many cases, such comments come from the victim's colleagues and peers (ibid.). According to the report, researchers in several countries that work “on politically sensitive topics such as immigration and integration, gender and climate change have been exposed to intimidating, hateful and threatening responses when participating in the public debate” (ibid.: 31). Because of such harassment (here, mostly external and online), Norwegian researchers in sensitive fields such as immunology and public health, in particular during the COVID-19 pandemic, “are among those who self-censor to the greatest extent in their dissemination” (ibid.: 32).

2.4.3 The Netherlands

The Netherlands is another country where action has been undertaken to address threats to scientific researchers. In November 2022, the [Platform SafeScience](#) was established where researchers who are threatened or intimidated can receive help and advice 24 hours a day. A variety of surveys and reports formed the impetus for the establishment of this platform, which were linked to the COVID-19 pandemic and the pressures which it exerted on researchers' safety and freedom.

A 2021 [survey](#) by the news website *ScienceGuide*, for instance, which was distributed through a broad range of academic networks and universities, attracted 372 respondents. Of these, 43 percent were threatened, insulted, or intimidated after a public appearance in the previous five years. More than 50 percent of the respondents had declined a public appearance because of fears of negative consequences, such as negative career impact (30 percent) or consequences for a researcher's research project financing (17 percent). Many intimidating messages came from individuals within the scientific community or even their own institution (39 percent), while 25 percent of the respondents mentioned organized societal groups as perpetrators.



All reports point to the existence of significant risks and threats worldwide, especially for researchers who speak out on controversial research topics, who work in a tense political or societal environment, or who have certain personal characteristics (such as being or identifying as female), or who belong to certain groups.

According to the *ScienceGuide* survey, **the sensitivity of the research focus and expertise of an affected researcher were determinants of the prevalence of safety threats**. Many cases of intimidation were linked to researchers working on **racism** (almost one in three), followed by researchers working on **COVID-19 issues** (including policy measures), **migration** or **climate** (around one in five). However, the survey found that the **personal characteristics of the researcher were a more important factor explaining the target and nature of harassment than was the research topic they worked on**. Two-thirds of affected respondents reported that the intimidation they faced focused on personal characteristics. Gender-based intimidation was also prominent, among women: 85 percent of respondents who were confronted with this type of intimidation were female. Such harassment and intimidation were found to lead to greater reluctance to speak up and/or to do so more carefully (almost 90 percent). Around 30 percent of affected respondents no longer felt free enough to speak their minds in public, leading to self-censorship.

2.4.4 Belgium

In Belgium, similar initiatives to map and address the problem of harassment and intimidation of researchers are being undertaken. The Flemish Interuniversity Council (VLIR) commissioned the [Academic Intimidation and Harassment of Scientists](#)

at [Flemish Universities in Belgium](#) report with the particular goal “to examine the prevalence, forms and consequences of academic intimidation” (Verhaeghe 2022: 3). The survey was conducted in May and June 2022, and 2,488 academics responded (a response rate of around 13 percent). Since 57 percent of respondents were men, and 43 percent were women, the sample appears to be fairly representative with respect to gender (ibid.: 7). This study concludes that “academic intimidation and harassment are substantial problems at Flemish universities in Belgium” (ibid.: 34). Around 45 percent of respondents have been intimidated or harassed at least once during their scientific career, of which 15 percent ‘occasionally’ or ‘frequently’. Since respondents were asked to reflect on harassment and threats over the course of their whole career, the survey does not provide data of the number of researchers *currently* facing threats to their freedom and safety.

The most common and intense types of intimidation reported were “getting provocative and upsetting reactions (**trolling**), **attacks on the academic credibility to superiors or funding agencies**, receiving **insulting or denigrating messages** and being called **offensive names**” (ibid.). These forms of intimidation were reported at least once by around 20 to 30 percent of respondents, and sporadically or frequently by 5 to 10 percent. The most severe forms of academic intimidation, such as blackmail or legal threats (6 percent), threats of physical violence (3 percent) or sexual violence (around 1 percent), are the least frequent. There are three categories of actors perpetrating these attacks: colleagues and peers, the outside world and students. Most threats and harassment take place either via email or on campus.

When it comes to the factors that potentially increase the risk of a researcher being subjected to threats and harassment, the results of the Flemish report are in line with the findings of the reports discussed above. **Researchers with a physical disability or chronic disease reported the most frequent and intense levels of intimidation** (ibid.: 34). Women researchers reported significantly more harassment against them compared to their male colleagues. In addition, “most [ethnic] minority groups tend to be intimidated more than Belgian academics from Belgian origin” (ibid.). However, as opposed to the findings of the UniSAFE study, the report did not find any “significant effect of being religious or identifying with LGBTQ on the frequency or intensity of being academically intimidated” (ibid.).

2.4.5 Broader Asian region

The [New Threats to Academic Freedom in Asia](#) report sheds light on the broader state of academic freedom in the region. The report is based on a qualitative analysis. It establishes a connection between academic freedom in Asia and the rise of digital platforms and their “double-edged” nature (Gueorguiev 2022: 5). While it was found, on the one hand, that the growing use of and access to the Internet has enabled and enriched the work of scholars and researchers, it also noted that this allowed for “more surveillance of academic discourse and networking activity online” (ibid.). Furthermore, the study showed that social media platforms allow extremist and radical movements to target individual researchers that they deem controversial or threatening (ibid.).

2.5 Conclusion: blind spots in reports on the safety of scientific researchers

Substantial information about the prevalence and nature of threats to the safety of scientific researchers is available at both national and international levels. All reports point to the existence of significant risks and threats worldwide, especially for researchers who speak out on controversial research topics, work in a tense political or societal environment, who have certain personal characteristics (such as being, or identifying as a woman), or who belong to certain groups. However, the information provided is non-comprehensive and often non-representative. Existing periodic monitoring reports, such as SAR’s *Free to Think* reports and ad-hoc surveys and studies such as the 2021 *Nature* survey that address (aspects of) the safety and freedom of scientific researchers are **limited in number, non-exhaustive and region-specific**. In addition, they **focus almost exclusively on higher education communities rather than on broader research communities**, including the private sector. Furthermore, they predominantly **examine physical threats and attacks**. To the extent that they identify specific risks for particular groups, they either exclusively focus on gender groups or on particular fields of research (e.g. climate research or COVID-19).

The following section provides a list of gaps and shortcomings in the existing literature on the safety of scientific researchers. If these are addressed and more comprehensive and reliable studies are carried out, then this will provide much more insight into the true level and the nature of threats to the safety of scientific researchers around the world.

- **Limited number of reports.** In total, a mere dozen international or regional reports have been traced that shed light on the state of play of the safety of scientific researchers: the *Free to Think* annual monitoring reports, the EPRS report and the studies conducted by IPSOS/L'Oréal, *UniSAFE*, *Nature*, *Science* and *Global Witness*. In addition, there are some national reports available, such as those from Sweden, Norway, the Netherlands and Belgium, but these are not representative. Other dedicated national reports, if they exist, may not have been found due to language restrictions on the part of the authors. Importantly, as many of these reports are of rather recent date, it is difficult at this stage to ascertain trends and developments over time.
- **Non-comprehensive and non-representative.** SAR's *Free to Think* Report only identifies and tracks "key incidents", for which a threshold or assessment criteria are not presented. In addition, SAR itself acknowledges that attacks are severely underreported. IPSOS/L'Oréal's study and the *UniSAFE* project only address the safety of female researchers, with a focus on specific safety threats. The *UniSAFE* report addresses the intersections of conducting research with some personal or group characteristics, including (self-identification with) ethnicity. *Nature's* survey is confined to researchers on (matters related to) COVID-19, while *Global Witness* addresses the safety and freedom of researchers working on climate. In addition, many surveys were distributed to thousands of researchers, but were only completed by a small percentage of them. Although there is a clear general tendency emerging from existing reports, there is a risk that mainly researchers who have experienced safety threats or attacks, or who feel very strongly about this matter, respond, and their views and experiences may not be representative of the entire field.
- **Regional bias.** In practically all reports and surveys discussed in this chapter, there is a strong regional bias. Often, most respondents work in countries in Europe or Northern America, as is the case for the IPSOS/L'Oréal (which has a vast majority of French participants), *UniSAFE* (exclusively European respondents), *Nature* and *Science* surveys. In the *Free to Think* reports, disproportionate attention is given to States with more authoritarian types of government, since there was an emphasis on attacks of a more 'physical' nature (such as killings, disappearances and wrongful prosecution) than in States with democratic governments. For example, of the countries highlighted in the 2023 report, the United States is the only country from North America or Europe; no Member State of the European Union is mentioned, despite worrisome anecdotal evidence from this region of the world. This should not be interpreted as indication that threats to researchers' freedom and safety are absent in such States. These threats may simply have different (more non-physical) forms or impacts, such as psychological or economic, which are not covered by *Free to Think*. In addition, the 2023 *Free to Think* report, though global in scope, only covers 66 countries and territories.
- **Problems and biases of event count data.** Although the *Free to Think* reports are one of the most prominent monitoring initiatives on the safety of researchers, the data are collected exclusively through an event count methodology. Counts of how many detentions and dismissals occur are useful to illustrate and make visible individual cases of how governments or other actors hamper the freedom and safety of researchers, but have important limitations. Although the data can be used to reveal some trends and patterns, SAR explicitly acknowledges that event count-based data are not suitable for country comparisons. The information flow is biased by network effects and differences in the information environment. Moreover, such methodologies might not be sensitive to more subtle lasting events that may lead researchers to change jobs or situations that may silence individual academics. None of the data, moreover, specify the degree to which these threats, in case they are of criminal nature, are investigated. As a result, it is not possible to assess a possible rate of impunity in relation to threats to the safety of scientific researchers.

