

The Effects of Online Harassment of Scientists on Bystander Scientists

Science Communication

1–32

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DOI: 10.1177/10755470261481083

journals.sagepub.com/home/scx



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Abstract

Scientists who share research on social media increasingly face harassment, which is visible to many bystanders, including other scientists. We report a preregistered experiment testing how exposure to such harassment affects bystander scientists ($N = 846$). Drawing on social identity approaches, we argue that bystander scientists may react similarly to directly targeted scientists. Results show that exposure to harassment increases anxiety and risk perceptions but does not reduce willingness to engage in science communication; it slightly increases perceived trustworthiness of targeted scientists. Presumed influence shapes some of these effects. Shifting attention to bystanders, we highlight broader societal consequences of harassment against scientists.

Keywords

science outreach, scientist's perception of public communication, online harassment, social media

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Introduction

Online harassment of scientists is not a new phenomenon, but it has recently attracted increased attention due to concerns about its consequences for affected scientists, science communication, and academic freedom (Branford et al., 2019; Egelhofer, Mede et al., 2026; Nogrady, 2021; Scholars at Risk Network, 2023; Seeger et al., 2024). Initial survey research highlights that harassment is far from a niche problem and that affected scientists experience anxiety, heightened risk perceptions, and worries about reputational damage (Global Witness, 2023; Gosse et al., 2021; Nogrady, 2021). In some cases, these experiences even have a “chilling effect,” reducing scholars’ willingness to engage in future science communication (e.g., Nogrady, 2021; Seeger et al., 2024).

Harassment is particularly common on social media (Global Witness, 2023; Gosse et al., 2021), where scientists are increasingly expected to communicate their research (Celuch et al., 2022; Gosse et al., 2021), making themselves more accessible to broader audiences. On these platforms, harassment is visible not only to the targeted scientists themselves but also to a wide range of observers – so-called bystanders – including fellow scientists, who are increasingly confronted with attacks on their colleagues (Blümel, 2024; Marcinkowski et al., 2025). Yet, research has focused primarily on scientists who are directly targeted (e.g., Global Witness, 2023; Gosse et al., 2021; Nogrady, 2021). At the same time, a large body of research has examined how citizens respond to harassment and incivility in political and other public communication contexts (e.g., Anderson et al., 2014; Kümpel & Unkel, 2023; Wang & Kim, 2020) including attacks directed at scientists (e.g., Egelhofer, 2023; Hameleers & Van der Meer, 2022). Much less is known about how scientists themselves respond when they witness harassment directed at fellow scientists. This lack of research is surprising because scientists may perceive attacks on colleagues as relevant to themselves, even when they are not directly targeted.

Drawing on Social Identity Theory (SIT; Tajfel & Turner, 1979) and Self-Categorization Theory (SCT; Turner, 1994), we argue that online harassment affects not only scientists who *directly* experience harassment attacks but also those *indirectly* experiencing them. In other words, we expect that exposure to online harassment of scientists has negative effects on bystander scientists similar to those found for directly targeted individuals, because these attacks make their professional identity salient. Emerging survey evidence indeed suggests that witnessing harassment of other scientists is associated with heightened perceptions of threat and negative professional consequences (Marcinkowski et al., 2025) as well as self-censorship (Seeger et al., 2024). However, this evidence is correlational and therefore cannot establish whether exposure to harassment causes these responses or explain the mechanisms through which

they emerge. To address this gap, we conducted a preregistered 2×2 between-subjects experiment with a sample of German and Austrian scientists from various disciplines ($N = 846$). We investigate the effects of exposure to harassment comments targeting scientists (vs. no comments) on bystander scientists' anxiety, risk perceptions, willingness to engage in science communication in the future, and evaluations of the targeted scientists. Furthermore, drawing on the Influence of Presumed Influence (IPI) approach (Gunther & Storey, 2003), we investigate whether presumed negative influence of harassment on the general public and other scientists mediates these effects.

This study contributes to research on online harassment and incivility in three ways. First, it extends research on the consequences of online harassment of scientists beyond directly targeted individuals and beyond citizens' perceptions of scientists by examining scientists who witness attacks against members of their professional ingroup. Second, it extends research on presumed influence beyond the citizen populations typically studied by applying IPI to the context of scientists witnessing harassment directed at fellow members of their professional group. Third, by experimentally examining the consequences of witnessing harassment, the study provides causal evidence on a phenomenon that has thus far been investigated primarily through correlational survey research. In doing so, the study broadens our understanding of the societal consequences of harassment against scientists.

Online Harassment of Scientists

Research on online harassment of scientists covers a wide range of verbal attacks, including harsh criticism, credibility attacks, name-calling, insults of physical appearance, threats of physical or sexual violence, and death threats (Barlow & Awan, 2016; Celuch et al., 2022; Gosse et al., 2021; Nogrady, 2021). Some authors place these different forms of harassment on a severity continuum, categorizing name-calling and credibility attacks as "mild" and threats of violence or death as more "severe" forms of harassment (e.g., Barlow & Awan, 2016; Celuch et al., 2022). We conceptualize harassment against scientists as a form of incivility, which, in a broad sense, refers to norm-violating speech (see also Egelhofer et al., 2024). More specifically, scholars distinguish types of incivility based on the norms they violate: norms of interpersonal politeness and discussion or norms of democracy (Muddiman, 2017; Papacharissi, 2004; Rossini, 2022). The first type, also called impoliteness (Papacharissi, 2004) or personal-level incivility (Muddiman, 2017), includes rude, vulgar, or disrespectful expressions (Rossini, 2022) and covers some of the "mild" forms of harassment mentioned earlier.

The second type, labeled intolerance (Rossini, 2022) or public-level incivility (Muddiman, 2017), threatens the values of pluralistic democracy (Rossini, 2022) by expressing harmful or discriminatory intentions toward individuals or social groups and undermining the legitimacy of their contributions (Kümpel & Unkel, 2023). It is closely linked to hate speech, a sub-type of incivility that devalues individuals based on their membership in a particular social group (Kümpel & Unkel, 2023; Obermaier et al., 2023). “Severe” forms of harassment, such as threats of violence and death, fall into this category. So does harassment that targets scientists as part of a social group. This includes experiences of scholars who are targeted based on visible membership in marginalized groups, such as those defined by gender, sexuality, race, ethnicity, or religion (Barlow & Awan, 2016; Branford et al., 2019; Gosse et al., 2021). Harassment may also target professions as social groups. For example, research shows that much online hate against journalists targets them in their professional role and based on their work (e.g., Obermaier et al., 2018). Similarly, scientists are often harassed because of their research, particularly when they address socially controversial topics in their public communication (Global Witness, 2023; Nogrady, 2021; Väliverronen & Saikkonen, 2021b). Harassment targeting scientists in their role as scientists – or even the scientific community as a whole – thus constitutes public-level incivility.

