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Ending Sexual Harassment in Science: Designing and Administering a Survey That Can Lead to an Improved Organizational Climate

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Abstract

Workplace harassment, particularly sexual harassment, has substantial negative implications for individuals and organizations and for scientific advancement. The National Institutes of Health (NIH) is uniquely positioned to lead the effort to prevent sexual harassment in the scientific community and mitigate its detrimental effects. Recognizing the need for benchmark data, NIH developed and validated the 2019 NIH Workplace Climate and Harassment Survey. The goal was to use best practices in survey design methods to create an instrument for rigorous assessment of harassment incidence and organizational climate predictors of sexual harassment in scientific research environments. This article summarizes the processes used to design and administer the NIH survey and provides brief descriptions of 3 products of the process developed to guide scientific institutions wishing to embark on a data-driven approach to assess and prevent harassment: a document detailing survey development and methods; a survey implementation guide; and the key findings obtained from the survey, including recommendations for interventions targeting organizational climate at NIH and limitations of the survey. The survey identified that 1 in 5 respondents had experienced sexual harassment in the 12 months preceding their participation in the survey and that women, sexual and gender minorities, younger respondents, trainees/students, and individuals with a disability were more likely to have experienced sexual harassment. Those who had experienced sexual harassment during that period were also more likely to have experienced incivility, bullying, and intimidating behaviors in the workplace. NIH intends to use the survey findings as a quality assurance and quality improvement guide to inform future activities to prevent and address harassment across NIH.
Sexual harassment is a pervasive problem in the scientific community that harms the careers, well-being, and health of the targets of this harassment and undermines our society’s investment in science. As the largest public funder of biomedical research, the National Institutes of Health (NIH) is uniquely positioned to catalyze transformational culture change in scientific environments to prevent sexual harassment and mitigate its detrimental effects. In 2016, NIH Director Dr. Francis Collins and senior leaders pledged to identify the steps necessary to end harassment in all NIH-supported research workplaces and scientific meetings. As part of NIH’s effort to gather more information, the agency cosponsored the National Academies of Sciences, Engineering, and Medicine’s (NASEM’s) 2018 consensus study on sexual harassment in science. NIH also established a working group of the NIH Advisory Committee to the Director (ACD) to develop actionable recommendations to end harassment at NIH-funded institutions across the United States. Recognizing the need for benchmark data, NIH developed and validated the NIH Workplace Climate and Harassment Survey, led by a cross-functional survey oversight team (the authors of this paper). Our goal was to use best practices in survey design methods to create an instrument for rigorous assessment of the incidence and organizational climate predictors of sexual harassment in scientific research environments.

This article summarizes the processes used to design and administer the NIH survey and provides brief descriptions of 3 products of the process that might be helpful to scientific institutions wishing to embark on a data-driven approach to prevent harassment: a document detailing survey development and methods; a survey implementation guide; and key findings of the survey, including recommendations for interventions that target organizational climate and limitations of the survey.
Background

The NASEM report provides an in-depth review of sexual harassment in science and offers recommendations to end harassment in the scientific community. The NASEM report and, subsequently, the NIH Workplace Climate and Harassment Survey, delineate 3 subtypes of sexual harassment: (1) gender harassment, or behaviors conveying “hostility, exclusion, or second-class status about members of one’s gender”; (2) unwanted sexual attention, or “unwelcome sexual advances, which can include assault”; and (3) sexual coercion, or situations in which “favorable professional or educational treatment is conditioned on sexual activity.”