- **Focus on higher education communities and not the broader scientific community.** In most of the discussed reports and surveys, researchers affiliated with universities are put on centre stage. This is especially the case with the *Free to Think* and UniSAFE reports. The *Nature* survey included researchers from hospital and medical research institutes and the IPSOS/L'Oréal study included researchers from the wider research world and not only academia. Importantly, some of these reports focus on academic freedom and therefore include students and non-research staff (see Section 1.2.1). For the 2023 *Free to Think* report, instances of repression of student expression concerned almost half of all documented events. Consequently, a significant portion of the data (such as from the *Free to Think* and UniSAFE reports) cover phenomena that fall outside the scope of the safety of scientific researchers.
- **Focus on physical threats and attacks.** As already referred to above, the *Free to Think* reports focus almost exclusively on physical attacks and threats against the freedom and safety of scientific researchers. By contrast, the IPSOS/L'Oréal, UniSAFE, *Nature* and *Global Witness* studies provide some insight into non-physical threats, such as (sexual) harassment, bullying and psychological threats. The category of perceived safety is completely absent, however, despite its potentially strong impact on the functioning, well-being, and health of researchers.
- **Limited inclusion of marginalised and underrepresented groups in science and research.** Despite some studies (e.g., UniSAFE) extending into the broader gender spectrum by including non-binary genders and other gender categories, most surveys remain focused mostly on the male-female dichotomy when discussing safety issues related to gender. Youth has been included more explicitly through the category of 'early-career researchers', although these may also include researchers who started their research career at a later age. Other groups of scientific researchers that future data collection efforts should consider including more extensively are, inter alia, persons with disabilities and indigenous peoples. Generally, matters of intersectionality are hardly addressed in the various reports and studies.

It can be concluded from this list of gaps and shortcomings that there is a clear need for comprehensive, regular, international surveys (possibly coupled with in-depth interviews for more detailed insights) that can offer representative insights into the prevalence and nature of (experienced) threats to the safety of scientific researchers, as defined in the introduction. Such studies should not only focus on narrowly construed safety issues but should enable the identification of a wide array of safety threats and risks. Preferably, they should also allow for the study of factors triggering increased vulnerability (such as personal or group characteristics, the field of research and the type of research(-related) activities conducted), as well as for a study of impacts (e.g., physical, mental, employment-related, or economic).



There is a clear need for comprehensive, long-term, international surveys (possibly coupled with in-depth interviews for more detailed insights) that can offer representative insights into the prevalence and nature of (experienced) threats to the safety of scientific researchers.



Types of Threats to the Safety of Scientific Researchers



The threats that scientific researchers face are more extensive than solely threats to their lives or livelihoods.

3.1 INTRODUCTION

The notion of safety should not only encompass threats to the lives and livelihoods of scientific researchers. It entails various forms of harassment - ranging from academic bullying to death threats. All these threats have substantial, adverse effects on the lives, health and working conditions of scientific researchers. They negatively affect scientific production, threaten academic freedom and may even lead to scientific researchers leaving their countries or academia altogether, thereby causing *brain drain*.

As demonstrated in the previous chapter, some global monitoring initiatives put emphasis on physical threats to the safety of scientific researchers, whereas other initiatives focus on specific threats or specific groups, such as harassment of female scientific researchers. There is currently no global monitoring that captures all elements of the definition of threats to the safety of scientific researchers. One potential explanation for this could be that there is no clear and common understanding of the different types of threats that scientific researchers face and that can be covered by the general notion of 'safety of scientific researchers.'

For that reason, and to allow for comprehensive data collection and policy solutions to be devised, the current chapter sheds further light on the notion of the safety of scientific researchers. It does so by presenting a **typology of threats to the safety of scientific researchers**. It qualitatively and quantitatively explores the nature of specific threats to the safety of scientific researchers. These threats all have their own specific characteristics, causes and consequences for individual researchers and their scientific output.

The chapter is partly based on academic studies into various forms and types of (threats to) safety and specifically to the safety of scientific researchers. In addition, it makes use of the findings of two 'Science Dialogues' and one '[Policy Dialogue](#)' that were conducted by UNESCO in 2023. In these dialogues, many real-life examples were provided of the threats scientific researchers face and of the consequences they may have.

As the chapter will show, in addition to (threats of) physical violence, the safety of scientific researchers refers to the need to remain free from (threats of) psychological, economic, social, and sexual violence

and harassment. This is further explained in Section 3.2. Such attacks and threats to safety can be 'real' and tangible, in the sense that the life or integrity of a scientific researcher may either be concretely under threat or may exist mainly in the perception of scientific researchers. As Section 3.3 will show, such perceived threats to safety can be as problematic as tangible threats when it comes to the way they can negatively impact intellectual autonomy and independence. To add to the existing body of literature on typologies of safety, and to reflect the outcomes of the science and policy dialogues, a further distinction is made in Section 3.4 between 'external' threats to safety (threats from the outside world, such as governmental actors or private bodies) and 'internal' threats (threats to safety that stem from a scientific researcher's own academic or institutional environment). Building on this, Section 3.5 differentiates between safety threats that are caused by State bodies (e.g. prosecution or withdrawal of research funding) and threats caused by non-State actors (e.g. death threats on social media or attacks by fundamentalist groups).

Subsequently, the chapter turns to some specific ways and contexts in which the safety of scientific researchers finds itself under threat. Section 3.6 pays attention to the phenomenon of online threats and challenges to the safety of scientific researchers, whereas Sections 3.7-9 identify several factors and contexts in which specific threats to the safety of scientific researchers have been recorded. In this respect, attention is paid to a researcher's particular identity or belonging to minority groups, to special risks that may exist when scientific researchers engage in fieldwork, and to the specific challenges that may arise in situations of emergency and armed conflict.

3.2 SAFETY, SECURITY AND DIFFERENT TYPES OF THREATS AND VIOLENCE

3.2.1 Safety and security

The notion of safety is wide and encompassing, and it is closely related to the notion of (human) security. In 2003, the UN Commission on Human Security (UNCHS) defined human security as related to protecting "the vital core of all human lives in ways that enhance human freedoms and human fulfilment" (UNCHS 2003: 3). In 2012, the UN General Assembly defined human security as follows:



The right of people to live in freedom and dignity, free from poverty and despair. All individuals, in particular vulnerable people, are entitled to freedom from fear and freedom from want, with an equal opportunity to enjoy all their rights and fully develop their human potential.

Over time, there has been much academic debate about whether 'safety' is essentially, conceptually, and semantically different from this notion of '(human) security' (e.g. Blokland and Reniers 2020). Because of their overlapping meaning, the concepts are often used interchangeably and as synonyms (Boholm, Möller and Hansson 2016: 329). However, there are clear differences between 'safety' and 'security' and they may have different connotations.

Atkins has defined 'safety' as "the condition of not being in danger" (Atkins 1991: 169; see also Boholm, Möller & Hansson 2016: 321). When this general definition is used, 'human security', as defined above, can be regarded as a sub-set of safety (Blokland and Reniers 2020: 14). For example, the term 'security' is often used if the harms or dangers are intentionally caused (security then is 'freedom from threat'), whereas safety can also cover unintentional situations (safety then is 'freedom from risk', which also may include unpredictable risks such as national disasters) (Boholm, Möller & Hansson 2016: 321). Moreover, subtle differences in connotation may exist in common parlance. For example, as Boholm, Möller and Hansson explain, 'job security' and 'job safety' are essentially different concepts. Whereas the notion 'job security' is most naturally interpreted as 'one's job being out of danger', that is, one does not have to fear losing one's job, 'job safety' is typically interpreted as having a non-dangerous job (Boholm, Möller & Hansson 2016: 329).

As the current study and the UNESCO Programme is mostly engaged with intentional threats, it could be argued that it would be best to speak of the ‘security’ of scientific researchers. However, because of the differences in connotation that exist in common parlance as well as in the accepted terminology in the reports that have been analyzed in Chapter 2, the choice has been made to speak of ‘safety’ of scientific researchers. Nevertheless, the conceptual closeness of the two notions means that categorizations made in relation to security can also be applied to safety.

3.2.2 Safety as freedom from (threats of) violence and bodily, material or psychological harm

Within the category of ‘safety’ as it is understood for the purposes of this study, further categories of safety (or threats to safety) can be distinguished. One of the best-known categories is physical safety, which can be defined as the freedom from violence. In turn, ‘violence’ can be defined as:

“The intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation” (WHO 2002: 5).

The WHO includes not only interpersonal violence in its definition (e.g., assaults or homicide), but also legal interventions, such as police action, and interventions by third parties, such as demonstrations or abductions (WHO 2002: 7). Moreover, the definition does not purely relate to bodily harm, but includes psychological harm and deprivation. An important element is that of intentionality, whereby it should be emphasized that this relates to an intention to use violent means, rather than to achieve a certain result of damage or harm (WHO 2002: 5).