It is important to note that norm-violating feedback may still be seen as a legitimate part of public discourse (Egelhofer, Goodwin et al., 2026; Rossini, 2022), and especially professions with public functions such as journalism, politics and science may be expected to endure harsh or uncivil criticism as a “legitimate form of civic oversight” (Obermaier & Schmid; 2026, p. 3). A criterion that is often used to demarcate harassment as a specific and illegitimate form of incivility is the intention of the perpetrators (Branford et al., 2019; Celuch et al., 2022; Veletsianos & Shaw, 2018). We therefore define harassment as norm-violating attacks that are commonly interpreted as intended to inflict harm, intimidate, silence or discredit scientists and their contributions to public discourse (see also Branford et al., 2019; Egelhofer et al., 2024; Väliverronen & Saikkonen, 2021a; Veletsianos & Shaw, 2018). For example, calling a scientist’s findings “ridiculous” or “biased” may constitute uncivil criticism, whereas insulting the scientist’s physical appearance or threatening professional or physical harm would constitute harassment. This distinction is important because disagreement and critical debate are not only legitimate in democratic discourse but are also essential to scientific knowledge production (Branford et al., 2019; Väliverronen & Saikkonen, 2021a). Naturally, this distinction is analytical, as identifying perpetrators’ intentions is methodologically challenging. Nevertheless, we retain the term harassment because it is widely used in both theoretical and empirical

research on attacks against scientists and because the behaviors commonly described under this label are the forms of online hostility that have attracted particular scholarly and societal concern (e.g., Gosse et al., 2021; Marcinkowski et al., 2025; Nogrady, 2021; Nölleke et al., 2023; Veletsianos & Shaw, 2018).

The Effects of Indirect Experiences With Harassment of Scientists

Emerging research shows that online harassment can have severe consequences for scientists' personal well-being and professional work (e.g., Barlow & Awan, 2016; Gosse et al., 2021; Nogrady, 2021). However, existing research has focused predominantly on scientists who are directly targeted. Comparatively little is known about the consequences for scientists who witness attacks against their colleagues. We thus differentiate between *direct* experiences of harassment among targeted scientists and *indirect* experiences among those who witness such harassment (i.e., bystanders). Indeed, recent survey evidence suggests that witnessing harassment of other scientists is associated with heightened perceptions of threat, risk, and negative professional consequences (Marcinkowski et al., 2025) as well as self-censorship (Seeger et al., 2024). However, these findings are correlational and cannot establish whether exposure causes these responses. Moreover, the processes through which indirect exposure affects scientists remain largely unexplored. To explain why witnessing harassment may affect bystander scientists, we draw on SIT (Tajfel & Turner, 1979) and SCT (Turner et al., 1994) as an explanatory framework and argue that witnessing verbal attacks against scientists likely heightens the salience of bystander scientists' shared professional identity, prompting them to experience the event as group members rather than as individuals.

SIT and SCT propose that individuals categorize themselves as members of social groups and distinguish between ingroups and outgroups (Hogg & Terry, 2000; Tajfel & Turner, 1979). These group identities – including gender, age, and profession – shape attitudes and behavior. However, not all group identities are salient at the same time; rather, social identities become salient either because they are chronically accessible or because they are activated by situational cues (Hogg & Terry, 2000). Occupations are among individuals' most important social identities (Smith, 2007; Ulfsdotter Eriksson & Linde, 2014). The scientific profession may be especially accessible due to the long education, strong professional socialization, and relatively high status associated with the profession, which contributes to a positive self-image (Smith, 2007; Ulfsdotter Eriksson & Linde, 2014). Consequently, the identity “scientist” should easily become salient in relevant contexts.

Situational cues can further increase identity salience. For example, portrayals of one's social group in news media (Boyer & Lecheler, 2023) or political advertisements (Schmuck et al., 2017) can activate identities. When these portrayals are negative, as in online hate, they can pose a social identity threat not only to the targeted individuals but also to other users who identify with the same group (Obermaier et al., 2023; Van Houtven et al., 2024).

In sum, when scientists witness online harassment against other scientists, their professional social identity likely becomes salient, and they experience the harassment as an attack on their own social group. We therefore assume that they experience negative effects similar to those who are directly harassed.

One frequently reported consequence of harassment is anxiety (Global Witness, 2023; Gosse et al., 2021; Nogrady, 2021). Prior research shows that exposure to harassment attacks elicits anxiety when bystanders identify with the targeted social group (Leets, 2002). We therefore propose:

Hypothesis (H1): Exposure (vs. no exposure) to online harassment against scientists elicits anxiety in bystander scientists.

Moreover, exposure to online harassment against fellow scientists is likely to shape bystander scientists' perceptions of their own risk of becoming a target. Research shows that witnessing hostile comments directed at one's social group can lead to the belief that such comments may harm the group as a whole (Van Houtven et al., 2024). Thus, when scientists see their peers being targeted because of their work, they may perceive their profession as placing them at greater risk of harassment. Indeed, a recent survey among scientists found that witnessing harassment of other scientists was even more strongly associated with perceived risk than direct experiences of harassment (Marcinkowski et al., 2025). We therefore hypothesize:

Hypothesis (H2): Exposure (vs. no exposure) to harassment against scientists has a positive effect on bystander scientists' perceived risk of becoming a victim of harassment themselves.

Harassment also has consequences for the professional context in which it occurs, namely science communication. First, harassment can affect scientists' motivation to engage in public communication. Second, it might affect how others evaluate targeted scientists. Regarding public engagement, research suggests that direct experiences, in some cases, have a "chilling effect," reducing scientists' willingness to communicate about their work (Nogrady, 2021; Väliaverronen & Saikkonen, 2021a, 2021b). Survey findings further show that observing harassment against other scientists was even

more strongly associated with self-censorship than direct experiences (Seeger et al., 2024). In line with concerns that the increased visibility of harassment, particularly on social media, may deter unaffected scholars from communicating (Nogrady, 2021), we hypothesize a deterrent effect of exposure on bystander scientists:

Hypothesis (H3): Exposure (vs. no exposure) to harassment against scientists has a negative effect on bystander scientists' willingness to engage in science communication.

Regarding evaluations of targeted scientists, concerns are growing about the potential impact of online harassment on scientists' reputations in both society and academia (Branford et al., 2019). This concern is reflected in surveys with affected scientists (Global Witness, 2023; Nogrady, 2021). A key aspect of reputation in the context of science communication is trust in scientists (Schäfer, 2016; Weingart & Guenther, 2016). Although research indicates that online harassment can reduce the public's trust in targeted scientists (Egelhofer et al., 2024), it remains unclear whether similar effects occur within the scientific community. On the one hand, scientists might interpret attacks on their peers' communication as signals of flawed work and respond with reduced trust to protect a positive image of their group. On the other hand, scientists increasingly recognize that harassment is often politically motivated rather than driven by poor research or communication (Nogrady, 2021; Väliaverronen & Saikkonen, 2021b), making such effects less likely. Given the limited evidence, we pose the following research question:

Research Question (RQ1): Does exposure (vs. no exposure) to harassment against scientists affect the perceived trustworthiness of the attacked scientists?

