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[^0]Jonas Radl, Shaheen Motala-Timol, and the GYA Women in Science Working Group



Figure 1: Sample description by member status

This article presents key findings from a survey carried out among GYA members and alumni in 2021 about workplace challenges in science. This survey was implemented by the GYA's Women in Science Working Group, with support by the GYA Office. The two principal domains that the survey set out to cover were 1) workplace policies promoting gender equality, and 2) experiences of discrimination and harassment. This article outlines the key insights gained based on evidence contained in the survey.

## Background

Prompted by the "Me Too" movement, during the 2018 AGM in Thailand the GYA Women in Science Working Group began discussing plans to develop a survey about the harassment of women in academia. The scope of the survey grew over time, and eventually covered a broader range of related workplace issues. Moreover, instead of only surveying women, it was also directed to men and non-binary members of the GYA. The goal was to map the incidence of different forms of discrimination and violence experienced at work by excellent young scientists around the world, with particular focus on gender differences in the nature and intensity of workplace challenges.

## Data

The survey was fielded between February and June 2021 and implemented using an online tool hosted on the GYA website. Invitations were sent exclusively through GYA channels, including emails, the GYA Newsletter, and message groups. There was also a dedicated announcement at the virtual 2021 AGM, during the "Women in Science" Forum session, to stimulate participation.

A total of 87 people completed the questionnaire. As shown in Figure 1 (above), 66 GYA members and 21 GYA alumni took part. With a membership of 200
members and 298 alumni at the time of the survey, this means that $33 \%$ of current GYA members participated in the survey, but only $7 \%$ of the alumni did so. The average age of respondents was 41.7 years, with a range of 32 to 56 (and one outlier aged 71).

Next, we consider the composition of the sample by scientific discipline. The breakdown in Figure 2 (below) shows a dominance by the Natural Sciences, which accounted for almost half of the received responses, followed by the Applied Sciences with around one-quarter, and the Social Sciences with less than one-fifth. There were few respondents from the Arts and Humanities or Formal Sciences.


Figure 2: Sample description by main scientific discipline

Figure 3 shows the geographical coverage of the survey according to the continent where the respondents worked. Overall, the survey achieved fine geographical balance. The largest representations come from Europe and Asia, but we also see fair levels of participation from Africa and North America. While the share of Oceania is small, it is not far off what we would expect. The only corner of the world where the survey could not reach a roughly commensurate number of respondents was South America (see Figure 3).

Figure 4 displays the sample composition according to gender. With a survey run by the Women in Science Working Group, it is unsurprising that a majority of women participated in the survey. Nevertheless, more than every third respondent was male, and there was one non-binary respondent as well (see Figure 4).

## Workplace policies

The survey asked GYA members about the share of women working at their respective workplaces. As Figure 5 illustrates, the gender distribution at the covered institutions is fairly equal, although there are somewhat more workplaces with fewer than $20 \%$ women than workplaces with more than $80 \%$ women (see Figure 5).

One of the key motivations of the survey was to learn more about gender equality at the workplaces of outstanding young scientists around the globe. Figure 6 shows that in half of the institutions where GYA members and alumni work, there is a formal gender equality policy in place. In contrast, having an actual quota in place to fix minimum proportions of women in certain positions was still very rare (only 7\% of respondents replied positively).

Somewhat more widespread were affirmative action plans, which are reported by $20 \%$ of the survey participants. In terms of pay, around two-thirds considered that men and women are equally remunerated for doing the same work, while $13 \%$ contend that this is not the case. In all cases, there is a fairly high proportion of people who did not know what policies and practices exist at their own institutions (see Figure 6 , top of next page).

## Workplace culture

The second key domain that the survey was designed to capture is perceived discrimination and harassment. A first question tapping into this sensitive theme was whether people felt comfortable voicing their professional opinions. In general, this is the case for the majority of respondents. However, there are notable gender differences in the answers, and it is


Figure 3: Sample description by continent [place of work]


Figure 4: Sample description by gender


Figure 5: Proportion of women at the workplace



Figure 6: Workplace policies for gender equality
worth mentioning that every third participating female scientist did not agree or strongly agree with this statement (see Figure 7 below).

Another well-known issue is that women's competence is questioned more often than men's, and the survey tried to find out whether this is a problem among the outstanding female scientists in the



GYA too. As Figure 8 demonstrates, it very clearly is. There was about a 20 percentage point gap in the agreement with this sentiment between male and female scientists. Even among the emerging scientific leaders that make up the GYA, women more often feel that their competence is in doubt and that they need to show their worth more than their peers (see Figure 8 below).