Within this encompassing notion of safety, various sub-categories can be distinguished according to the nature of the violence that is (threatened to be) used or the harm or damage that is done. First, **unsafety can be defined in physical terms**. This is the type of unsafety that is used as the main reporting criterion in the SAR *Free to Think* reports of as discussed in Section 2.3.1. These reports speak of “threats or deliberate use of violent or coercive force or restrictions”, and distinguish further categories of killings, violence, and disappearances, wrongful

imprisonment, and wrongful prosecution. The SAR reports show that such risks and threats are indeed real. For example, the 2023 Report offers the example of two environmentalists and researchers who were killed by unknown perpetrators. Another example concerns a violent attack by an individual on a professor of sociology. It also notes several examples of government authorities detaining, prosecuting, and using other coercive legal measures to punish and restrict scientific researchers’ academic activity. An OECD policy study also provides examples of scientific researchers being prosecuted for being considered a risk to national security (OECD STI 2022: 32). Likewise, the UniSAFE Report, discussed in Section 2.3.3, shows that a considerable number of scientific researchers report to have been victims of sexual violence, which has directly affected their bodily and mental integrity.

Second, **safety can be undermined by damage done to one’s property and belongings**, such as through arson, theft, or pilferage (Diprose 2007). Slightly stretching the concept, but relevant for the context of scientific research, theft may thereby include stealing one’s ideas or research results, appropriation of work, as well as consciously violating one’s intellectual property rights. Similarly, and building on the WHO definition, in its annual reports, SAR includes loss of position, expulsion and improper travel restrictions in its definition of ‘unsafety’. This shows that acts and threats that may cause economic, financial, or material damage or harm can be considered as falling within the notion of the safety of scientific researchers.

Third, **the harm done may be primarily psychological in nature**. For example, a majority of the respondents in the UniSAFE report noted that they had been subjected to psychological violence and sexual harassment. Such acts might not have direct bodily consequences, but they may still have a negative impact on researchers’ sense of safety and such threats or acts may prevent them from freely doing their work. Indeed, ‘academic harassment’ and bullying in the direct academic environment can have “devastating effects for the victims” (Kostakopoulou & Mahmoudi 2022: 1; Moss et al. 2022). Psychological harm also may be caused by outside attacks carried out in the traditional media or through social media. As the *Nature* and the *Global Witness* surveys have shown, these may lead to considerable reputation damage, ‘shaming’ and loss of credibility as a researcher. Next to material damage, this may cause psychological harm that can affect the researchers’ feeling of safety and their experience of (a lack of) scientific freedom.

3.2.3 Social, political and economic violence: motives

Social, political and economic safety are sometimes mentioned as separate categories of safety, but they can also be defined as a subcategory of physical safety, as a form of 'collective violence', that is violence committed by a group of persons or by States (WHO 2002: 6), as opposed to violence committed by individuals.

According to the WHO, depending on the underlying motivations, collective violence can turn into social, political or economic violence. For example, violence may be committed, and threats may be made, to advance a particular social agenda, such as an ideology or religion (ibid.). Political violence and threats include war and related violent conflicts which have their origin in the political objectives or the purported political gain of certain actors (ibid.). Economic violence includes attacks by larger groups motivated by economic gain – such as attacks carried out with the purpose of disrupting economic activity, denying access to essential services, or creating economic division and fragmentation (ibid.). If any such forms of violence are used or are threatened to be used, this constitutes an issue of safety, but the motives behind these safety threats are different.

Whereas the WHO's definition is based on the intention of using violence or threats and the motives behind the violence, it is also possible to qualify safety threats as social, psychological, or economic according to the effects they have on scientific researchers. For example, the UniSAFE project, discussed in Section 2.3.3, speaks of 'economic' violence in relation to "any act or behaviour which causes economic harm to an individual, e.g., harms your work/studies through restricting access to financial resources." However, for purposes of conceptual clarity, here this subcategory of unsafety is brought within the category of 'material' damage.

3.2.4 Summary

Combining the various definitional elements discussed above, three subcategories of the safety of scientific researchers can be identified. It is important to emphasize, however, that these categories may co-exist.

1. Situations where threats or violence lead to bodily or physical harm to researchers, whether it is in the form of physical injuries or even death, or in the form of deprivation of liberty or limitations to the freedom of movement and expression.
2. Threats or violence that cause material or financial damage to research facilities or publications, breach intellectual property rights, or restricts researchers' access to financial resources.
3. Threats or violence that cause psychological harm or damage, for instance by instilling fear in a researcher or creating a general sense of unsafety that may hamper a researcher's sense of academic freedom. This includes, but is not limited to, forms of harassment, bullying and intimidation both in the physical and the digital world.

The motives for creating unsafe situations or feelings of unsafety may differ, but especially when collective violence is used, it is often related to the wish to advance a certain social agenda, to political objectives, or to economic interest or gain.

3.3 PERCEIVED VERSUS TANGIBLE UNSAFETY

In Section 3.2, it was explained that the overarching notion of safety encompasses the freedom from threats and violence, which, WHO defined as "the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation". Such threats and violence may have social, political, and economic motives, and they may result in scientific researchers no longer being able to conduct their work, being compelled to flee or leaving academia altogether.

The reports discussed in Chapter 2 have shown that such threats and violence may be very real. All over the world, scientific researchers are assaulted, attacked, or threatened, with bodily, mental, or material harm as a result.

In addition to such tangible safety threats, there may be a sense of insecurity or a perceived lack of safety. Such feelings of unsafety are problematic, as perceived or 'sensed' threats may make scientific researchers afraid to do their work. Indeed, it is essential for scientific researchers' well-being, work, and performance that they *feel* safe. If feelings of insecurity, uncertainty and fear exist, these should be acknowledged and they must be reduced and counteracted, even though this may require different policies and measures than fighting actual, tangible threats to safety.



Next to tangible attacks or threats, feelings of unsafety are problematic as perceived or 'sensed' threats may make scientific researchers afraid to do their work.

Nevertheless, the very intangibility of perceived threats makes it difficult to handle them. Someone's sense of unsafety may be unfounded or may result from psychological overestimation of the probability of a particular situation occurring. Individuals' subjective sense of safety therefore by no means always corresponds to real, objective risks (e.g., Lewis 2005), although it seems that the human ability to estimate risk is more realistic than we often tend to think (Oppelaar & Wittebrood 2006:21). Moreover, it is difficult to measure perceptions of unsafety. With objective issues of safety, especially physical safety, it is relatively easy to determine risks and risk factors and to decide whether, when and how to react to them. This is much more difficult if there is a more ambiguous feeling of unease, or the intuitive feeling that a certain line of research, a certain way of talking to the media or a certain way of sharing research results might have a negative impact on a researcher's reputation or their physical safety.

Various international and national reports grant significant attention to perceptions of unsafety. For example, the reports on intimidation, harassment, sexism, bullying, and attacks discussed in Chapter 2 show that surveys may not only ask questions

about actual experiences of unsafety or threats, but also touch on circumstances that cause scientific researchers to *feel* themselves in an unsafe situation or 'at risk'. This can lead to relevant findings regarding the experience of safety or unsafety of researchers. For example, the IPSOS/L'Oréal study noted that in a research environment that was dominated by sexism, many researchers felt 'vulnerable' or 'anxious'. Similarly, as was noted in Sections 2.3.4-2.3.6, the *Nature* survey of COVID-19 researchers, the *Science* study and the *Global Witness* report on climate scientists showed that, despite researchers' attempts to "shrug off abuse", many reported that the threats or attacks on them led to emotional or psychological distress and to loss of productivity. Similarly, even though researchers feel that some degree of bullying and harassment is 'part of their work' and they simply 'have to suck it up', it makes them feel vulnerable. Hence, even if threats are made that never will be realized, and researchers are aware this is the case, this feeling of unsafety may hamper their freedom to conduct research.

3.4 EXTERNAL AND INTERNAL THREATS

Threats to the safety of scientific researchers can occur everywhere. In some instances, State prosecutorial bodies have acted to detain individual researchers, armed groups have attacked labs, or private individuals have uttered death threats via social media (e.g., SAR 2023; see further Section 2.3). In other situations, scientific researchers have come to feel unsafe in doing their work because they fear for a lack of research funding or a loss of career opportunities, or because they are intimidated or harassed by a colleague or their supervisor (ibid.). All such occurrences and perceptions clearly are covered by the concept of the 'safety of scientific researchers.' Nevertheless, in defining policy approaches and measures, context may matter. In this regard, it may be useful to distinguish between 'external' and 'internal' threats to safety.

'External' unsafety can be defined as the tangible and perceived safety threats that stem from outside the organization a scientific researcher is affiliated to, working for, or funded by. As discussed in more detail in Section 3.5, this category of unsafety includes attacks and threats by private individuals or groups, such as abduction, destruction of facilities or threats on social media. In addition, it covers threats to the safety of researchers caused by State actors, such as the police or

government actors. Examples of these threats and actual use of violence can be found in the reports of SAR, as discussed in Section 2.3.1. The *Nature* survey of COVID-19 researchers equally shows that the many threats and attacks on their reputation and credibility were made by individuals through social media (see Section 2.3.4). In addition, as has been demonstrated by the OECD STI (2022) and the American Association of University Professors (AAUP 2017, 4-5), external threats and attacks may take the form of scientific researchers being prosecuted by government bodies.

‘Internal’ safety can be defined as the real and perceived safety threats that stem from *within* the organization a scientific researcher is affiliated to, working for, or funded by. These threats are of a different (and often more subtle) nature than external safety threats. Examples that have been mentioned in the Science Dialogues and the reports discussed in Chapter 2 are disciplinary sanctions, intimidation, bullying, harassment, systematic ignoring, dismissal or loss of career opportunities, loss of funding or funding opportunities, reputation damage, or violation of intellectual property rights.