The Role of Presumed Influence on Others

We propose that the effects discussed above are mediated by presumed effects on others. Research on the third-person effect (Sun et al., 2008) and the IPI approach (Gunther & Storey, 2003), shows that when people encounter media content they judge as negative, they presume that it affects others and conform to this presumed influence (e.g., Peter, 2022; Tsfat, 2007).

The mediating role of presumed influence has been demonstrated in several studies examining (online) incivility. For example, Post (2017) shows that hostile media perceptions indirectly increase the acceptance of uncivil

rhetoric among individuals involved in a conflict through perceptions that media coverage makes conflict parties more extreme. Another line of research highlights that the presumed influence of uncivil or otherwise problematic online content affects individual's willingness to engage in counteractive measures such as uttering counterspeech, flagging comments or supporting comment censorship (e.g., Lim & Golan, 2011; Wang & Kim, 2020; Wintterlin et al., 2021). However, this research has focused primarily on citizens or media users. Much less is known about presumed influence processes among members of a professional group witnessing harassment directed at fellow group members. Nevertheless, some evidence suggests that scientists are likewise influenced by presumed effects on others. For example, scientists' perceptions that media coverage negatively influences politicians have been shown to impact their views on the justification of overstating scientific findings in public science communication (Post & Ramirez, 2018).

In the context of online harassment of scientists, bystander scientists may presume that harassment influences two relevant audiences: the general public and other scientists. In both cases, this influence is likely to be perceived as negative. As mentioned, scientists who directly experienced harassment perceive these attacks as harmful to their reputation (Global Witness, 2023; Gosse et al., 2021; Nogrady, 2021). Bystander scientists may therefore assume that harassment not only harms the targeted scientist personally but also affects how external and internal audiences evaluate the target, and, by extension, scientists more generally. Presumed influence thus provides a mechanism through which witnessing harassment against another scientist becomes personally consequential for bystanders: if they believe that such attacks negatively shape how the public or other scientists view the targeted scientist, they may also perceive themselves and their professional group as vulnerable.

Such presumed negative influence may, in turn, explain why witnessing harassment affects bystander scientists' emotions, risk perceptions, and communication behavior. Prior research suggests that perceived negative influence on others can increase negative affect (e.g., Johnson, 2021; Rösner et al., 2016) and own perceived risk of becoming targets (Zerback & Karadas, 2023). It may also influence their communication behavior. There are two competing mechanisms that may play a role (Peter, 2022): On the one hand, spiral of silence research (Noelle-Neumann, 1974) suggests that when individuals believe a majority opposes their views, they tend to fall silent and refrain from speaking out. Although the original theory claims this to be a long-term, cumulative effect, empirical research has frequently tested assumptions in hypothetical scenarios or experimental settings (Matthes et al., 2018), and research in online environments showed that only a few comments might already be able to trigger such silencing effects (e.g., Xiaodong & Li, 2016; Zerback & Fawzi, 2017). On the other hand, research on the corrective action hypothesis has shown that

when people perceive an illegitimate influence of media content on others, they might be more inclined to speak out to “correct” this influence (Barnidge & Rojas, 2014; Rojas, 2010). In the context of this study, we assume that researchers may become less willing to communicate about their work when they expect a negative influence on the public, also because they fear of becoming a target of hostility themselves (Marcinkowski et al., 2025; Nogrady, 2021; Seeger et al., 2024). Taken together, we expect presumed influence on both the general public and other scientists to explain the effects of exposure on bystander scientists:

Hypothesis (H4): The effects proposed in H1 to H3 are mediated by presumed influence on (a) the general public and (b) other scientists.

In addition, we are interested in whether presumed influence differs depending on the presumed target groups (general public or scientists). Research suggests that these effects may be weaker for scientists than for the public: Drawing from the social distance corollary in third-person effect research, studies have shown that the closer the target group is to the individual, the less pronounced the presumed effects on others (Duck et al., 1995; Sun et al., 2008). Moreover, research based on SIT has shown that negative media influence on ingroup members is judged to be less pronounced than that on out-group members (e.g., Schulz et al., 2020). However, in this specific context, it remains unclear as to whether the presumed effects of observed harassment on fellow scientists are less negative than on the wider public, whether they are absent, or even positive (in terms of a loyal member effect, Castelli et al., 2007). Consequently, we formulate a research question regarding the difference in presumed influence on different target groups:

Research Question (RQ2): Are the effects in H4 stronger for presumed influence on the public or other scientists?

Method

Before data collection, we preregistered our study and obtained approval from the University of Vienna institutional review board (IRB).¹

Design and Procedure

We conducted an online survey experiment with a between-subjects manipulation of exposure to harassment comments (harassment comments vs. no harassment comments). In the stimulus material, we also varied the scientist’s gender (male vs. female) by attributing the social media posts to either two

male (Manuel Bieger, Dr. Tobias Freystetter) or two female scientists (Melanie Bieger, Dr. Tabea Freystetter), preregistering a 2 (harassment comments vs. no harassment comments) $\times$ 2 (male vs. female scientist) design (see also Egelhofer et al., 2024). However, the study was not sufficiently powered to detect the preregistered gender-based interaction if such effects were small (Sommet et al., 2023), as would be expected for an amplification effect based on an additional shared identity characteristic. Furthermore, the manipulation check indicated that participants recognized the scientist's gender with varying levels of accuracy. Recognition was relatively high in the female-scientist condition ($\sim 80\%$) but more modest in the male-scientist condition ($\sim 61\%$). Given the comparatively weak recognition of the male manipulation and the limited statistical power available for detecting the preregistered gender-based interaction effects, we pooled the male and female versions within the harassment and control conditions and do not report gender differences here. The preregistered analyses and full results for the gender manipulation are reported in Supplemental Appendix C.

Participants were randomly assigned to one of the two conditions and exposed to two social media posts by two different scientists. In the harassment condition, each post was paired with two comments containing harassment; in the control condition no comments were displayed. Following each post, participants answered questions assessing their trust in the scientist responsible for the post and their experienced anxiety. The survey concluded with the remaining dependent variables, attention and manipulation checks, controls, demographic measures, and a comprehensive debrief, including resources for individuals affected by harassment.