An important finding from the NASEM study that underscored our rationale for the NIH survey was that the incidence of sexual harassment is strongly correlated with measurable elements of organizational climates, suggesting untapped opportunities for prevention. These elements include a permissiveness of sexual harassment and sexist views, environments where men outnumber women or leadership is male dominated, perceived risk to the targets for reporting harassment, lack of sanctions against offenders, and perceptions that complaints will not be taken seriously. Paucity of reporting is particularly problematic for gender harassment because many people do not realize that this is a form of sexual harassment. The NASEM report concluded that gender harassment is the most common form of sexual harassment. Indeed, gender harassment carries consequences as devastating as those of sexual coercion, inappropriate attention, and sexual assault, although these latter 3 types of experience exclusively constitute the legal definitions of sexual harassment. Moreover, if the only path to intervention is encouraging individuals experiencing harassment to report incidents that occur, then most harassment will not be addressed or prevented. The consequence of harassment remaining unaddressed is an untenable situation that organizations must avoid to truly change workplace
climates and improve the culture. Formal reporting procedures should be augmented with proactive approaches to fix the organizational climates that underlie harassment, including efforts to enhance civility, respectful behavior, and intolerance for sexual harassment. Respectful behavior is essential for prevention because sexual harassment often takes place against a backdrop of incivility or an environment of generalized disrespect. This is especially true of gender harassment, which is associated with the highest rates of incivility, and research supports that a culture of respect is key to preventing sexual harassment.\(^6\) Therefore, rigorous assessment of incivility is essential for the appropriate design of strategies to prevent sexual harassment and provides benchmarks for measuring progress.\(^10\)

**Survey Goals and Development**

As part of a comprehensive NIH antiharassment program launched in 2017, the NIH survey was designed to assess organizational climate and incivility, in the context of the full range of sexual harassment experiences, including gender harassment, inappropriate sexual attention, sexual assault, and sexual coercion.\(^11\)

Four specific goals drove the survey design: (1) to determine the extent of sexual harassment and vulnerable populations at NIH; (2) to inform policy efforts by identifying potential factors associated with harassment; (3) to assess how NIH, through its supervisors and current harassment reporting systems, responds to those who have been harassed, and to use this information to improve its antiharassment policies and systems; and (4) to establish a baseline assessment of harassment and associated factors to evaluate NIH’s progress on this issue via future survey administrations. Our underlying expectation is that the survey results will inform solutions to create a respectful workplace and be disseminated nationally to encourage rigorous assessment of harassment in research workplaces across scientific communities nationally and
internationally. While NIH is a large federal agency with its own unique organizational structure, academic institutions and other entities may find it useful to refer to the survey, methods, and lessons described in the products of the process as they seek to initiate their own survey to assess the workplace climate. The parallels are not direct; however, the information may be instructive to support culture change efforts.

To achieve the survey goals, our internal oversight team, which included representation from the NIH Scientific Workforce Diversity Office and the Office of Behavioral and Social Sciences Research, formed an NIH survey team that consisted of behavioral scientists and senior leaders. We also convened an expert panel of 4 national leaders with expertise in sexual harassment research, measurement of sexual and gender harassment in organizational settings, workplace harassment and incivility, and survey methodology. The expert panel provided insights on the conceptual model for the survey, factors to assess in a workplace survey of sexual harassment, and key content areas for the survey items selected. The expert panel’s determinations were presented to the ACD for approval. The survey development document details our processes for item selection and development. It also describes modifications to the previously studied Sexual Experiences Questionnaire, response options, phased cognitive testing, validation, and pilot testing. The approach taken to assess incivility and bullying, job gender context, and organizational climate perceptions of equity and perceived support by supervisors is explained. In addition, based on extensive research demonstrating the impact of sexual harassment on job and health outcomes, the NIH survey assessed job satisfaction, various types of work avoidance, and physical and mental health. These stepwise processes led to the final version of the survey instrument with up to 72 items (depending on skip logic) that took approximately 30 minutes for respondents to complete.
Strategies to Ensure Anonymity and a Robust Response Rate