The reports show that these internal safety threats can range considerably in impact and consequences. The SAR’s *Free to Think* reports give very far-reaching examples, such as professors having lost their position or being suspended in apparent retaliation for their research. Similarly, Carter et al. (2017) have shown that scientific researchers working for the government may be sidelined or lose their position because of their work or the way they share their findings. Other measures and acts may not be as far-reaching but may still affect scientific researchers’ sense of safety. This is true in particular for cases of bullying, harassment and intimidation, as the IPSOS/L’Oréal study has shown and is demonstrated in academic studies (e.g. Kostakopoulou & Mahmoudi 2022) and the Science Dialogues (see Section 3.2 above).

Other examples of ‘internal’ unsafety reported by SAR are cancelling academic exchanges or academic events or being obliged to move a planned academic event off-campus. Such forms of internal lack of safety are closely related to, and overlap with, certain aspects of academic freedom and research integrity. However, they may amount to actual or perceived unsafety if they affect “the condition of not being in danger” and the right to remain free from bodily, material, and psychological harm.

Finally, ‘external’ and ‘internal’ safety cannot always be clearly distinguished. In particular, some ‘internal’ threats may have ‘external’ causes. For example, if a government decides to cut down public funding for a research institute because of disagreement with that institute’s policy choices (an ‘external’ threat) may result in budget cuts or dismissals that mainly affect certain minority groups (an ‘internal’ threat).

3.5 STATE BODIES VERSUS NON-STATE ACTORS

Complementary to the categories of external and internal safety threats, it can be useful to make a distinction between safety threats by State bodies and by non-State actors. This distinction is particularly relevant regarding the type of State action that is needed to ensure the safety of scientific researchers, and it is closely related to the notions of positive and negative freedom (i.e., ‘the freedom to’ as opposed to ‘the freedom from’).

Negative freedom (including freedom of science and academic freedom) entails that scientific researchers should be able to conduct their research freely and without intervention, including by the State. This entails the obligation of States to ‘respect’. Essentially, it means that State bodies should *not* dictate research topics or research questions, should *not* censure certain publications, and should *not* prohibit or discourage scientific researchers from discussing their ideas and findings or sharing their data and results. Interferences with negative freedom can only be acceptable if there is a compelling justification for them that meets requirements of legality, legitimacy, and proportionality.

In relation to the topic of the safety of scientific researchers, negative academic freedom implies, firstly, that State bodies should be very careful not to act in such a way that bodily, material or psychological damage is done to scientific researchers or significant fear of such damage is instilled. The SAR reports, in particular, have shown several examples of situations in which breaches of this negative freedom by State authorities have been made. (Collateral) damage to, destruction of and violence of research institutions in situations of war or armed conflict may have a highly significant impact on the (experienced) safety of scientific researchers. Moreover, the SAR reports suggest

that research institutions and facilities may also be intentionally and consciously targeted. This situation is addressed in more detail in Section 3.7.

Beyond the overall situation of armed violence or emergencies, States still can be directly responsible for scientific researchers' real and perceived unsafety. As noted in Section 3.2, in its *Free to Think* annual reports, SAR mentions several examples of government authorities detaining, prosecuting, and using other coercive legal measures to punish and restrict scientific researchers' academic activity. Similarly, an OECD policy study gives the example of scientific researchers being prosecuted for being considered a risk to national security (OECD STI 2022: 32). In some countries, moreover, scientific researchers working directly for the government may be targeted by restrictions to share their findings ('gag orders') or they may not dare to speak out freely out of fear for retaliation by government bodies (Carter et al. 2017). In 2022, furthermore, UNESCO has drawn attention to 'Strategic Lawsuits against Public Participation' or SLAPPs, which are legal claims brought by powerful private actors to intimidate and silence weaker parties who criticize or disseminate critical messages that are unfavourable to them (UNESCO 2022: 12). SLAPPs are often brought against journalists to deter them from doing their work, but could (potentially) also be directed towards scientific researchers. In other situations, the safety threats may be less intrusive, but may still have an impact. This is the case, for example, when a university is obliged to cancel an event because of objections by the authorities or because a public body prohibits scientific researchers from attending conferences in a particular country (SAR 2023).

By contrast, **positive freedom of science and academic freedom implies that States must actively ensure that scientific researchers can do their work safely (States' obligation to 'protect' and 'fulfil')**. The reports discussed in Chapter 2 show that many threats and violent acts aimed at scientific researchers come from individuals or (small) groups. For example, in Section 3.2, it was mentioned how SAR reported in 2023 that two environmentalists and researchers had been killed by unknown perpetrators and a professor of sociology had been violently attacked by an unidentified individual. In addition, the SAR report noted several armed and even deadly attacks on universities by insurgent groups. Private individuals are also responsible for many instances of harassment, bullying and intimidation that have been reported in the studies

discussed in Section 2.3. Likewise, and as was also reflected in a Science Dialogue with selected experts in 2023, it has been shown that a considerable number of scientific researchers receive very concrete threats by individuals, sometimes to such an extent that they feel compelled to seek refuge in a safehouse or are less willing to share research results in mainstream media.

Much in parallel to the positive obligation of States to help ensure the safety of journalists or civil society actors, positive academic freedom entails that States ensure scientific researchers do not have to fear for their lives, livelihood, or bodily and mental integrity when they work, and that those responsible for threatening their safety do not go unpunished. The latter is a key area of the "[UN's Plan of Action on the Safety of Journalists and the Issue of Impunity](#)" which stresses that Member States should investigate crimes committed against journalists and ensure the perpetrators are appropriately punished. Such obligations are also essential to create an enabling environment for scientific freedom and to promote safe and non-discriminatory working conditions for scientific researchers, so that they do not have to face (or fear) internal or external dangers and safety threats.

3.6 ONLINE THREATS AND CHALLENGES TO THE SAFETY OF SCIENTIFIC RESEARCHERS

The online realm can be seen as an extension of the physical world. Harassment, denial of facts and mis- and disinformation are phenomena that have existed in the world for centuries. Over the course of history, "political interests, economic interests and popular delusions have contributed to false claims" and harmful action based on such claims (NOU 2022: 31). In many ways, however, **the Internet and social media aggravate existing threats and risks to scientific researchers and make it easier for perpetrators to reach and attack their targets.**

Indeed, as noted in a Norwegian government report on academic freedom of expression in 2022, "it is primarily since unedited media and platforms started to form central parts of our common public spheres that the impression of a harsh climate of debate has taken root." (NOU 2022: 91). As for threats to the safety of scientific researchers in the real world, "it is we humans, with our weaknesses and cognitive biases, that are the cause of this development" (ibid.). However, such human tendencies are now

exacerbated “by algorithms that reward emotion-driven and emotion-generating content over considered, nuanced, factual and truth-seeking content” (ibid.).

Despite the often alarmist analyses of the threatening environment for researchers created by social media, **threats via social media are not the most prevalent category**, according to the 2022 Swedish [report](#) on the prevalence and consequences of threats and harassment against researchers and university teachers in Sweden, as discussed in Section 2.4.1. Rather, the study suggested that it was threats by email (18 percent) and by face-to-face statements (11 percent) that were most prominent, with threats in social media messages and communication as the third category (9 percent). However, in the era of generative artificial intelligence, such threats may be further expanded, particularly against women and possibly also women researchers (UNESCO [2023c](#)).

Nevertheless, during a Science Dialogue in 2023 on the topic of online threats to the safety of scientific researchers, experts noted significant anecdotal evidence of an explosive increase in online harassment. Considering the specific dynamics of such threats and harassment, it is important to establish online threats and challenges to the safety of scientific researchers as a distinct type of safety threats. **The online world, as opposed to the physical world, offers a significantly higher degree of anonymity and often a lack of oversight, leaving room for undesirable behaviour.** Therefore, it is a realm that is characterized by its own dynamics and rules of engagement. This affects the degree to which researchers are harmed by threats and risks, the capacity to deal with them personally (or not), whether threats can be monitored effectively and how national and international policymaking communities can address them adequately.

Engagement with the public is a vital part of the professional activities and responsibilities of scientific researchers (Oksanen et al. [2022](#): 542). Scientific researchers and their work need to be visible for self-promotion, networking, collaboration, and knowledge sharing and to communicate with and foster engagement of students (ibid.). Such increased visibility “leaves academics vulnerable to attacks from strangers” (ibid.). Such threats can be grouped together under the term ‘online harassment’, which covers “a large range of attacks on individuals via written or graphic insults, picture

and video manipulations, identity thefts, and violent threats” (ibid.). In a study conducted by Oksanen et al., around 2,500 university research and teaching staff members (with a response rate of 50 percent and a survey completion rate of around 40 percent) from five major universities in Finland were questioned about their experiences with online harassment.¹⁰ Of the participants, 53 percent were women, 46 percent were men, and less than 1 percent identified as belonging to another gender. The results of this survey give some insights in the prevalence, forms, and impact of online threats to the safety of scientific researchers. **Around 30 percent of respondents reported exposure to online harassment at least once during the prior six months.** The most common forms of online harassment included “excessive criticism going beyond normal critique” (around 17 percent), “offending and angry messages” (around 16 percent) and personal attacks on participants (around 14 percent). Other less prevalent but arguably graver threats reported were identity theft (just over 1 percent), violent threats (around 3 percent) and death threats (around 1 percent).