Pretest

We conducted a pretest with a small convenience sample of scientists ($N = 141$) to create our stimulus material. Participants rated four social media posts (linked to an interview or a publication) authored by either a male or a female scientist, resulting in eight variants. We selected the two posts with the highest realism and identification ratings, consistent across genders. In addition, we pretested eight harassment comments targeting the author's appearance or credibility and selected the four highest-rated comments (two per post) based on harmfulness and perceived threat (see also Egelhofer et al., 2024).

Stimulus

In the social media posts, the scientists referred to an interview in which they discussed their research, such as: "I was given the opportunity to present my research in an ORF interview. Thank you for the pleasant atmosphere and the

constructive exchange! Click here for the interview: <https://tvthek.orf.at/profile/Guten-Morgen-Oesterreich-0635/13887643> and click here for the publication: <https://bit.ly/26830db5>.” In the experimental conditions, the posts were accompanied by two harassment comments from anonymous users. These comments targeted the scientist’s credibility and appearance, with examples such as: “Couldn’t listen, unfortunately – your ugly face is just too distracting . . .” (attack on physical appearance), and “I haven’t heard so much crap at once in a long time. This has nothing to do with professionalism” (credibility attack).²

Sample

We recruited Austrian and German scientists across different disciplines, including those at predoctoral, postdoctoral, and higher levels. Power analysis using G*Power indicated that a sample size of 550 was necessary to detect small main effects ($f^2 = 0.02$, power = 0.80, $\alpha = .05$, two-tailed).³ Although interaction effects required larger sample sizes, we aimed for a minimum of 550 participants, understanding that, due to our reliance on a convenience sample of scientists, the final sample size would depend on the response rate. We distributed an invitation to participate in the study via email to leading universities in Austria and Germany. Data collection took place between May and November 2023. Not all universities shared the survey with their employees due to internal rules. By the end of November 2023, 962 participants had completed the survey.

Our survey included two attention checks: (a) an instructed-response item inserted in the item battery measuring willingness to engage in science communication, prompting respondents to “please select ‘5 - Agree completely’” (Kung et al., 2018) and (b) a multiple-choice question about the content of the social media posts. Following our preregistration, we excluded participants who failed either of the attention checks ($n = 88$), respondents who indicated their education was lower than a master’s degree ($n = 14$), who indicated that they did not work in science ($n = 5$), or in Austria or Germany ($n = 8$), and one respondent who indicated in the final comment that their response behavior was erroneous. Our final sample size was $N = 846$ (harassment group: 418, control group: 428). However, as we did not force responses in the survey (see Sischka et al., 2020, for a discussion of the ethical considerations of forced survey responses), there are some missing values, leading to smaller sample sizes for certain analyses (as indicated in Tables 1 and 2).

Most scientists in our sample are from Germany (84.9%, $n = 718$), and only 15.1% ($n = 128$) are from Austria. Over half of the scientists are female (54.8 %, $n = 464$), 42.1% ($n = 356$) are male, 1.1% ($n = 9$) identify as diverse, and 2% ($n = 17$) did not indicate their gender. On average, scientists in our sample are 38.45 years old ($SD = 10.96$), with an average academic age of

11.37 years ($SD = 10.20$). The sample composition was quite heterogeneous regarding scientific fields, with 49.4% ($n = 418$) working in STEM sciences, 44.7% ($n = 378$) in social sciences and humanities (SSH), 4.1 % in other fields (e.g., sport science, $n = 34$), 1.9 % ($n = 16$) providing no indication. Randomization checks revealed equal distributions of gender (female, male, diverse; $\chi^2(3, 846) = 3.585, p = .310$), country (Austria, Germany; $\chi^2(1, 846) = 0.021, p = .885$), discipline (STEM, SSH, other; $\chi^2(2, 830) = 1.106, p = .575$), age (harassment group: $M = 38.71, SE = 0.64$, control group: $M = 39.19, SE = 0.53$; $t(831) = -0.68, p = .497$) and academic age (harassment group: $M = 11.60, SE = 0.50$, control group: $M = 11.64, SE = 0.50$; $t(836) = -0.61, p = .542$) across conditions.

Measures

Unless stated otherwise, items were measured on 5-point scales. We measured anxiety with eight items from the Spielberger State-Trait Anxiety Inventory (Marteau & Bekker, 1992). Participants indicated how well each adjective described their feelings after viewing the social media content: calm (reverse coded), tense, upset, relaxed (reverse coded), content (reverse coded), worried, anxious, and jittery ($M = 2.45, SD = 1.10$, Cronbach's $\alpha = .96$). We assessed the perceived risk of becoming a victim of harassment by asking respondents to rate how likely they were to experience hate, abuse, or harassment on social media in the near future ($M = 2.30, SD = 1.22$). Participants' willingness to engage in science communication was measured with four items asking how likely they were to: share research on social media, give media interviews, speak out on science policy, and comment on socio-political issues ($M = 2.56, SD = 1.04$, Cronbach's $\alpha = .79$). We measured trust in the attacked scientists with six items from the three-dimensional scale by Hendriks et al. (2015). We selected the two items with the highest factor loadings from each dimension – expertise, integrity, and benevolence ($M = 3.76, SD = 0.73$, Cronbach's $\alpha = .95$). Presumed influence on other scientists and on the general public were each measured with one item: “To what extent do you think the social media content will influence other scientists' perceptions [someone in the general population (without scientific activity) in their perception] of the scientists who wrote the post . . .” (1 = *negatively* to 7 = *positively*; presumed influence on scientists: $M = 4.28, SD = 1.25$; presumed influence on public: $M = 3.68, SD = 1.49$). As control variables, we included academic age (i.e., years of work experience in academia), country (Germany or Austria), scientific discipline (open-ended question, which was recoded in the categories STEM, SSH, and other) and participants' frequency of science communication on social media (“social media outreach,” 1 = *never*, 7 = *several times per week*).

Manipulation Checks

Chi-square tests indicated a successful manipulation: 88.5 % ($n = 407$) of the participants who were in the experimental conditions remembered harassment comments being present, compared with only 11.5 % ($n = 53$) in the control conditions, $\chi^2(1, 840) = 617.26, p < .001$.

Results

To test H1 to H3 and RQ1, we conducted ordinary least squares (OLS) regression with the binary dummy variable “harassment comments” (0 = *control conditions*, 1 = *harassment conditions*) as the independent variable. To test H4 and RQ2, we used PROCESS Model 4 in SPSS with two mediators (presumed influence on public/other scientists) and 10,000 bootstrapped samples (Hayes, 2022).⁵

We expected that exposure to harassment comments would increase anxiety in bystander scientists (H1), increase their perceived risk of becoming a victim of harassment themselves (H2), and decrease their willingness to engage in science communication (H3). In addition, we asked whether exposure would influence trust in the attacked scientists (RQ1). Table 1 summarizes these results.