The survey was fielded from January 28 to March 25, 2019, to the NIH internal community, encompassing all supervisory and nonsupervisory federal employees, trainees, and contract and volunteer staff. Because the NIH Workplace Climate and Harassment Survey was designed to be used as a quality improvement tool or a needs assessment, as the NASEM report encourages, an important consideration in its design and fielding was how best to protect respondent anonymity, while ensuring a robust response rate. The survey asks about sensitive, distressing, and potentially traumatic experiences, with a heightened risk of reidentification or disclosure because the participants’ employer, NIH, commissioned the survey. NIH staff were very concerned that if the sensitive experiences participants disclosed were linked to their identity, the responses could be used in a retaliatory manner by the perpetrator, supervisor, or others in management. This concern was addressed by creating a firewall between NIH staff and the contractor who administered, stored, and analyzed the data. No one from NIH has ever had or will have access to individual-level data. Instead, the contractor analyzed the survey responses and provided the results in aggregated form to NIH. To further ensure confidentiality, the contractor agreed not to provide data on any data cell that represented fewer than 15 responses. At NIH, there are some small Institutes, Centers, and Offices (ICOs) where the anonymous survey respondents might have provided responses to a demographic question and an employee category which, when combined, would leave the individuals vulnerable to being identified. NIH scientists, administrators, and employees who have participated in other surveys over the years provided input on the minimal data cell size. The context of the NIH community, the size of the sample, the sensitivity of the data, and the analyses informed this important decision. The contractor also instituted additional confidentiality safeguards: The survey responses were initially associated
with the participants’ email address for survey administration and individualized reminders. When the survey administration was completed, all email contact information was deleted, resulting in an anonymized dataset consisting of survey responses only. Finally, the survey instrument itself was optimized to ensure confidentiality. There were no opportunities for open-ended responses (thus eliminating the possibility of collecting unanticipated identifiable information about respondents or their experiences), and respondents were not asked to indicate their work unit other than their NIH ICO. These processes to ensure anonymity were communicated to the NIH community in all promotional materials about the survey, including presentations and town halls, and were described on the first page of the questionnaire. Recognizing that the relatively low response rates (20% to 30%)\(^{12-14}\) for many published sexual harassment reports limits the interpretation and generalizability of the results, the survey leadership team developed a detailed and well-orchestrated communication plan that leveraged the influence of NIH leadership to increase participation. The survey development document details our plan to optimize participation rates, including a communication and outreach campaign; the formation of *survey champions*; prelaunch communications informing multiple audiences about the survey; and postlaunch communications from the contractor administering the survey, including invitations to participate and reminder emails in the case of no or a partial survey response. The survey champions comprised members from each of the 27 NIH Institutes, tasked with encouraging survey response at their organizations. The survey team met regularly with survey champions throughout the administration period to brainstorm strategies to increase participation, exchange lessons learned, and provide technical updates on progress. Overall, strategic communications efforts resulted in 15,794 survey responses out of the 36,228 invitations sent to valid email addresses—a response rate of 44%. Efforts to increase the
response rate in the future might include extending the duration of the survey, creating the survey in a second language, offering paper and pencil options for those staff who do not use computers as part of their job, and heightening the marketing and communications campaign.

**The Survey Implementation Guide**

Reflecting on the lessons learned during survey design and fielding, we developed a survey implementation guide that provides annotations to the NIH Workplace Climate and Harassment Survey, with the expectation that this will provide guidance for customization by other institutions.⁴ Our goal is to catalyze standardized collection of data across NIH-funded institutions, sharing of results, and dissemination of strategies to end harassment in biomedical research, in accordance with the December 2019 recommendations from the ACD.¹⁵ The survey implementation guide also serves as a codebook or data dictionary for others who may wish to further analyze the survey data. As noted previously, only the contractor has access to the individual-level data; therefore, NIH is setting up a data access committee to which investigators can propose further analyses based on the survey implementation guide variable names and values. Once approved by this committee, the investigator can hire the survey contractor to perform the analyses, thereby preventing investigators from having access to individual-level data while being consistent with NIH’s values regarding data transparency and reproducibility.¹⁶

**Key Results of the Survey Used to Guide Prevention Strategies**

The report of the findings from the NIH Workplace Climate and Harassment Survey are described elsewhere.⁴ Below we provide some of the key findings from this report and actions NIH has taken as a result of these findings.
One in five survey respondents had experienced sexual harassment in the 12 months preceding their participation in the survey; women, sexual and gender minorities, younger respondents, trainees/students, and individuals with a disability were more likely to experience sexual harassment. To address these and other key findings, NIH is focused on an evidence-based approach to organizational change that also matches the unique aspects of the NIH culture and community. For example, ongoing NIH-wide antiharassment awareness and education efforts will continue with enhanced focus on the vulnerable groups identified in the survey. NIH will target primary prevention and intervention programs\textsuperscript{17,18} for vulnerable groups and put in place measures to issue sanctions consistently and equitably to ensure zero tolerance.