Regarding the prevalence of threats among various groups, Oksanen et al. (2022) shed light on specific factors and professional and/or personal characteristics that exacerbate or aggravate online threats to individual staff’s freedom and safety. First, frequent media appearances and social media posting were strongly associated with falling victim to online harassment (Oksanen et al. 2022: 554). In a more general sense, and contrary to the findings of some of the studies discussed in Section 2.3, victims of online harassment were more often senior members (ibid.: 557). Moreover, the study found no statistically significant differences between genders (ibid.: 543). Women, however, were “underestimated or criticized online because of their gender” and “were sexually harassed online” more commonly than men. Men, on the other hand, “reported more often than women that they were attacked online because of their religion or ideology.” In addition, **minority group members and staff from the social sciences and humanities proved to be at greater risk of online harassment** (ibid.). Of the respondents from the social sciences, 37 percent reported being subjected to online threats and harassment which, on average, was 9 percent higher than the reference group of natural scientists.

10 “Participants were sampled based on contact information received from HR departments and university websites. The random sample included half of the university staff from each university. All participants were contacted by email, and the data was collected between 15 April and 5 June 2020” (Oksanen et al. 2022: 546).



Furthermore, in recent years, **the range of tools that perpetrators of online harassment and threats have at their disposal have multiplied** (Oksanen et al. 2022). Deep fake videos, for instance, are increasingly used for purposes of disinformation and misinformation, to deceitfully affect the public debate. Such sophisticated footage is often difficult to recognize as fake, making it difficult for victims to defend themselves. In addition to novel technologies, a **common challenge with online threats to the safety of scientific researchers is that they are often underreported**. This significantly complicates adequate monitoring of the issue. Only 16 percent of victims reported the attack to their supervisors and only 3 percent to the police (ibid.). Of those victims who did not report to the police, more than three in four believed that the act committed against them was not serious enough to be reported. Around 23 percent did not believe that any action would be taken in reply to the report. Half of those respondents who were threatened with violence did not consider the act to be serious enough for it to be reported to the police. The same goes for victims of identity theft.

As reflected by Oksanen et al., **the increasing digitalization of our societies and the continuing growth of social media have changed the landscape of the freedom and safety of scientific researchers**. Social media offer a low barrier for anyone to quickly, and often anonymously, deliver a threatening message. Moreover, online threats and threats via social media are highly invasive, *doxing* can be a particular risk, and individuals can easily reach out to a researchers' family members or children. Although there is no solid data to suggest that there are more online than physical threats, their prevalence may be expected to increase. In view of the increasing complexity of harassment online and via social media, redress mechanisms need to be put in place to protect the safety of scientists. Such action should be a joint effort of governments together with big tech companies and the general public.

3.7 THE SAFETY OF SCIENTIFIC RESEARCHERS IN CONFLICTS AND EMERGENCY SITUATIONS

By the end of June 2023, almost 110 million people were forcibly displaced worldwide as a consequence of conflict, violence, persecution, violations of human rights and events that seriously disturbed

Victims were more often senior staff members, minority group members, and from social sciences and humanities. In over half of the cases, the perpetrator was a person unknown to the victim. Only 16% of the victims reported the attack to their supervisors and 3% to the police, although many had faced serious offences (e.g., violent threats)—Dr Atte Oksanen et al, Hate and Harassment in Academia: The Rising Concern of the Online Environment (2022).

public order (UNHCR 2023). Compared to 2021, this is an increase of around 19 million people, “the largest ever increase between years according to UNHCR’s statistics on forced displacement” (ibid.). Ongoing and new conflicts remain the driver of forced displacement across the globe. As noted by UNESCO, “[s]chools and universities – places to foster development and peace – are attacked by extremists to spread fear and indoctrinate new recruits.” In many conflicts, **the military use of schools and universities remains “a constant feature of war”** (ibid.).

Researchers and their institutions can become victims of indiscriminate attacks, simply because there is armed conflict in the region where they work, or victims of focused attacks, because they are “perceived as threatening to regimes and extremist groups and are targeted directly as a result” (Global Young Academy 2018). Whole science and research ecosystems can be partially or completely damaged during natural and technological disasters and deliberately targeted during armed conflicts. This threatens the safety of scientific researchers, the future stability and post-crisis development of countries and regions, as well as the equal enjoyment of the right to science for current and future generations.

The UNESCO publication [Analysis of war damage to the Ukrainian science sector and its consequences](#) (UNESCO 2024) illustrates the strong impact that conflict can have on a country’s science ecosystem and the situation of scientific researchers. Over the two-year period of conflict, Ukraine’s scientific human capital decreased with more than 3 percent (from 13,883 to 13,444 researchers). Moreover, 12 percent of Ukrainian scientists and university teachers were forced into exile (6.3%) or were internally displaced (5.5%). A total of 1.26 billion dollars is needed to restore public research infrastructure.

The impact of conflict and crises on the freedom and safety of scientific researchers may seem obvious, but exact data are lacking in most cases. According to UNESCO’s Science Report (2021), Iraq had around 426 researchers per 1 million inhabitants in 2015. Since “there were some 4 million Iraqi refugees around the world at the peak of the crisis in Iraq” (TWAS 2017: 4), more than 1600 researchers are estimated to have been displaced from that country alone. The World Academy of Sciences (TWAS) states that “in just the past decade [the number of displaced researchers] clearly numbers

in the thousands, perhaps tens of thousands” (ibid.). Beyond “sudden outbreaks of violence that compel people to flee”, “environmental disasters such as prolonged droughts, land degradation and food scarcity – caused or exacerbated by climate change – are also causing people to move in search of better lives” (ibid.).

Such worrisome trends present urgent challenges not just to the freedom and safety of the displaced researchers, but also to their countries of origin, which may face an exodus of invaluable talent (*brain drain*). Despite extremely challenging circumstances such as political unrest, armed conflict and environmental crises, there are researchers who live, work and carry out research in these regions. Beyond merely supporting and accommodating displaced researchers, the situation of local researchers residing in emergency areas should be adequately understood and addressed (TWAS 2017: 5).

Several international organizations that are active in the fields of education in emergencies and conflict-affected contexts and the protection of human rights in higher education, including UNESCO, established the Global Coalition to Protect Education from Attack (GCPEA) in 2010. Together with its membership, GCPEA has drafted [Guidelines for Protecting Schools and Universities from Military Use during Armed Conflict](#), which are widely used by UN Organizations and the International Committee for the Red Cross. More important for the purposes of the present study is [GCPEA’s Education Under Attack 2022](#) report. It states that “[a]ttacks on education and military use of schools and universities increased during the 2020–2021 reporting period but the number of students and educators harmed declined, compared to the two years prior” (GCPEA 2022). More specifically, in 2020 and 2021, GCPEA identified more than five thousand attacks on education and incidents of military use that killed more than nine thousand students and teachers. In 2018 and 2019 around 4,300 attacks were reported, with 9,400 victims (ibid.). Of all these attacks, two in three were perpetrated against schools, the most common form of attack on education (ibid.).

Another finding of the GPCEA report relates to the position of women and girls, which was found to be particularly vulnerable, since they are specific targets in conflicts, and at higher risk of being victims of sexual harassment (ibid.). Beyond gender-related risks, early-career researchers “often find themselves in highly precarious situations when conflicts erupt”

since they often do not yet have at their disposal well-established networks (International Science Council 2021). Although the GCPEA report's findings apply to the issues addressed in the current study, it contains limited data and specific insights on the situation of scientific researchers. **Enhancing data collection and analysis of threats to the freedom and safety of scientific researchers in times of conflict and crisis is therefore of high importance.**

Various initiatives are undertaken worldwide to address the situation of researchers in emergencies, in particular those who are displaced. UNESCO's Recommendation on Science and Scientific Researchers establishes that in relation to the health and safety of scientific researchers, Member States should implement all national and international standards relating to their protection from hostile or dangerous environments (paragraph 32) and in instances of conflict (paragraph 25). Drawing on this provision and within the framework of the Organization's broader support to Ukraine, UNESCO has put the spotlight on the situation of Ukrainian researchers with the aim of highlighting the challenges they are confronted with and possible actions to improve their status and well-being. Other international efforts include *Science in Exile*, an initiative that "aims to enhance the work and lives of at-risk, displaced and refugee scientists globally" and was established by the International Science Council (ISC), the Inter Academy Partnership (IAP) and TWAS, and the *Global Young Academy's At-Risk Scholar Initiative*, which serves similar purposes.



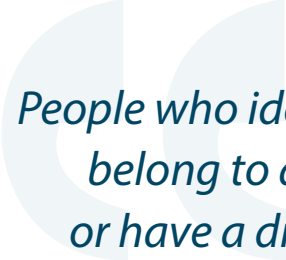
Enhancing data collection and analysis of threats to the freedom and safety of scientific researchers in times of conflict and crisis is of high importance.

3.8 THE SAFETY OF SCIENTIFIC RESEARCHERS FROM MARGINALIZED GENDER AND IDENTITY GROUPS

Researchers from minority and underrepresented groups in academia often encounter additional layers of vulnerability. They may face systemic biases, discrimination, and a lack of support within research and academic institutions. These factors can amplify the risks associated with their research activities, particularly when their work challenges prevailing norms or when they conduct fieldwork in areas where they are visibly different from the majority population. It is important to underline the possible intersectionality of overlapping identities that are discussed in the following section, such as gender, ethnicity, and socioeconomic status. This overlapping can lead to compounded forms of discrimination and disadvantage, thus increasing exposure to safety risks.