In line with H1, harassment comments had a significant positive effect on anxiety ($b = 1.72, SE = 0.05, p < .001$, Model 1): Participants in the harassment condition comments experienced more anxiety than those in the control condition. Harassment also had a small, but significant positive effect of harassment on perceived risk ($b = 0.34, SE = 0.08, p < .001$; Model 2), supporting H2. Contrary to H3, harassment did not reduce willingness to engage in science communication ($b = 0.10, SE = 0.07, p = .173$, Model 3). For RQ1, we found a small positive effect of exposure to harassment on trust in the attacked scientists ($b = 0.16, SE = 0.05, p < .001$, Model 4): Participants in the harassment condition perceived the attacked scientists slightly more trustworthy compared with the control group.

Next, we predicted that the effect of harassment on anxiety, perceived risk, willingness to engage in science communication, and trust in attacked scientists would be mediated by presumed influence on the public (H4a) and fellow scientists (H4b), and we asked whether the effects were stronger for presumed influence on the public or on fellow scientists (RQ2). These results are presented in Figure 1 and Table 2, with Figure 1 displaying standardized effect sizes.

Harassment had a negative effect on presumed influence on the public ($b = -1.85/-1.86^6, SE = 0.08, p < .001$, Models 5–8) and on presumed influence on other scientists ($b = -0.79/-0.80$ (see Note 6), $SE = 0.08; p < .001$,

Table 1. OLS Regressions Predicting Anxiety, Perceived Risk for Self, Willingness Science Communication, and Trust Attacked Scientist.

	Anxiety					Perceived risk for self					Willingness science communication					Trust attacked scientists				
	Model 1 (n = 843)					Model 2 (n = 845)					Model 3 (n = 845)					Model 4 (n = 838)				
	b	SE (HC3)	p	95% CI	β	b	SE (HC3)	p	95% CI	β	b	SE (HC3)	p	95% CI	β	b	SE (HC3)	p	95% CI	β
Constant	1.55	0.03	<.001	[1.49, 1.62]		2.13	0.07	<.001	[1.99, 2.27]		2.49	0.06	<.001	[2.38, 2.61]		3.64	0.04	<.001	[3.56, 3.72]	
Harassment	1.72	0.05	<.001	[1.62, 1.81]	0.78	0.34	0.08	<.001	[0.17, 0.50]	0.14	0.10	0.07	.173	[-0.04, 0.24]	0.05	0.16	0.05	<.001	[0.06, 0.26]	0.11
Scientist gender (1 = female)	0.09	0.05	.058	[-0.00, 0.18]	0.04	0.01	0.08	.882	[-0.15, 0.18]	0.01	0.04	0.07	.573	[-0.10, 0.18]	0.02	0.07	0.05	.155	[-0.03, 0.17]	0.05
R ²	.61					.02					.00					.02				

Note. Significant coefficients are displayed in bold. Differences in sample sizes are due to missing values. 10,000 bootstrap resamples and a heteroscedasticity-consistent standard error and covariance matrix estimator were used (HC3).⁴ CI = confidence interval, OLS = ordinary least squares.

Table 2. Simple Mediation Analyses (Model 4, Hayes, 2022).

	Presumed influence public				Presumed influence scientists				Anxiety						
	b	SE (HC3)	p	95% CI	β	b	SE (HC3)	p	95% CI	β	b	SE (HC3)	p	CI	β
Model 5 (n = 843)															
Constant	4.60	0.07	<.001	[4.47, 4.73]		4.71	0.07	<.001	[4.58, 4.84]		2.38	0.13	<.001	[2.19, 2.67]	
Harassment	-1.85	0.08	<.001	[-2.01, -1.69]	-1.24	-0.79	0.08	<.001	[-0.95, -0.63]	-0.63	1.44	0.06	<.001	[1.32, 1.57]	1.31
Presumed influence public											-0.13	0.02	<.001	[-0.17, -0.08]	-0.17
Presumed influence scientists											-0.05	0.03	.042	[-0.10, <0.00]	-0.06
Scientist gender (1 = female)	-0.03	0.08	.717	[-0.19, 0.13]	-0.01	-0.09	0.08	.267	[-0.25, 0.07]	-0.04	0.09	0.05	.061	<0.00, 0.18]	0.04
Model summary	F(2, 843) = 264.16, p < .001, R ² = .39														
	F(2, 843) = 48.77, p < .001, R ² = .10														
Indirect effects of harassment on anxiety	Effect	Boot SE	Boot CI	Partially standard effect	Boot SE	Boot CI									
Presumed influence public	0.24	0.04	[0.15, 0.33]	0.22	0.04	[0.14, 0.29]									
Presumed influence scientists	0.04	0.02	[>0.00, 0.08]	0.04	0.02	[>0.00, 0.07]									
Total	0.28	0.04	[0.20, 0.36]	0.25	0.04	[0.18, 0.33]									

(continued)

Table 2. (continued)

	Presumed influence public				Presumed influence scientists				Perceived risk for self						
	b	SE (HC3)	p	95% CI	β	b	SE (HC3)	p	95% CI	β	b	SE (HC3)	p	95% CI	β
Model 6 (n = 845)															
Constant	4.60	0.07	<.001	[4.47, 4.73]		4.71	0.07	<.001	[4.58, 4.84]		2.13	0.22	<.001	[1.70, 2.56]	
Harassment	-1.86	0.08	<.001	[-2.01, -1.70]	-1.25	-0.79	0.08	<.001	[-0.95, -0.63]	-0.63	0.32	0.11	.004	[0.10, 0.53]	0.26
Presumed influence public											-0.02	0.04	.673	[-0.09, 0.06]	-0.02
Presumed influence scientists											0.02	0.04	.649	[-0.06, 0.09]	0.02
Scientist gender (1 = female)	0.02	0.08	.787	[-0.18, 0.14]	-0.01	-0.09	0.08	.268	[-0.25, 0.07]	-0.04	0.01	0.08	.928	[-0.16, 0.17]	>.000
Model summary	F(2, 845) = 265.10, p < .001, R² = .39. F(2, 845) = 49.16, p < .001, R² = .10 F(4, 845) = 4.09 p = .003, R² = .02														
Indirect effects of harassment on perceived risk for self	Effect	Boot SE		BootCI	Partially standard effect	Boot SE		Boot CI							
Presumed influence public	0.03	0.07		[-0.11, 0.17]	0.03	0.06		[-0.09, 0.14]							
Presumed influence scientists	-0.01	0.03		[-0.08, 0.05]	-0.01	0.03		[-0.06, 0.04]							
Total	0.02	0.07		[-0.12, 0.15]	0.01	0.06		[-0.10, 0.12]							

(continued)

Table 2. (continued)