Figure 7: Level of agreement with the statement "I am comfortable to voice my professional opinion at my workplace", by respondent's gender


Figure 8: Level of agreement with the statement "I have to provide more evidence of my competence than other colleagues in the same position", by respondent's gender

A similar notion is expressed in the statement "My judgement is questioned in my field of expertise". Figure 9 displays the evidence from the survey. Whereas more than one-third of women either agreed (30\%) or strongly agreed (5\%) with this statement, this perception was much more marginal among men ( $14 \%$ agree, $4 \%$ strongly agree; see Figure 9).

## Discrimination and harassment

Coming to the most problematic dimension, we also asked members of the GYA community whether they believe they had been discriminated against at their workplace because of their gender. As Figure 10 illustrates, more female scientists felt discriminated against based on gender (36\%) than did male scientists (7\%). The instances in which this discrimination took place (details not shown), were focused on recruitment, selection, and promotion, but also frequently in everyday situations. About one-third of those who perceived discrimination reported multiple instances.

A tangible case of everyday discrimination are hurtful comments directed at women. Thus, another question was posed regarding how frequently people heard demeaning remarks about women at their workplace. The findings displayed in Figure 11 are very telling. There are very few men who report hearing such comments either sometimes or often. By contrast, more than half of the women report hearing such remarks about women at their workplaces.

This finding is striking. Of course, GYA members and alumni almost never work in the same places, but it is unlikely that men would systematically work in more gender-inclusive environments than women. This disconnect in perceptions seems to indicate that even men such as those willing to participate in the GYA "Women in Science" survey tend to be somewhat insensitive or oblivious to hurtful words in an academic work setting, even if only subtly misogynistic.

Sexual harassment is a very serious issue threatening the integrity of workplaces, and the abuses brought to light by the "Me Too" movement were the original impetus to undertake this survey. The prevalence of sexual harassment in academia is not properly understood yet. Figure 12 shows the incidence of reported sexual harassment among GYA respondents. According to this evidence, $9 \%$ of female and $7 \%$ of male scientists have been victims of sexual harassment during the last five years. This gender difference is smaller than was expected. Surprisingly, there was a slightly larger share of men who did not know or could not answer this question.


Figure 9: Level of agreement with the statement "My judgement is questioned in my field of expertise", by respondent's gender


Figure 10: Self-perceived gender-based discrimination, by respondents' gender


Figure 11: "How frequently do you hear demeaning remarks about women at your workplace," by respondent's gender


Figure 12: "Have you been subjected to sexual harassment at your workplace during the last 5 years", by respondent's gender

When following up on the specifics of these incidents of harassment, these most often involved sexual comments and jokes, but there were also cases of personal space being invaded in a sexual way, sexual gestures, and even inappropriate sexual touching. In half of the cases the perpetrator was a senior colleague or supervisor, and more than half were male. The incidents were never reported to the authorities, mostly due to fear of adverse consequences of reporting the harassment. In the one incident that was reported, the authorities did not handle the situation in a satisfactory manner for the victim.

## Conclusions

Based on a survey carried out among members and alumni of the GYA, this article has delivered new evidence about issues with diversity policies, workplace culture and gendered experiences of marginalization, discrimination, and harassment. We offer three main conclusions.

## Wide diversity of gender equality policies

There is a high degree of heterogeneity in the workplace settings of GYA members and alumni as it pertains to diversity. The share of women in these workplaces varies greatly, and so do the policies directed at managing diversity. There is a formal gender equality policy at about half of the covered institutions, while affirmative action is less common, and an actual quota system exists only rarely. Nevertheless, the majority of respondents perceives equal pay for men and women in the same positions.

## Tense workplace cultures

Below the surface of formal policies, the GYA survey reveals a worrying amount of tension in workplace cultures. Female scientists often find themselves in vulnerable positions. Compared to surveyed men, women were twice as likely to feel that they have to provide more evidence of their competence than their colleagues. Similarly, they were twice as prone to perceive that their professional judgment is being questioned.

## Discrimination and harassment

Sadly, the survey confirmed prior expectations regarding experiences of discrimination. Women were much more likely than men to report having been discriminated against based on their gender. More than every third female scientist feels this way, and more than half of them hear demeaning remarks about women with some regularity. These numbers reflect a persisting climate of patriarchy in many albeit gladly not the majority of - academic contexts that feature high-level young scientists.

Finally, $9 \%$ of female as well as 7\% of male GYA scientists responding to the survey report having been
subjected to sexual harassment during the last 5 years at their workplaces. While this is fortunately a minority, and the gender gap is smaller than anticipated, the survey demonstrates that not even the high-achieving young scientists that become members of the GYA are protected from such abusive workplace practices.

Jonas Radl is an Associate Professor of Sociology at the Department of Social Sciences of Universidad Carlos III de Madrid, Spain, and Head of a Research Group at WZB Berlin Social Science Center, Germany. Shaheen Motala-Timol is a chemistry-trained higher education professional and quality assurance practitioner for the Higher Education Commission, Mauritius.
Email: jradl@clio.uc3m.es; smotalatimol@gmail.com


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