The overview of data and analyses offered in Chapter 2 confirms that **personal characteristics and identity are important explanatory factors of the harassment and threats endured by individual researchers.** Most available data focus on threats faced by women researchers, but there are also some data available on threats to other gender groups such as non-binary persons, and to identity groups such as ethnic minorities or people with disabilities (mostly UniSAFE). However, the existing knowledge base is insufficient to establish a full typology of threats to the safety of researchers from specific gender and identity groups. Moreover, many other factors related to identity or group membership may explain certain specific patterns in the data, just as issues relating to intersectionality and cumulation may play a role. Heeding those difficulties and caveats, the current section does explore the male-female dichotomy that can be seen in the reports discussed in Section 2.3, just as it touches upon (some) other gender and identity groups. More importantly, data limitations call for greater attention to a wide range of characteristics and group memberships in further data collection. Only when this is done, it will be possible to fully assess the safety risks of particular groups and develop dedicated policies to protect them.

As reported by UniSAFE, non-binary people are the gender identity group whose safety is most at risk. Similarly, **people who identify as LGBTQI+, have a disability, a chronic illness, or belong to an ethnic minority were found more likely to**



People who identify as LGBTQI+, belong to an ethnic minority or have a disability or chronic illness, were found to be more likely to have experienced.

have experienced gender-based violence. A 2017 study on [gendered and racial harassment of women researchers](#) (in the disciplines of astronomy and planetary science) confirms the intersectional nature of the phenomena this study addresses. It followed from a sample of 474 female researchers (conducted between 2011 and 2015), of which 84 percent were white/European American, that women of colour who are active in the fields of astronomy and planetary science experience greater gendered and racial harassment than any other group.¹¹ More precisely, 40 percent of respondents from this group experienced feelings of unsafety in their workplace on the basis of gender identity and 28 percent on the basis of racial identity. Both women of colour (18 percent) and white women (12 percent) indicated that they had skipped professional events because of such feelings of unsafety, directly negatively impacting the career opportunities of these women researchers and their ability to network and showcase their research relative to their male colleagues (Clancy et al., 2017). Based on a systematic review of existing literature, Bondestam & Lundqvist (2020: 401-2) similarly conclude that in higher education, “certain minorities (ethnicity and sexuality) are more exposed to sexual harassment than other groups.” These statistics align with findings from UNESCO’s report *The Chilling* (2021) on the disproportionate targeting of the critical voices of women journalists, in particular those from minorities.

Beyond sexual harassment, the surveys explored in Chapter 2 show that scientific researchers from specific gender and identity groups face special threats and challenges to their freedom and safety. One problem that has received increasing attention over the past years is **microaggression**, which are “communicative acts, verbal or nonverbal,

implicit or explicit, that demean, insult, and discriminate against people from marginalised groups” (Blithe 2019: 3). Rather than one isolated insult, microaggression often concerns prolonged patterns of microinvalidations (“subtle acts that exclude or negate the feelings or experiences of individuals”), microinsults (“repeatedly insensitive or rude comments based on one’s social status”) or microassaults (“blatant attacks with discriminatory statements”) (ibid.). Such patterns of microaggression invalidate the position of victims in research organizations and negatively affect researchers’ performance and productivity. It has been argued that attention to such microaggression has been pushed aside by the attention to more apparent and visible forms of (physical) aggression (Johnson 2014: 138).

Importantly, the impact of harassment on gender and identity groups as well as (other) marginalized and underrepresented groups is often significant, especially as it is motivated by the personal characteristics of the victim. **Exposure to such threats and challenges leads to physical, psychological and professional consequences for the targeted researcher**, such as “**irritation, anger, stress**, discomfort, feelings of powerlessness and degradation” (Bondestam & Lundqvist 2020: 405). Professional consequences of sexual harassment include **limited career opportunities** and **decreasing job satisfaction**, motivation, engagement, and productivity (ibid.). Given their gravity and different characteristics, threats against researchers from specific gender and identity groups must be conceptualized and approached as a distinct type of threat to the safety of scientific researchers. Furthermore, specific features of the academic and research environment may enable these particular forms of harassment and threats – such as precarious working conditions, hierarchical organizations, toxic academic masculinities, a culture of silence and a lack of active leadership (Bondestam & Lundqvist 2020: 412). Particularly in the fields of science, engineering and medicine, **isolating environments such as labs, field sites and hospitals increase the risk of (sexual) harassment**, especially when combined with a strong hierarchy and relationship of dependency between senior and young faculty and young researchers (National Academies of Sciences, Engineering and Medicine 2018). It is important to approach these specific ‘internal’ threats in a holistic manner. Beyond the establishment of adequate reporting and redress mechanisms, toxic organizational cultures must be addressed.

11 The group of women of colour includes ‘Native American, American Indian, or Alaska Native’, ‘Middle Eastern or Arab American’, ‘Black or African American’, ‘Asian or Pacific Islander’, ‘Hispanic, Latino or Latina’ and ‘Multiracial’.



3.9 SPECIFIC FACTORS CONTRIBUTING TO THREATS TO THE SAFETY OF SCIENTIFIC RESEARCHERS

The discussion of the available data on threats and challenges to the freedom and safety of scientific researchers in Chapter 2 suggests that **some groups of researchers might be at greater risk than others**. One of those groups - women and certain other marginalized gender and identity groups - has been discussed in the previous section. **Other groups of researchers that are at greater risk are young and early-career researchers as well as researchers working on sensitive topics such as climate change and the COVID-19 pandemic**. The incompleteness and incomprehensiveness of the data on these issues notwithstanding, this section tentatively highlights three additional risk factors for scientific researchers: the status of young or early-career researcher, work on sensitive research topics, and engagement in fieldwork.

3.9.1 The safety of young and early-career researchers

Threats and challenges to the safety of scientific researchers are not always intentional acts. They can also originate from the structural features and deficiencies of science and research ecosystems themselves. Early-career and non-tenured scholars often face a precarious employment situation, characterized by short-term contracts, high job insecurity and a competitive job market. It followed from a [2021 INASP survey](#) (published in 2023) that 86 percent of early-career researchers have trouble accessing sufficient funding for their research. At the same time, the reports discussed in Chapter 2 show that these groups may be confronted with particular safety threats as a result of their precarious financial or career position. This precariousness can notably exacerbate the risks they face in their research endeavours. For instance, they may feel compelled to take on risky fieldwork or controversial topics to stand out, without the protection that a tenured position might offer. It may also increase dependency on senior researchers, rendering early-career researchers more vulnerable to harassment, abuse or self-censorship.

As discussed in the previous section, scholars from minorities and groups that are underrepresented in science and research face disproportionate risks. Such risks are further compounded by the

precariousness of early-career researchers. As shown by the IPSOS/L'Oréal survey, there is a strong intersectional connection between the young age or early-career status of researchers and (fears of) sexual harassment. 64 percent of women researchers between 18 and 24 years old reported sexist remarks as the biggest problem with which women in research are confronted while the average for sexist remarks was at 20 percent for all female respondents. The same trend, albeit with lower percentages, occurs for sexual harassment. This shows that matters of intersectionality may also have a considerable impact on the degree to which and the way in which specific groups may experience threats to their safety.

3.9.2 Safety of scientific researchers working on sensitive topics

The scientific exploration of (politically) sensitive or controversial topics has become a challenging endeavour, with researchers often facing not only academic scrutiny but also real-world pressures and threats. In various countries worldwide, researchers working on sensitive topics such as racism and immigration, gender, climate change, public health crises (COVID-19), and sexual and reproductive rights, “have been exposed to intimidating, hateful and threatening responses when participating in the public debate” (NOU 2022: 31).

The discussions in Sections 2.3.4 and 2.3.5 of the surveys conducted by *Nature* and *Science* have shed light on the consequences for scientific researchers of working on the COVID-19 pandemic. In these surveys, 321 and 510 respondents, respectively, were questioned about their experiences with threats and harassment because of their work or media exposure during the COVID-19 pandemic. As has been shown in Chapter 2, many researchers reported negative experiences resulting from their appearances in the media or comments and contributions online. Beyond the harmful physical, psychological, and professional impact on researchers, both studies demonstrated how **attacks on individual researchers silence their critical voices and reduce their willingness to contribute to public debate**.

Researchers working on climate change who responded to the *Global Witness* survey (discussed in Section 2.3.6) similarly reported a decreased willingness to contribute to the public debate. 39 percent of the 468 respondents to this study indicated that they had experienced (online) harassment or abuse. Although much attention has

been devoted to researchers working on climate change, threats on basic sciences (such as physics, chemistry etc.) are less highlighted. Such areas of research are often the first to lose funding because their value is not immediately obvious to the funders. Without funding, scientific researchers conducting basic science research may be hampered in their freedom to do so.

In recent years, the field of gender studies is increasingly confronted with attacks, as is shown by the shutdown of gender studies in several countries, and “threats and hatred targeting individual researchers and teaching staff” (Widegren and Håkansson 2023). Generally there is limited systematic data collection on harassment of researchers working in the field of gender studies. However, a [report on the working conditions of gender researchers](#) was produced by the Swedish Secretariat for Gender Research, which covers a narrow conception of working conditions, focused on job insecurity and workload experience, and their consequences, such as stress and anxiety. Anecdotal evidence suggests a pattern of attacks and challenges to the safety of gender researchers, such as the notorious right-wing protest in 2018 where famous gender researcher and feminist scholar Judith Butler was burned in effigy and accosted in an airport (Redden 2018). A common attack on the field of gender studies concerns the allegation that the field would be “ideological, not scientific” (ibid.). This invalidating attack can sometimes be heard regarding other disciplines within the arts and humanities as well. 44 percent of the researchers (from the United States) in these disciplines “have experienced or know a close colleague who has experienced abusive or acrimonious communications online, compared with the global average of 32 percent” (Economist Impact 2022: 38).