When asked about repercussions of harassment, 50\% of respondents experiencing sexual harassment in the 12 months preceding their participation in the survey indicated their work conditions worsened as a result of the harassment, and 43\% indicated that they were the subject of unkind gossip from coworkers; some indicated facing severe repercussions, such as being denied training opportunities (12\%). Overall, respondents experiencing sexual harassment had poorer self-rated physical and mental health and were less satisfied with their jobs, compared with respondents who had not experienced sexual harassment. These findings underscore the need to change the organizational culture related to harassment and to lay the groundwork for enhanced witness or bystander training. This training is an effective approach\textsuperscript{19,20} for increasing awareness about how a witness to a sexual harassment incident or an employee who has been told of an incident should report it and normalizes the reporting of sexual harassment as part of everyone’s work responsibilities.
Respondents experiencing sexual harassment in the 12 months preceding their participation in the survey were asked about the sexual harassment incident that had the greatest effect on them; less than half (46%) talked about or reported the incident to anyone. Of those that did, the majority talked with a coworker, 24% talked with their manager, and 14% used NIH official channels, such as the NIH Office of Human Resources, NIH Civil Program, or NIH Office of the Ombudsman. Of the 54% who did not discuss the incident with anyone, 78% said it was because they didn’t think the incident was serious enough to report, 65% worried their career might suffer as a result, and 38% didn’t think anything helpful would come from reporting it. Responding to survey respondents’ perception that their experience of sexual harassment would not be taken seriously if reported, NIH will track and publicize sanctions, an approach that should encourage a culture change to zero tolerance of any form of sexual harassment.\(^1\) To address barriers to talking about or reporting harassment, NIH will enhance education regarding resources for reporting or obtaining supportive counseling, while also implementing measures to establish a safe and civil workplace that cultivates trust.

Respondents who had experienced sexual harassment were also more likely to have experienced incivility, bullying, and intimidating behaviors in the workplace, as has been demonstrated in academic institutions.\(^{21,22}\) Among those who had been sexually harassed in the 12 months preceding their participation in the survey, 85% said they had experienced incivility compared with 42% of those who had not been sexually harassed (Figure 1). Of those who had been sexually harassed during the same period, 26% said they had been bullied, compared with 7% of those who had not been sexually harassed. Respondents who had been sexually harassed were also less likely to indicate a perception that NIH would intervene. In addition, they were less
likely to perceive that their supervisors were fair, valued their work, and considered the opinions of others (Figure 2).

To address these findings, NIH will work to establish a safe and civil workplace that cultivates trust and enhances communication to the entire NIH workforce about civility and harassment. NIH will also train supervisors and managers to treat employees equitably in the workplace, enhance supervisor training to model effective discussions about harassment with staff, and increase awareness of when and how to elevate informal complaints and appropriate follow-up.

To ensure leadership accountability, NIH has incorporated critical elements into annual performance evaluations of supervisors. Specifically, details that describe behaviors that comply with the NIH antiharassment policy document entitled “Preventing and Addressing Harassment and Inappropriate Conduct” are enumerated in the Performance Management Appraisal Program (PMAP) for supervisors. The PMAP system is codified through the Code of Federal Regulations and promotes a performance-based culture as reflected in federal laws supporting performance results and human capital accountability and assessment. With the backing of these federal laws and regulations, merit awards, promotion, and associated negative consequences such as demotion, termination, or lack of career progression are connected to antiharassment behaviors. Finally, because research shows that organizational climate represents a range of distinct microcultures, each of the 27 NIH ICOs is required to develop an antiharassment plan, including elements specifically tailored to the survey findings that are unique to their environment.
Limitations

Surveys containing sensitive information often run the risk of nonresponse bias; that is, potential differences between those who chose to respond to the survey (or to certain questions) and those who chose not to respond. The strength of nonresponse bias in the NIH Workplace Climate and Harassment Survey was assessed by comparing survey respondent characteristics to NIH staff characteristics, using a human resources database. Federal employee respondents were compared to all NIH federal employees based on gender, age, and the ICO where they worked. Demographic data for trainees and contractors were not available, so they could not be included in this analysis. There was a significant likelihood that the percentage of women and of young people who responded to the survey would be greater than the percentages of these 2 groups among all federal NIH staff. In addition, ICOS were not proportionately represented in the survey due to varying response rates. Therefore, caution should be exercised in generalizing to the entire population of federal employees, and particularly to the population of contractors and trainees for which there are no population data for comparison to respondents.