Model 7 (n = 845)	Presumed influence public				Presumed influence scientists				Willingness science communication						
	b	SE (HC3)	p	95% CI	β	b	SE (HC3)	p	95% CI	β	b	SE (HC3)	p	95% CI	β
Constant	4.60	0.07	<.001	[4.47, 4.73]		4.71	0.07	<.001	[4.58, 4.84]		2.15	0.19	<.001	[1.77, 2.53]	
Harassment	-1.86	0.08	<.001	[-2.01, -1.70]	-1.25	-0.79	0.08	<.001	[-0.95, -0.63]	-0.63	0.17	0.10	.076	[-0.02, 0.36]	0.16
Presumed influence public											0.01	0.03	.780	[-0.06, 0.08]	0.01
Presumed influence scientists											0.06	0.03	.044	[>0.00, 0.12]	0.08
Scientist gender (1 = female)	-0.02	0.08	.787	[-0.18, 0.14]	-0.01	-0.09	0.08	.268	[-0.25, 0.07]	-0.04	0.05	0.07	.483	[-0.09, 0.19]	0.02
Model summary	$F(2, 845) = 265.10, p < .001, R^2 = .39$					$F(2, 845) = 49.16, p < .001, R^2 = .10$					$F(4, 845) = 1.69, p = .150, R^2 = .01$				
Indirect effects of harassment on willingness science communication	Effect	Boot SE		BootCI	Partially standard effect	Boot SE		Boot CI							
Presumed influence public	-0.02	0.06		[-0.14, 0.10]	-0.02	0.06		[-0.14, 0.10]							
Presumed influence scientists	-0.05	0.03		[-0.10, <0.00]	-0.05	0.02		[-0.10, <0.00]							
Total	-0.07	0.06		[-0.19, 0.05]	-0.07	0.06		[-0.18, 0.05]							

(continued)

Table 2. (continued)

Model 8 (n = 838)	Presumed influence public				Presumed influence scientists				Trust in attacked scientists						
	b	SE (HC3)	p	95% CI	β	b	SE (HC3)	p	95% CI	β	b	SE (HC3)	p	95% CI	β
Constant	4.60	0.07	<.001	[4.47, 4.73]		4.72	0.07	<.001	[4.59, 4.85]		2.65	0.13	<.001	[2.40, 2.91]	
Harassment	-1.85	0.08	<.001	[-2.01, -1.70]	-1.25	-0.80	0.08	<.001	[-0.96, -0.63]	-0.64	0.33	0.06	<.001	[0.21, 0.45]	0.46
Presumed influence public											>0.00	0.02	.869	[-0.04, 0.05]	0.01
Presumed influence scientists											0.21	0.02	<.001	[0.16, 0.25]	0.35
Scientist gender (1 = female)	-0.03	0.08	.717	[-0.19, 0.13]	-0.01	-0.10	0.08	.249	[-0.26, 0.07]	-0.04	0.09	0.05	.052	[<0.00, 0.19]	0.06
Model summary	$F(2, 838) = 262.86, p < .001, R^2 = .39$					$F(2, 838) = 49.62, p < .001, R^2 = .10$					$F(4, 838) = 29.82, p < .001, R^2 = .13$				
Indirect effects of harassment on trust in attacked scientists	Effect	Boot SE	Boot CI	Partially standard effect	Boot SE	Boot CI									
Presumed influence public	-0.01	0.04	[-0.09, 0.08]	-0.01	0.06	[-0.12, 0.10]									
Presumed influence scientists	-0.16	0.02	[-0.21, -0.12]	-0.22	0.03	[-0.28, -0.17]									
Total	-0.17	0.04	[-0.25, -0.09]	-0.23	0.06	[-0.34, -0.12]									

Note. Significant coefficients are displayed in bold. Differences in sample sizes are due to missing values. 10,000 bootstrap resamples and a heteroscedasticity-consistent standard error and covariance matrix estimator were used (HC3; see Note 4).

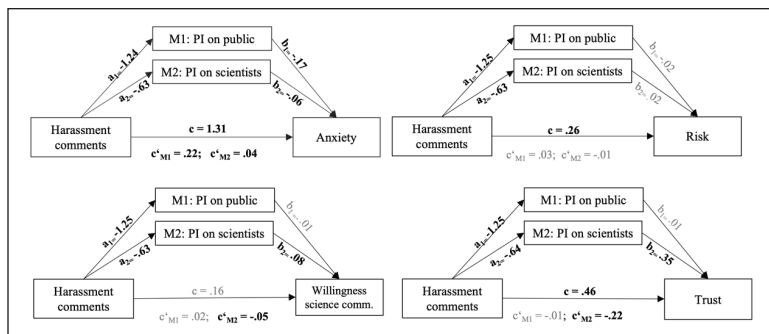


Figure 1. Overview analyses H4 and RQ2 (Model 4, Hayes, 2022).

Note. Standardized coefficients are displayed; significant coefficients are displayed in bold. PI = presumed influence.

Models 5–8). Presumed influence on the public correlated with anxiety in a way that the more negative the perceived influence on the public, the stronger the anxiety experienced ($b = -0.13$, $SE = 0.02$, $p < .001$, Model 1). Accordingly, we find a significant indirect effect of harassment on anxiety through perceived influence on the public ($Coeff. = 0.24$, $BootSE = 0.04$, $BootCI [0.15, 0.33]$), supporting H4a. Presumed influence on scientists also correlated with anxiety in a way that the more negative the presumed influence, the stronger the anxiety experienced ($b = -0.05$, $SE = 0.03$; $p = 0.042$). Consequently, there was a significant, albeit less pronounced, indirect effect of harassment on anxiety through presumed influence on scientists ($Coeff. = 0.04$, $SE = 0.02$, $BootCI [>0.00, 0.08]$). Together, these findings support H4a and H4b for anxiety: Part of harassment's effect on anxiety is transmitted through changes in how participants perceive the comments' influence on both the public and other scientists.

However, presumed influence on the public was not correlated with perceived risk ($b = -0.02$, $SE = 0.04$, $p = .673$, Model 6), and the indirect effect was not significant ($Coeff. = 0.03$, $BootSE = 0.07$, $BootCI [-0.11, 0.17]$), lending no support for H4a. Similarly, presumed influence on scientists did not correlate with perceived risk ($b = 0.02$, $SE = 0.04$, $p = .649$), and there was no indirect effect ($Coeff. = -0.01$, $BootSE = 0.03$, $BootCI [-0.08, 0.05]$), lending no support for H4b.

For willingness to engage in science communication, there was also no correlation with presumed influence on the public ($b = 0.01$, $SE = 0.03$, $p = .780$, Model 7), and no indirect effect ($Coeff. = -0.02$, $BootSE = 0.06$, $BootCI [-0.14, 0.10]$), lending no support for H4a. In contrast, presumed

influence on other scientists was positively correlated with willingness to engage in science communication ($b = 0.06$, $SE = 0.03$, $p = .044$), and harassment had a small indirect effect on willingness to engage in science communication via presumed influence on scientists ($Coeff. = -0.05$, $BootSE = 0.03$, $BootCI [-0.10, <0.00]$), offering weak support for H4b.