As can be seen from the scarce data available, the safety of scientific researchers working on sensitive topics is threatened in ways that depend on the topic of their research. Many attacks on researchers who work on viruses and climate change focus on their credibility and on the specific scientific topics they pursue. This is much less the case for gender researchers, for whom the mere affiliation with the field of gender studies is ground for harassment (Loftrup 2019). Noteworthy is that although attacks typically focus on researchers’ credibility and scientific work, women researchers working on COVID-19 or climate change were more likely to face harassment or threats based on personal

characteristics than men (up to ten times more likely than men), but also more than women researchers working on other issues. The bulk of threats and attacks is external in nature, i.e., they originate from outside research communities. **Most attacks (especially online attacks) are perpetrated by lone wolves, but when business interests (such as with COVID-19 vaccines and, potentially, climate change) or political interests are at stake, organized parties, whether State bodies, private firms or political/religious pressure groups, are potential perpetrators as well.**

3.9.3 Safety of scientific researchers engaged in fieldwork

Scientific researchers are exposed to particular risks to their safety when they are engaged in ‘fieldwork’, in the broad sense of the word. Simply leaving one’s office (where researchers could already be confronted with internal threats as we have seen) to conduct a survey on a local food market might pose certain risks to their safety. Undertaking fieldwork in locations that are unfamiliar to the researcher presents a graver risk to the physical and psychological well-being of the researcher than non-fieldwork research (ISC 2017). In the case of research fields that require travel to deserted or endangered areas of the world, harassment, threats, imprisonment and even death has long been a reality (Bell and Koenig 2017: 1223).

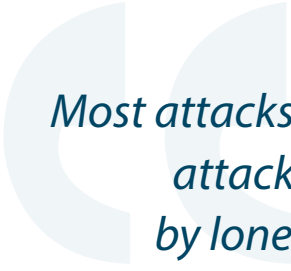
A heightened risk of sexual harassment is a feature of much field research for women researchers and researchers from marginalized gender and identity groups (National Academies of Sciences, Engineering and Medicine 2018). From a survey conducted among 666 respondents, 64 percent of respondents stated that “they had personally experienced sexual harassment: i.e. inappropriate or sexual remarks, comments about physical beauty, cognitive sex differences, or other such jokes” (Clancy et al 2014: 4). Over 20 percent of respondents reported that they had personally experienced sexual assault (ibid.). The study also found that in fieldwork research settings, such sexual harassment was more likely to be perpetrated by superiors.

In addition to risks related to the personal identity of the researcher (such as mainly gender-based risks but also vulnerability related to race, age, sexual orientation, national origin, language, caste or religion), researchers undertaking fieldwork in risky settings face three other types of risks, as identified

by the International Science Council: risks related to a research topic (e.g. illegal, socially sensitive or politically volatile activities), risks related to a setting (e.g. areas with high levels of violence or (post-) conflict areas and areas with poor infrastructure and hygiene) and risks related to perceptions of the research motivation (e.g. suspicions among local population or authorities regarding the researcher’s motivation or political affiliation) (ISC 2017: 2). Lastly, researchers from civil society collaborating with scientific researchers performing fieldwork are particularly vulnerable. This cohort is especially active in sustainability, environmental, public health, and development research. Their social identity, contract status, and working conditions may affect their access to protection and support.

3.10 SUMMARY: TYPES OF THREATS, RESPONSIBLE ACTORS, CONTEXTS, AND GROUP- AND RESEARCH-RELATED FACTORS

The aim of this chapter was to provide a ‘typology’ of threats to the safety of scientific researchers, based on available literature and the reports and data discussed in Chapter 2. In general, a wide definition of threats to or attacks on the safety of scientific researchers has been proposed, which includes (threats of) physical, social, political, and economical violence. Grouping these findings together led to the identification of **three main types of threats or violence to scientific researchers**, which are non-mutually exclusive (or potentially cumulative):



Most attacks (especially online attacks) are perpetrated by lone wolves, but when business or political interests are at stake, organized parties are potential perpetrators as well.

1. Situations where threats or violence lead to **bodily or physical harm** to researchers, whether it is in the form of physical injuries or even death, or in the form of deprivation of liberty or limitations to the freedom of movement.
2. Threats or violence that cause **material or financial damage** to research facilities or books, breach intellectual property rights, or restrict researchers' access to financial resources.
3. Threats or violence that cause **psychological harm or damage**, for instance by instilling fear in a researcher or creating a general sense of unsafety that may hamper the researcher's sense of intellectual autonomy and freedom, possibly leading to self-censorship. This includes, but is not limited to, forms of harassment, bullying and intimidation.

Moreover, it has been argued that such threats and violence can be both **tangible and perceived**, with perceptions of unsafety still constituting a significant risk to scientific freedom and the well-being of researchers.

In addition, threats and violence against scientific researchers can be classified in two categories according to the perpetrator:

1. The safety of scientific researchers can be under pressure due to both **external and internal** factors. 'External' unsafety has been defined as tangible and perceived safety threats that stem from *outside* the organization a scientific researcher is affiliated to, working for, or funded by – here one may think of government interventions, attacks by an armed groups, organized business interests, etc. 'Internal' safety can be defined as real and perceived safety threats that stem from *within* the organization a scientific researcher is affiliated to, working for, or funded by – in this respect, examples can be given of loss of career opportunities or dismissal.
2. Attacks and threats may stem both from **State actors** (such as the police or prosecution authorities) **and from private actors** (such as individuals uttering threats via social media).

Moreover, it has been shown that the nature and seriousness of the threats to the safety of scientific researchers can be different depending on the context in which they occur. In this respect, two **specific contexts have been discussed where particular risks appear to exist**. Specific risks have been shown to follow from **online threats** to scientific researchers, and special attention has been drawn to the precarious position scientific researchers **in emergency situations** may find themselves in.

Lastly, a number of different factors have been addressed that exacerbate the risks to the safety of scientific researchers or researchers. In this respect, it has been shown that especially **researchers from specific underrepresented and marginalized gender and identity groups** and **young or early-career scholars** face difficulties in doing their work. Finally, **scientific researchers working on sensitive topics or engaged in fieldwork** may encounter specific threats and problems.

The threats and violence that scientific researchers are confronted with show the wide scope of the phenomenon and at the same time the complexity of taking action. There is a need for dedicated and tailored approaches to accommodate for the different types of threats, responsibilities, contexts, and other relevant factors.

To offer a basis for efforts to strengthen the safety of scientific researchers, the concluding chapter (Chapter 4) first briefly elaborates on the importance of science in today's world and the indispensable functions it fulfils in our societies. Next, while considering the many limitations the existing international, regional and national reports and studies have been shown to have, some key data are presented that illustrate the alarming global state of play of the safety of scientific researchers and the impact this bears on individual scientific researchers. It then highlights the harmful impact of emerging trends and demonstrates the urgent need to act.

Combining the findings of Chapters 2 and 3 with the available information about the urgency of the issue, Chapter 4 lays the groundwork for further policy measures and action to be taken on the international and national level.



The Urgency of Strengthening the Safety of Scientific Researchers



Science is vital in facing existing and future challenges related to climate change, natural disasters, growing inequalities, migration patterns and shifting demographics [...] Science is one of the most critical means of implementation for the Agenda 2030.

4.1 THE RIGHT TO SCIENCE AND THE NEED FOR SCIENTIFIC RESEARCH

Science is vital in facing existing and future challenges related to climate change, natural disasters, growing inequalities, migration patterns and shifting demographics. Such challenges require innovative solutions, which often originate with scientific researchers. In addressing the COVID-19 pandemic, the world's strong reliance on science and the solutions it offers was evident when vaccines were developed at record-breaking speed, helping to alleviate the impact of the virus. In turn, this enabled the normalization of people's lives as well as the reopening of societies and economies, which were immensely impacted by earlier restrictive measures.

Like many other international policy documents, the 2030 Agenda for Sustainable Development recognizes the potential of science as catalyser of transformative change. According to a [policy brief of the Scientific Advisory Board of the UN Secretary-General](#) (2016), “**science will be one of the most critical means of implementation for the Agenda 2030**”. Nevertheless, as shown by the 2023 [United in Science](#) report, only 15% of the Sustainable Development Goals (SDGs) are on track, while the world is now halfway into the 2030 Agenda. Despite the abundance of knowledge, insights, and recommended solutions that science offers, and the wide recognition of its importance, decision-makers often remain indecisive or unwilling to take action based on scientific knowledge. This demonstrates the urgent need to strengthen the science-policy nexus.

Beyond its status as economic accelerator, driver of the Sustainable Development Goals and fundamental basis for decision-making, science should be considered as a human rights issue. Whereas the connection between science and its potential economic or social effects is often perceived as natural, the idea of science as a fundamental right is only now slowly taking hold (UNESCO 2022). Nevertheless, the human right to science (in full: ‘the right to share in scientific advancement and its benefits’) was already enshrined in Article 27, paragraph 1 of the Universal Declaration of Human Rights (1948) and Article 15(1)(b) of the International Covenant on Economic, Social and Cultural Rights (ICESCR) (1966). Moreover, the ICESCR establishes a specific obligation for States to “respect the freedom indispensable for

scientific research” (Article 15(3)). Hence, the ICESCR covers the whole scientific cycle – from the right to enjoyment of its benefits to the protection of its practitioners as well as international scientific cooperation. UNESCO’s 2017 Recommendation on Science and Scientific Researchers, as another element of the normative framework guiding the international advancement of science, builds on and further shapes this general right to science. The 2017 Recommendation “promotes science as a common good while balancing the freedoms, rights and responsibilities of researchers” (UNESCO 2017). However, only 2 percent of recommendations made to Member States under the Universal Periodic Review between 2007 and 2021 (19,387 recommendations in total) were related to the freedom of expression of artists, journalists and scientific researchers (UNESCO 2023d). In other words, there is still a world to win.