Other factors could also limit interpretation of the survey findings, such as the fact that survey respondents were asked about their experiences of harassment in the 12 months preceding their participation in the survey. This period was chosen to lay the groundwork for future surveys. However, the assessment may exclude some respondents who experienced harassment more than 12 months before they completed the survey.

For survey items about the circumstances of the harassment experience and reporting, respondents were asked to consider the experience in the 12 months preceding their participation in the survey that had the greatest effect on them. Therefore, the findings from these questions should not be generalized to all harassment that respondents experienced in the 12 months before
they completed the survey. In addition, some questions ask about respondents’ perceptions of events (e.g., if the respondent knew whether their report of sexual harassment was investigated). However, due to confidentiality during the investigation process, the respondent may not know the true outcome (e.g., whether the report was ultimately investigated and whether the perpetrator was punished).

Finally, the identification of smaller work units was not a response option in the questionnaire. The ICOs therefore used the survey results to develop detailed action plans tailored to the unique needs and context of their organization to create a positive workplace climate and eliminate harassment rather than relying on the survey to provide specific information about smaller programs and offices. The smaller institutes had many data cells with 15 or fewer respondents, which limited the utility of the results beyond examination of the aggregate data. Also, the structure of some questions in the questionnaire were difficult to analyze and thus will be refined in future iterations of the survey. The survey implementation guide provides a description of each section of the questionnaire. The guide also has sections called “opportunities for improvement” and “administration note,” which provide more detailed description of limitations of questions and guidance to institutions for adoption and administration in their unique contexts.

Conclusions
As the premier biomedical research agency in the United States, NIH is committed to playing a leadership role in making progress against harassment and ensuring that its workforce feels safe at work. Findings from the 2019 NIH Workplace Climate and Harassment Survey provide crucial insights in the landscape of harassment and organizational climate at NIH. The survey achieved its objectives by providing an evidence base to inform potential strategies and interventions put forth across NIH ICOs. The survey findings establish a baseline to evaluate
evidence-based interventions to effect change in several critical areas over time. NIH intends the
survey to be a catalyst and a model for other academic scientific institutions to assess their
organizational culture associated with harassment and to develop tailored, evidence-based
intervention strategies. NIH remains dedicated to preventing harassment of all types, including
sexual harassment; addressing harassment as it occurs; supporting individuals experiencing
harassment; and ultimately improving the climate of academic science and research.
References


Figure Legends

**Figure 1** Association between sexual harassment and incivility in the 12 months preceding participation in the survey. 2019 NIH Workplace Climate and Harassment Survey data comparing experiences of workplace incivility between respondents who did not experience sexual harassment in the 12 months preceding their participation in the survey (left) and those who experienced sexual harassment in that period (right). Percentages indicate the percent of respondents in each group (no sexual harassment vs. sexual harassment) who experienced workplace incivility.

**Figure 2** Perceptions of fairness, consideration of opinions, and value for work of NIH supervisor/point of contact. 2019 NIH Workplace Climate and Harassment Survey data comparing 3 survey responses (supervisor is slightly fair or not fair when making decisions affecting work unit; supervisor takes into account opinions of people in the work unit a little or not at all; supervisor values respondent’s work a little or not at all) among respondents experiencing sexual harassment in the 12 months preceding their participation in the survey vs. those not experiencing sexual harassment in that period. Percentages indicate the percent of respondents in each group (no sexual harassment vs. sexual harassment) who selected each response option.
Figure 1

Among respondents not experiencing any sexual harassment in the 12 months preceding their participation in the survey.

Among respondents experiencing any sexual harassment in the 12 months preceding their participation in the survey.
Figure 2

![Bar chart showing percentage of respondents in each group.]

- **No sexual harassment experience**
  - Supervisor is slightly fair or not fair when making decisions affecting work unit: 11%
- **Sexual harassment experience**
  - Supervisor takes into account opinions of people in the work unit a little or not at all: 29%
  - Sexual harassment experience: 39%
- **No sexual harassment experience**
  - Supervisor values respondent's work a little or not at all: 9%
- **Sexual harassment experience**
  - Supervisor values respondent's work a little or not at all: 22%