For trust in the attacked scientists, presumed influence on the public did not correlate with trust ($b > 0.00$, $SE = 0.02$, $p = .869$, Model 8), and the indirect effect was not significant ($Coeff. = -0.01$, $BootSE = 0.04$, $BootCI [-0.09, 0.08]$), lending no support for H4a. Regarding H4b, presumed influence on scientists did correlate with trust in attacked scientists: The more positive the perceived influence on other scientists, the higher the trust in the attacked scientists ($b = 0.21$, $SE = 0.02$, $p < .001$). Consequently, there was an indirect effect of harassment on trust in the attacked scientists ($Coeff. = -0.16$, $BootSE = 0.02$, $BootCI [-0.21, -0.12]$). Thus, the positive direct effect of harassment on trust (RQ1) is partially counteracted by the negative indirect effect through presumed influence on other scientists.

In sum, we find only partial support for H4a and H4b. For anxiety, both indirect effects were significant, with the effect via presumed influence on the public being notably stronger than the effect via presumed influence on scientists. For perceived risk, neither presumed influence on the public nor on other scientists had a significant indirect effect. For willingness to engage in science communication and trust in the attacked scientists, only the indirect effects through perceived influence on scientists were significant. Addressing RQ2, the indirect effects are not uniformly stronger for one mediator across all outcomes; rather, they appear to be outcome-specific.

Robustness Checks

We tested the robustness of our results by repeating all analyses with additional controls: country (Germany or Austria), academic age, frequency of public outreach on social media, and discipline. Overall, the pattern of results remains largely unchanged; effect directions and significance levels are stable, with the exception that the indirect effect of harassment on anxiety via presumed influence on scientists (H4b) becomes non-significant when controls were included. We report these analyses in Supplemental Appendix D.

Conclusion

Scientists who communicate about their research are increasingly subjected to harassment, particularly on social media, where many witness these attacks. Referring to SIT and SCT as an explanatory framework, we

demonstrate that these instances not only affect those directly targeted but also bystander scientists, presumably because they perceive such harassment as a threat to their social identity.

We find that exposure to online harassment of scientists elicits anxiety and increases the perceived risk of becoming a victim of harassment among bystander scientists. It also has a statistically significant but very small positive effect on perceived personal risk (the corresponding model explains only about 2% of the variance). Thus, although exposure appears to heighten perceived vulnerability, this effect should be interpreted as modest in practical terms. The effect on anxiety mirrors reports from directly affected scholars, who frequently describe heightened distress after harassment (Global Witness, 2023; Gosse et al., 2021; Nogrady, 2021). The elevated sense of personal risk may add a further psychological burden by creating a persistent expectation of being targeted. Against the backdrop of already high levels of stress and mental health problems in academia (Hanitzsch et al., 2024), these patterns are particularly worrying, as they suggest that harassment can exacerbate existing vulnerabilities not only for those directly attacked but also for those who merely witness such attacks.

On a more positive note, we do not find an indirect “chilling effect” among bystander scientists: Scientists who witnessed harassment against their peers did not report lower motivation to engage in future science communication. This may suggest that, despite concerns about the potential deterrent effects of highly visible attacks on their profession (e.g., Nogrady, 2021; Seeger et al., 2024), many scientists remain determined not to be silenced (see also Nölleke et al., 2023). However, our stimulus material was relatively devoid of contextual information about the attacked scientists’ discipline or research topic, offering limited grounds for strong identification. We therefore cannot draw conclusions about situations in which harassment targets close colleagues, scientists within the same discipline, or those working on similar topics. Moreover, we examined only one-time exposure, which does not allow conclusions about the effects of repeated exposure to harassment of fellow scientists. More research is urgently needed to explore how disciplinary similarity and repeated exposure shape these effects.

Furthermore, our study provides interesting effects regarding trust in harassed scientists. Although concerns about reputational damage through harassment are growing (Branford et al., 2019; Egelhofer et al., 2024; Global Witness, 2023), our results suggest that fellow scientists do not downgrade their perceptions of targeted scientists. On the contrary, we find a small “loyalty effect,” whereby bystander scientists react with increased trust in harassed colleagues. However, this effect is very small (the corresponding model explains only 2% of the variance). The finding should therefore be

interpreted cautiously as evidence of a weak tendency rather than a strong practical effect. Nevertheless, several mechanisms may help explain this pattern. First, scholars are likely aware that harassment rarely reflects substantiated criticism; instead, it is often politically motivated (Välvirronen & Saikkonen, 2021b). In an increasingly politicized climate (e.g., Chinn et al., 2020; Hart et al., 2020), where scientific debates and individual researchers are under heightened scrutiny, witnessing attacks may signal that the targeted scientists are doing important, publicly visible work and continue to speak out despite pressure. This can reinforce perceptions of their trustworthiness and reputability. Second, studies show that seeking support from colleagues is a central coping strategy for scholars affected by harassment (e.g., Houlden et al., 2022; Wight et al., 2025). Many scientists thus have experience in supporting targeted colleagues and may feel strong empathy when they witness such attacks. Third, from a social identity perspective, bystander scientists may interpret harassment as an unjustified attack on their professional ingroup. To defend a positive image of that group, they may respond by increasing their trust in the targeted individual. Overall, the “loyalty effect” may reflect an important broader self-defensive mechanism within academia that warrants closer examination.

Our findings also highlight the consequences of harassment’s public visibility. Bystander scientists perceive harassment comments as having a strong negative influence, especially on the public but also on other scientists. This underlines the potential of such harassment to damage scientists’ confidence in how the wider public views science.

Overall, the findings point to substantial variation in effect sizes. Exposure to harassment had a strong effect on anxiety and sizable effects on presumed influence on the public and on other scientists. By contrast, the effects on perceived personal risk and trust in the attacked scientists were very small, even when statistically significant. One possible explanation is that the effects on anxiety and perceived influence largely stem from the harassment comments themselves, whereas perceived personal risk and trust in the attacked scientists may depend more strongly on how participants perceive the portrayed scientists. The scientists in our stimuli were deliberately kept relatively generic and participants received little contextual information about their discipline, research topic, personal or professional background. As a result, participants may have had limited ability to form a differentiated trust judgment. Likewise, the relatively generic portrayal may have reduced participants’ sense of similarity with the targeted scientists, which in turn may have limited the extent to which participants perceived themselves as personally vulnerable to similar harassment.