4.2 ALARMING GLOBAL DEVELOPMENTS ON THE SAFETY OF SCIENTIFIC RESEARCHERS

To facilitate and fully exercise the right to science by both scientific researchers and by society at large, it is vital to protect the freedom and safety of scientific researchers. Currently, as demonstrated in Chapters 2 and 3, the safety of scientific researchers is under threat, which results in them being discouraged from sharing their findings, or even in them leaving academia altogether. The (global) developments in this respect have been explained in-depth in Chapter 2. Although many international and regional reports on the topic are patchy and not comprehensive, they show some clear worrying trends. For example, the annual Scholars at Risk Network’s *Free to Think* monitoring reports documented many physical attacks on higher education communities as well as many more indirect interferences with researchers’ work. The worldwide survey by *Global Witness*, a *Nature* survey and a *Science* study show that researchers working in controversial or sensitive fields, such as COVID-19 and climate research, experience significant harassment or abuse, with considerable psychological consequences and even ‘chilling’ effects, to the extent that researchers’ willingness to share their views in (mainstream) media decreases. In general, it seems that women researchers face specific risks. According to the UniSAFE project (2022), conducted in 31 European countries, Canada and the US, 66 percent of female researchers

reported having been the victim of one or multiple forms of gender-based harassment or violence, with groups such as early-career researchers, researchers from a minority ethnic background or researchers with a disability being particularly vulnerable.

In addition to the data from these surveys and reports, there is also anecdotal evidence. For example, anecdotal evidence demonstrates that in conflict situations, **critical voices are often among the first victims, such as journalists, artists as well as scientific researchers.** As armed conflicts escalate, so do the number of exiled, persecuted or murdered researchers. Although an exact overall figure remains elusive (TWAS 2018), there are indications that the risks are significant: for example, since 2003, 450 researchers have been assassinated in Iraq. The gravity of these data and the anecdotal evidence underline the need to obtain a full overview of threats to the freedom and safety of scientific researchers, in all its different forms and levels of severity.



To facilitate the full exercise of the right to science, both by scientific researchers and by society at large, it is vital to protect the freedom and safety of scientific researchers.

4.3 TYPES OF THREATS TO SAFETY OF SCIENTIFIC RESEARCHERS

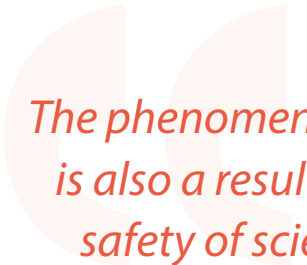
In Chapter 3, the various types of threats to the safety of scientific researchers are grouped and categorized. The different types of threats and the contexts in which they occur may ask for different responses and policy measures.

First, it was noted that ‘safety’ of scientific researchers can be defined as “the condition of not being in danger” (of violence specifically). In line with the WHO’s 2004 definition, the freedom of (threats of) violence means that scientific researchers must be protected against “the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation”. Consequently, three main types of (threats to) safety of scientific researchers have been identified: physical, material, and psychological threats.

The motives for creating situations or feelings of unsafety may differ but – especially when collective violence is used (for example by government bodies or groups in society) – they are often related to the wish to advance a certain social agenda, political objectives, or serve an economic interest.

Threats to scientific researchers’ safety and actual use of violence may be very real, but they may also be perceived. Although feelings of unsafety may be more difficult to measure, they are important. Feelings of unsafety can have significant consequences for scientific researchers’ performance, research, behaviour and mental well-being. For that reason, it is important that data collection, analysis and policy measures do not only focus on tangible safety issues, but also address researchers’ perceptions and experiences.

(Real or perceived) threats to the safety of scientific researchers can occur in different contexts. For the purposes of this study, three contexts have been identified that may require different types of regulatory and policy responses. First, threats to safety may be caused by actors inside the research institution that scientific researchers are working for, affiliated to, or funded by. These so-called ‘internal threats’ to safety can take different forms, ranging from loss of one’s position, to improper appropriation



The phenomenon of brain drain is also a result of threats to the safety of scientists – physical, psychological or financial.

of research results or academic bullying or sexual harassment. It has been shown that such internal threats are particularly prevalent and may have a very negative impact. Second, threats to the safety of scientific researchers may come from outside their organization. Two types of these ‘external threats’ have been identified. A subdivision has been made between use of violence and threats caused by State bodies and violence and threats by non-State actors. It is important to create this distinction because the origin of the external threat dictates the types of action States can and must take to ensure the safety of scientific researchers. When the origin of a threat lies with State actors, the negative right of academic/scientific freedom entails that States refrain from taking action that directly and improperly affects the safety of scientific researchers, such as prosecuting or imprisoning them without a compelling justification. When private actors are the cause of unsafety or threats, the positive right to academic/scientific freedom implies that States must make reasonable efforts to ensure that scientific researchers remain free from attacks, harassment, bullying etc. by private parties.

Finally, specific factors may contribute to the existence of special safety risks for scientific researchers. External threats to the safety of science have changed in nature and may be exacerbated because of social media and other online forms of communication. Online communication channels accelerate the speed with which (mis) information can spread, while the threshold for voicing threats and uttering hate speech is low. A researcher’s reputation or credibility is easily (unjustly) questioned or damaged. As a result, the overall sense of safety of scientific researchers may be easily affected by online threats. Researchers’ gender identity, or their membership of other identity groups or marginalized groups, increases the risk of both internal threats such as harassment and bullying as well as external threats and attacks. The same is true for scientific researchers who work

on sensitive fields, as has been demonstrated for researchers working on COVID-19-related matters, climate change, and gender studies. Additional risk factors are conducting fieldwork, which may exacerbate already existing external risks for women researchers, and, as should be obvious, working in a State that is torn by war or armed conflict or where a state of emergency has been declared.

4.4 AN URGENT NEED FOR ACTION

Actual violence, and threats to the individual health and safety of scientific researchers directly contribute to the decline of academic and scientific freedom worldwide. Two Science Dialogues between groups of scientific researchers and other experts, hosted by UNESCO and the Kingdom of the Netherlands in 2023, have revealed that threats to the safety of scientists may have grave consequences both on a personal and professional level. Actual violence or threats, whether verbal or physical, can cause significant stress and anxiety and may lead to long-lasting effects on a researcher's mental and emotional well-being and therefore their health. In the long run, such issues may affect the performance and productivity of researchers and may even lead to the abandonment of their research work. Researchers may be (or feel) forced to change their thematic focus, adapt their research questions, methods, or they may not dare to publish and disseminate their results. Obviously, such **brain drag threatens the objectivity and quality of scientific research and seriously affects the freedom of science.**¹² Moreover, threats to scientific researchers' safety and freedom may hinder their ability to participate in conferences, workshops, or collaborative projects, limiting the crucial exchange of insights and critique within the scientific community and the potential for international and cross-disciplinary collaboration. Additionally, it is likely that some groups are more prone to falling victim to threats to their safety than others. This hampers the openness, diversity, and inclusivity of scientific endeavours, which, in turn, may have negative repercussions on quality. Additionally, the phenomenon of *brain drain* – a challenge many States around the world face – is, in part, a result of threats to the safety of scientists – physical, psychological, or financial. **When their safety, freedom or livelihood cannot be guaranteed in their work environments,**

scientific researchers may be inclined to settle in another country – leading to an exodus of scientific talent and resourcefulness, harming a country's developmental potential.

This study thus shows that **it is essential to protect the safety of scientific researchers to ensure that science's indispensable functions in our societies can be fulfilled.** If scientists do not feel safe, they may withdraw from their important functions as informers and advisors of policymakers. In addition, the worsening of the working conditions of scientific researchers encroaches on the fundamental human right to engage in and enjoy the benefits of scientific progress and its applications.

Action is urgently needed, as recognized by the Special Rapporteur in the field of cultural rights in her 2024 report on the right to participate in science (A/HRC/55/44, para 95a). Data collection and analysis should be enhanced to fill the data gaps identified in this study. In the development of such data collection and further policy efforts, the specific safety and health challenges and vulnerabilities faced by women, youth and other underrepresented groups in science should be recognized. It is important to connect efforts by Member States and actions under UNESCO's Programme on the Freedom and Safety of Scientists with the various relevant stakeholders, such as scientific communities and universities. UNESCO, especially in the context of the [International Decade of Sciences for Sustainable Development](#), is well-placed to guide these efforts.



Data collection and analysis should be enhanced to fill the data gaps identified in this study.

¹² *Brain drag* is defined by *Scholars at Risk* as the “lost personal, professional, and creative productivity that would have been, but for the rational fear of retaliation.”

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The Safety of Scientific Researchers

Data, trends and a typology of threats

This publication shows that the safety of scientific researchers is under threat. It is essential to protect the safety of scientific researchers to ensure that science's indispensable functions in our societies can be fulfilled. If they do not feel safe, scientific researchers may withdraw from their important functions as informers and advisors of policymaking. Threats against scientific researchers may also violate the human right to engage in and enjoy the benefits of scientific progress and its applications. Action is therefore urgently needed. Data collection and analysis should be enhanced to fill the data gaps this publication has identified. In the development of such data collection and further policy efforts, the specific safety and health challenges and vulnerabilities faced by women, youth and other underrepresented groups in science, as identified in this publication, should be recognized.



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