Considering the practical implications of our findings, institutions and professional societies should treat online harassment as more than an

individual risk for targeted scientists and acknowledge its negative impact on the broader climate in which scientists decide whether and how to communicate publicly (see also Egelhofer, Mede, et al., 2026). First, they should address scientists' anxiety and perceived vulnerability, for example, by offering training that includes risk assessments and actionable strategies for dealing with harassment. Second, because much of the harm stems from the visibility of harassment, support should be visible as well. Institutions should publicly stand behind their employees when they are attacked. Furthermore, the potential of prosocial bystander responses (e.g., counterspeech, reporting) should be explored (Egelhofer, Goodwin, et al., 2026). Third, institutions and societies could strengthen peer support. Prior research identifies collegial support as a key coping strategy among targeted scholars, and our "loyalty effect" suggests that fellow scientists may be willing to rally around harassed colleagues. Building on this, organizations could formalize peer support through internal "ally" networks and clear response routines.

Our study has several limitations. First, although we relied on SIT and SCT as an explanatory framework, we did not measure whether exposure to harassment comments actually increases identity salience. Future research could test whether such attacks on fellow scientists indeed increase identification with one's profession, and if this, in turn, mediates relevant outcomes. Second, and relatedly, we did not directly assess participants' identification with the scientists depicted in the stimuli. Future research should examine whether stronger identification with targeted scientists amplifies these effects and whether this depends on factors such as perceived disciplinary proximity or shared research interests. Moreover, identification processes may differ substantially when bystanders have a prior personal or professional relationship with the targeted scientist (see also Marcinkowski et al., 2025).

Third, our experimental design necessarily simplified the social media environments in which scientists typically encounter harassment, thereby limiting ecological validity. In real-world contexts, scientists are sometimes familiar with the targeted individual and often aware of their disciplinary background. By contrast, our stimuli intentionally minimized contextual information to provide participants from different fields with a comparable basis for identification and to avoid stronger identification among participants from disciplines represented in the stimuli. Although this facilitated experimental control, it may also have reduced identification with the targeted scientists and thereby attenuated some effects.

Relatedly, our study focused primarily on professional identification with scientists as a social group. However, online harassment often targets multiple social identities simultaneously, including gender, ethnicity, nationality, or political orientation. Such identities may interact with professional identity in

shaping bystander reactions. Because our stimuli intentionally minimized such identity cues, the present study cannot determine how professional and other social identities jointly influence responses to harassment. Although we preregistered a gender manipulation, participants did not reliably recognize the portrayed scientists' gender. This likely reflects the low salience of gender cues in our stimuli rather than suggesting that gender is unimportant in real-world harassment contexts, where attacks are often explicitly gendered (e.g., Global Witness, 2023; Gosse et al., 2021).

Furthermore, we employed quite strong manipulations by comparing a condition with several harassment comments with one with no comments at all, which may partially explain the magnitude of our effects (e.g., on anxiety). This design choice was made to isolate the effect of exposure to harassment comments. Although one could argue that our setup is somewhat unrealistic, as on social media individuals are likely exposed to a broader mix of supportive, neutral, and hostile responses, it could also represent a scenario in which harassment comments are the first reaction to a scientist's posting. In any case, future research should investigate bystander scientists' reactions in more socially contextualized settings, including situations involving known scientists, discipline-specific identification, mixed comment environments and in which gender and other social identities are more salient.

Finally, a further limitation concerns the exploratory analysis of gender-matching effects between participants and the target scientist. Although this possibility was preregistered, recognition of the gender manipulation was uneven across conditions, and the study was not optimized to detect potentially small amplification effects arising from shared gender identity among participants who already shared a salient professional identity with the target scientist (Sommet et al., 2023). Future research with substantially larger samples would be needed to provide a more definitive test of such interaction effects.

Despite these limitations, our study demonstrates that online harassment can affect bystander scientists, particularly by increasing anxiety and negative presumed influence. Our findings underscore the far-reaching implications of harassment in the context of science communication and the urgency to address it. As demands on scientists to engage with the public continue to grow, institutions that encourage public outreach should also provide the infrastructure that makes it sustainable. In a broader sense, mitigating the effects of harassment on both directly affected scientists and bystander scientists is not only a matter of individual well-being, but also a practical prerequisite for maintaining resilient science communication.

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Ethical Considerations

We received approval of the Institutional Review Board of the Department of Communication at the University of Vienna (20230316_013) on 16.03.2023.

Consent to Participate

All participants provided informed consent before beginning the survey and were clearly informed that their participation was voluntary, in accordance with GDPR guidelines. All participants received a detailed debriefing at the end of the study.

Author Contributions

Conceptualization (JLE, CS, AB), methodological implementation (JLE, CS, AB), data analysis (JLE, CS), writing: original draft (JLE, CS), writing: review & editing (JLE, CS).

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Data Availability Statements

The data are not publicly available because participants were assured during consent that the data would not be shared publicly due to the sensitive nature of the topic. De-identified data may be made available upon reasonable request, subject to ethical review and a data-use agreement.

Supplemental Material

Supplemental material for this article is available online.

Notes

1. https://osf.io/g6487?view_only=f011ebdcd22649e8a77ee293e7146630
We deviate from this preregistration in some minor aspects as outlined in Supplemental Appendix A.

2. Stimulus examples can be found in Supplemental Appendix B.
3. To estimate the required sample size for the mediation model, an additional simulation-based power analysis was conducted using the Monte Carlo Power Analysis for Indirect Effects approach (Schoemann et al., 2017). Assuming small associations between the independent variable, mediator, and dependent variable ($r = .20$), the analysis indicated that a sample size of approximately $N = 335$ would provide 80% power to detect an indirect effect. Because the proposed model additionally included interaction effects, which generally require larger samples, we aimed to recruit substantially more participants. Recruitment of scientists for this study could not be conducted via a panel provider and instead relied on direct recruitment by the authors. Given the uncertainty regarding response rates, we therefore targeted a sample size between $N = 550$ and $N = 713$. The final sample comprised $N = 846$ participants, exceeding the sample size required for detecting the hypothesized mediation effects. At the same time, it should be noted that the present power analysis specifically pertains to the mediation model and does not constitute a formal power analysis for the moderated mediation model. As power requirements for interaction and moderated mediation effects are typically substantially larger and depend on several additional parameters, results concerning moderated mediation should be interpreted with greater caution.
4. In all analyses, we control for the experimental factor “scientist gender,” to account for any residual effects of the gender manipulation; this factor is never significant and does not alter the results.
5. The coefficient varies minimally between the models due to different sample sizes.
6. As recommended by Hayes (2022; Hayes & Cai, 2007), we used heteroscedasticity-consistent standard errors estimators (HC3) in all our analyses (even though the White test and Breusch Pagan test were (marginally) significant for only two of our variables (i.e., anxiety, presumed influence on public).

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